
MANAGEMENT MEMORANDUM

TO: MAYOR VOLK AND CITY COUNCIL

FROM: JOHN CONNET, CITY MANAGER

SUBJECT: CITY COUNCIL RETREAT

DATE: 2/15/2022

CC: MANAGEMENT TEAM

The 2022 City Council Retreat is scheduled for Friday, March 11, 2022, at the Mountain Inn and Lodge located at 42 McMurray Road, Flat Rock, NC. I have entitled the retreat “Balancing a Growing Community”. It is my pleasure to provide you with your pre-retreat assignment and workbook.

Assignment:

Over the next three weeks please take pictures of the types of residential and commercial developments that you would like to see in Hendersonville. The developments do not have to be in Henderson County. As you take the pictures, consider the following:

1. What do I like about this development?
2. Will this development fit in Hendersonville?
3. Can we build these developments in Hendersonville?
4. What will this development look like in thirty (30) years?
5. How will the development cost impact affordable housing?
6. How will the development cost impact small businesses?
7. How will the development impact the long-term health of the community?
8. What is my legacy?

Once you have taken the pictures, please email or text them to me at jconnet@hvlnc.gov or (828) 606-1410.

Workbook

The workbook is intended to serve as a resource for the retreat and for future discussions. The following information is included in the workbook:

Front Pocket – Year End 2021 Beverly-Hanks Market Report

Tab 1. Retreat Agenda

Tab 2. Holly Springs / Matthews Information

Town History and Speaker Biographies

Tab 3. Economic Resiliency and Census Information

Land of Sky Economic Resilience Exposure Analysis

Basic Census Data – 2000, 2010 and 2020

Tab 4. Recreation Resource Information

Recreation Grant Resources

2017-2018 Recreation Trend Report

Tab 5. Affordable Housing Information

2020 Bowen National Research Housing Study

UNC School of Government Blogs

Conveyance of Local Government Property for Affordable Housing

Local Government Support for Privately Constructed Affordable Housing

Short-Term Rentals: Dwelling Units or Transient Accommodations

Residential Zoning Ordinances and Short-Term Rentals: Square Peg, Round Hole

Occupancy Taxes and Airbnb

Tab 6. Transportation Information

French Broad River MPO – 2045 Metropolitan Transportation Plan

I hope you find the retreat and this information beneficial. If you have any questions or need additional information, please feel free to contact me.

TAB 1

Council Staff Retreat
Bringing Balance to a Growing Community

February 23, 2022 - Workshop

4:00 PM – 6:00 PM

City Operations Center, 305 Williams Street, Hendersonville, NC 28792

- Lessons from others
 - Town of Holly Springs – Mayor Pro Tem Dan Berry and Town Manager Randy Harrington
 - Town of Matthews – Mayor John Higdon and Town Manager Hazen Blodgett

March 11, 2022 - Council- Staff Retreat

8:00 AM -4:00 PM

The Lodge at Flat Rock, 42 McMurry Road, Flat Rock, NC 28731

- Pre-Retreat Homework - Residential and Commercial Development Pictures
- Breakfast will be available at 8:00 AM

- Maintaining and Creating Sense of Place

8:30 AM – 10:00 AM

- Judy Francis, NC Recreation Resource Service
- Hunter Marks, Landscape Architect
- Kieran Roe, Conserving Carolina

- Housing Needs in Henderson County

10:00 AM – Noon

- Patrick Bowen – Bowen International
- Sonny Iller, Beverly Hanks Realty
- Brian Wasser, DR Horton Builders
- Ashlynn McCoy – Housing Assistance Corporation
- Sarah Odio, UNC School of Government

- Lunch

Noon – 12:30 PM

- Growth Impacts on Transportation Corridors

12:30 PM – 2:00 PM

- Wanda Austin, NCDOT
- Tristian Winkler, French Broad River MPO
- Jonathan Guy, Kimley-Horn

- General Discussion / Council Priorities

2:00 PM - 4:00 PM

TAB 2

THE TOWN TODAY



Nestled among Apex, Cary and Fuquay-Varina, all towns experiencing growth from the heavily populated Raleigh and Research Triangle Park areas, Holly Springs is rapidly growing. The Town of less than 1,000 just two decades ago in 1990 has grown to more than 25,000.

While the Town welcomes growth, leaders also are determined to control the quality and placement of new developments while preserving open space and creating public areas. One of the recent focuses has been on encouraging commercial development in downtown Holly Springs.

Part of ensuring a successful downtown was building Town Hall in the heart of Holly Springs. Located at 128 S Main Street, Town Hall is a center of constant activity. Opened in 2003, the 35,000 square-foot, two-story brick building was designed in an architectural style reminiscent of the 19th century when Holly Springs was founded.

A cupola with a large clock that faces Main Street and an outdoor plaza with a fountain behind the building are just two of the building's features. In the lobby, above a display case maintained by the Holly Springs Historical Preservation Society, hangs a historic oil painting of George Washington, dated to the 1700s. The painting hung in 1876 in Carpenter Hall in Philadelphia.

Whether it is the Town's balance of commercial and residential development, its reasonable land prices coupled with its proximity to urban centers, or its small-town charm, new residents and businesses continue to be attracted to Holly Springs.

From the past to the present, from the small-town atmosphere where people still know each other by name to the frequent, unique family-oriented activities, Holly Springs is a town that is continuing to grow not just in population and industry but also in heart.

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ABOUT

Biography

Dan grew up in Chalfont, PA, a suburb of Philadelphia, and a part of Bucks County that was no stranger to rapid growth in the early 2000's.

Dan and his wife Diandra have been residents of Holly Springs since 2012. They chose Holly Springs to plant their roots, make a home, and start a family. They have 3 children ages 3 and under.

Dan was elected to his first 4 year term on the Holly Springs Town Council in November 2017 and re-elected in November 2021. In 2019 Dan was selected by his peers to serve as Mayor Pro Tem, a role he currently holds.

In December 2016 Dan was appointed to the Holly Springs Planning Board in which is tasked with reviewing development plans, proposals, and rezonings to provide a recommendation to the Council on how they should act. He served in this capacity until his election to the Town Council.

Once settled in Holly Springs, Dan used his past leadership experience to start his neighborhood's HOA after the developer turned it over to the homeowners. He was the President of the HOA from it's inception in 2012 through 2017.



DAN BERRY 4 HS

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apparatus Engineer. He also worked for several race tracks on the NASCAR circuit as a track firefighter and incident responder.

Professionally, Dan is a Senior Finance Controller at Cisco Systems where he leads a global team of finance professionals who support a large sales organization in the company's Webex business.

Dan holds a BS in Business Finance from Penn State University and an MBA from Saint Joseph's University.

He was awarded the rank of Eagle Scout in 2003 and holds all 3 palms for extra achievement above the Eagle rank.

Most of Dan's time outside of his professional and elected endeavors are spent managing the madness of having 3 young children, but he is an avid outdoorsman who enjoys boating, hunting, fishing, and playing golf. He is a loyal Philadelphia sports fan, where there is always next year.

Paid for by the Committee to Elect Dan Berry

ADMINISTRATION - TOWN MANAGER

Randy Harrington became Holly Springs' town manager in August 2018 after 11 years with the city of Charlotte, where he served in roles as Budget & Evaluation director and later as chief financial officer and director of Management & Financial Services prior to joining the Town of Holly Springs.

Before joining the City of Charlotte, he worked for the City of Concord as budget and performance manager and as budget and management analyst.

A native of Nebraska, Harrington has a bachelor's degree in political science with minors in economics and criminal justice from Nebraska Wesleyan University. He has a master's degree in public administration from the University of North Carolina at Chapel Hill.

Harrington is also a graduate of the Municipal and County Administration course at the University of North Carolina at Chapel Hill, the Public Executive Leadership Academy at the University of North Carolina at Chapel Hill, and the LEAD Program at the University of Virginia.

The Town of Holly Springs employs two assistant town managers – Daniel Weeks who has served in this role since 2015 and J. Scott Chase who began with the Town in 2019.

[Organizational structure of Holly Springs town government.](#)



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The Origin of Matthews

Nestled between Charlotte and Monroe, the area now known as Matthews was unspoiled rolling woodlands with large stands of trees. By the early 1800s, this rich and inviting land attracted our early settlers, who were mainly farmers. In the vicinity lay the trading trails, game-rich hunting grounds and the ancestral homes of the Waxhaw and Catawba Indians. These farmers began clearing the land for planting around the start of the 19th century. Cotton grew well and soon became the primary cash crop. As the land was cleared for planting, so many tree stumps were left standing that the early settlement was unofficially known as Stumptown.

From Stagecoaches to Railroads

Postal records show in July 1825, John Miles Fullwood was appointed area postmaster. Mr. Fullwood operated a stagecoach depot, store and post office from his home. The mail was addressed to Fullwood Station; gradually, Stumptown became known as Fullwood. Soon after the Civil War, a sawmill was established in the Fullwood area, along with additional houses and stores. With cotton and timber fueling the expansion, Fullwood evolved from a fledgling community into a town. By 1870, more businesses and homes began to appear.

Prior to 1874, transportation in the Fullwood area was limited to horses and stagecoaches. Fullwood was an important stagecoach stop between Charlotte and Monroe. The stagecoach era faded in 1874 when railroads came steaming into the area. The Central Carolina Railroad, later known as the Seaboard Air Line Railroad, ran spur tracks off their main Wilmington-Tennessee line through the small town. The spur connected Fullwood with Wilmington to the east and Rutherford to the west. The first train rolled into town on Dec. 15, 1874. The Railroad named the stop Matthews in honor of Edward Matthews, a director in the company. With the first train came great change to the sleepy little community. Now farmers, merchants and citizens were connected to other areas of North Carolina and the United States.

Matthews Incorporates

By 1875, mail was addressed to the Matthews Station and the name Fullwood gradually disappeared. The water tank, painted by the depot, was actually located one-fourth mile down the tracks in the area called Tank Town, now the Crestdale area. The depot, which is located to the right of the current library, was constructed in the late 1880s by the Carolina Central Railway.

The Presbyterian, Baptist and Methodist churches were all organized in 1877. They still flourish in Matthews along with many churches representing other faiths.

In 1879, Matthews was incorporated as a municipal corporation in the state of North Carolina. Jeremiah Solomon Reid headed a committee to secure the town charter. The town's official name became Matthews, in honor of Edward Matthews. In 1880, the official census listed 191 residents.

Growth and Development

The population was growing; stores sprang up and Matthews was on its way to becoming a bustling community. In 1884, eight merchants were listed in Matthews. The charming Reid House was built in 1890 by Edward Solomon Reid. Built in the Queen Anne Style Victorian, it is now used for special events. It remained in the Reid Family almost 100 years and is now owned by the Matthews Historical Foundation. The Funderburk General Merchandise Store was built in the late 1800s and still has its original tin ceiling and brick walls. By 1901, cotton gins were busy handling the local harvest. Three general stores, a bank, a drug store, a hotel, gristmill, livery stable and blacksmith shop formed the heart of Matthews. The first telephones were installed when a privately-owned switchboard was brought to town. It served about twenty subscribers.

Matthews continued to grow, and the railroad remained an important and integral part of the community. Matthews' modern brick school opened in 1907. A building of up-to-date design, it was named by the NC General Assembly as one of the only two Mecklenburg County schools designated as a rural public high school. The Matthews Drug Company relocated to its new location at the corner of Trade and John Streets in 1910. The center of town activities, it served the citizens' needs with fountain service, doctor's offices, dairy products, ice delivery and bus tickets. It was destroyed by fire in 1972.

In 1918, the Matthews African-American School opened in Tank Town, now the Crestdale community, serving local students. It closed in 1966 with integration and the building burned in 1975. Crestdale dates to the 1860s and is one of North Carolina's oldest African American communities.

By the early 1920s, Matthews was surrounded by cotton fields. Cotton was king and ginning was big business. Several businesses operated gins in town. The Renfrows, who had established a general store by 1900, started their cotton gin in 1906 and eventually had four gins working in the same building. The Matthews Livery Stable and Bank of Matthews were town focal points during this time period. Built by the Funderburks in the early 1900s, they survived fire, the Depression and a robbery. In 1976, BB&T and the Bank of Matthews merged. The decision was made to demolish these landmarks to accommodate a new bank building.

By 1926, electric service had come to Matthews. Many citizens worked diligently to acquire rights-of-way and permission for lines and poles. The Matthews School was remodeled in 1912 and again in 1928 to fit the growing needs of the community. The Matthews Public Library has been an important part of our past for over 80 years. It first opened its doors in the 1920s on the second floor room above the Matthews Drug Company. Outgrowing the room, it moved to the basement of the same building. Before the library moved to the livery stable in 1933, it occupied a corner of Renfrow's Store. By the 1950s, more space was needed and in 1957 it opened at 124 West John St., next to the Reid House.

The New Century

Today, Matthews' population has grown to over 30,000 citizens. Keeping pace with development in the area, Matthews' city limits now encompass 17 square miles. There are hotels, restaurants, shopping centers, recreational facilities and a hospital. In 1996, the National Register of Historic Places listed 10 downtown buildings in Matthews. Known as Matthews Commercial District, they comprise a small, but remarkably intact, collection of structures dating from the late 19th to the early 20th century.

On Oct. 2, 2000, the ground breaking ceremony for the new Matthews Town Hall and Library took place with Mayor Lee Myers, town council members and Mecklenburg County library officials turning the first shovels of land. A partnership was established between the Town and the PLCMC (Public Library of Charlotte and Mecklenburg County) to work together to build the new library. A Library Furnishings Committee

**Mayor John Higdon**

After serving three terms as Commissioner and two as Mayor Pro-Tem, John Higdon was elected Mayor of Matthews in 2019. He is now serving his second term. John graduated from South Mecklenburg High School and earned a degree in Aerospace Engineering from North Carolina State University. John is a partner in Supply Source Products, a valve and fitting distribution company, and currently serves as Chief Engineering Officer. John and his wife Penny have two grown children, Summer and Jed. The Higdon family has resided in Matthews since 2001 and attend Matthews United Methodist Church. John has volunteered extensively in the community including at MARA, Boy Scouts, Charlotte-Mecklenburg Schools, the Ashley Creek Homeowners Association, Men's Shelter of Charlotte, Mecklenburg County Floodplain Task Force and the Matthews Appearance and Tree and Economic Development Advisory Committees. John currently serves on the Metropolitan Transit Commission (MTC) and Charlotte Regional Transportation Planning Organization (CRTPO).



Our Town Manager, Hazen Blodgett, has been with the Town of Matthews for 18 years and worked in local government for over 37 years. Hazen has a B.A. from Louisiana State University and a Masters in Public Administration from the University of North Carolina. Upon receiving his Masters Degree he went to work as the Assistant County Manager in Halifax County, NC.

Hazen is married with four kids. He lives in Matthews and is on the Board of the Matthews Rotary Club. In his spare time, he enjoys mountain bike riding, yoga, beekeeping, and trips to the Matthews Farmers Market.

TAB 3



Land of Sky Region Economic Resilience Exposure Analysis

Phase I Report

June 2018



Disclaimer

This draft analysis is a working document and should not be considered final; all information contained herein is subject to change. The analysis is based on best available information for specific threats and assets at the time the analysis was conducted. Quantitative results presented herein are preliminary and are based on data with inherent uncertainties and generalized assumptions; site-specific evaluations of vulnerability and risk are beyond the scope of this assessment and should be reserved for a detailed evaluation of specific adaptation measures. Updates will be provided as new information is made available and key findings are re-assessed accordingly.

Suggested citation

Hall, Nina Flagler, James Fox, and Dave Michelson. *Economic Resilience Exposure Analysis: Phase I Report for the Land of Sky Regional Council*. Asheville, NC: UNC Asheville's National Environmental Modeling and Analysis Center, June 2018.

Table of contents

Executive summary	5
Introduction	6
Project teams	7
Core project team	7
Participant team	7
NEMAC team	8
The Land of Sky region	9
What is community resilience?	11
Overview of the “Steps to Resilience”	12
Step 1 Explore threats & hazards	14
Climate stressors	15
Heavy precipitation events	15
Drought	18
Temperature variability	19
Non-climate stressors	22
Population and demographics	23
Economics	24
Climate-related threats	25
Flooding	27
Landslides	28
Wildfire	30
Assets	31
Step 2 Assess vulnerability & risks—exposure analysis	32
Regional scale overview	33
Assets	34
Demographics and socioeconomics	36
Threats	43
Asset-threat pair exposure	44
Industrial properties exposure	45
Institutional properties exposure	46
Office properties exposure	47
Retail properties exposure	48
Utility properties exposure	49
Roads exposure	50

References	51
Appendix A: Analysis Technical Documentation	53
Process overview	53
Asset data normalization and categorization	53
Spatial relation of individual assets to hazard layers	54
Aggregation of exposure to census tracts	54
Data sources	56
Table 1: Hazard data sources	56
Table 2: Asset and socioeconomic data sources	56
Asset group classification	57
Parcel-based asset groups	57
Parcel assessment and summary statistics	58
Non-parcel feature asset groups	58

Executive summary

To become better prepared as it faces both existing hazards and a changing environment, the Land of Sky region of western North Carolina—which, for purposes of this project, includes the counties of Buncombe, Haywood, Henderson, Madison, and Transylvania—has undertaken a resilience planning process to consider threats and hazards to the region’s economic development and transportation assets with a goal of becoming more resilient to them, and to integrate the results into a localized perspective for future planning purposes.

Using the “Steps to Resilience” from the U.S. Climate Resilience Toolkit and guided by UNC Asheville’s National Environmental Modeling and Analysis Center (NEMAC), representatives from the Land of Sky Regional Council, the Asheville-Buncombe County Economic Development Coalition, and the French Broad River Metropolitan Planning Organization invited participants from area counties and municipalities to attend a workshop held March 12, 2018, during which participants determined key regional economic development and transportation assets and examined climate and non-climate stressors leading to threats and hazards that could negatively impact those assets. NEMAC then performed an exposure analysis on a limited set of identified asset-threat pairs and presented initial findings in a follow-up workshop held May 22, 2018.

Final results of the full resilience assessment are intended for use and integration into individual communities’ existing hazard mitigation, comprehensive, and emergency management plans. *The data presented in this preliminary assessment should be considered as draft information until it is reviewed and refined for use in each individual jurisdiction.*

Key findings from the exposure assessment include:

- Landslide exposure was assessed only for Buncombe and Henderson counties due to the unavailability of data for Haywood, Madison, and Transylvania counties. As landslides are a significant region-wide threat, those counties should consider an investment in landslide mapping.
- Retail properties are exposed to flooding across the region.
- Regional wildfire exposure is very high.
- Transportation and economic development are linked assets when examining exposure (and subsequent vulnerability and risk).

Introduction

Communities across the United States are dealing with impacts from more frequent weather and climate-related threats. Since 1980, there have been more than 200 billion-dollar weather and climate-related disaster events in the United States.¹ The scientific consensus, as reported in the third National Climate Assessment,² highlights the fact that the frequency of extreme weather events is increasing, and that they are expected to become even more frequent and severe in the future. To further exacerbate the issue, certain regions of the country are facing increased stressors not related to climate—such as population growth, development, and economic and demographic shifts.

To better address impacts related to these events and shifting realities, communities are incorporating resilience and adaptation into their municipal planning. Resilience planning considers ways that communities can prepare for climate- and non-climate-related impacts to protect people and community assets and best deliver key services.

To become better prepared as it faces both existing hazards and a changing

environment, the Land of Sky region of western North Carolina is undertaking a resilience planning process to consider threats and hazards to the region's economic development and transportation assets with a goal of becoming more resilient to them, and to integrate the results into a localized perspective for future planning purposes.

To this end, the Land of Sky Regional Council partnered with UNC Asheville's National Environmental Modeling and Analysis Center, or NEMAC, to lead its planners and jurisdictional representatives through a series of workshops and activities aligned with the "Steps to Resilience" outlined in the U.S. Climate Resilience Toolkit.³ This phased approach provides communities, municipalities, and organizations with a blueprint for climate resilience planning.

This report outlines activities undertaken by participants relating to "Step 1—Explore Hazards" and the beginning of "Step 2—Assess Vulnerability & Risks" of the Steps to Resilience.

Project teams

A core project team was assembled in October 2017 and included representatives from the Land of Sky Regional Council, the Asheville Chamber of Commerce/Asheville-Buncombe County Economic Development Coalition, and the French Broad River Metropolitan Planning Organization. The Land of Sky Regional Council was responsible for logistical coordination, information gathering, and participation in planning needed for this project. An invited participant team provided input and guided the analysis. A team from NEMAC provided facilitation of the process as well as technical support and scientific analysis.

Core project team

Erica Anderson	Economic and Community Development Director, Land of Sky Regional Council
Jon Beck	GIS Planner, Land of Sky Regional Council
Heidi Reiber	Director of Research, Asheville-Buncombe County Economic Development Coalition Asheville Chamber of Commerce
Mary Roderick	Regional Planner, Land of Sky Regional Council
Lyuba Zuyeva	French Broad River Metropolitan Planning Organization Director

Participant team

Mark R. Burrows	Planning and Community Development Director, Transylvania County
Matt Champion	Senior Planner, City of Hendersonville
Crystal Johnson	Geological Engineer, North Carolina Department of Transportation
Nick Kroncke	Regional Planner, French Broad River Metropolitan Planning Organization
Jody Kuhne	Regional Engineering Geologist, North Carolina Department of Transportation
Sara Nichols	County Planner, Madison County
Josh O'Conner	Recreation Services Manager, Buncombe County
Autumn Radcliff	Planning Director, Henderson County
Amber Weaver	Sustainability Officer, City of Asheville
Tristan Winkler	Transportation Planner, French Broad River Metropolitan Planning Organization

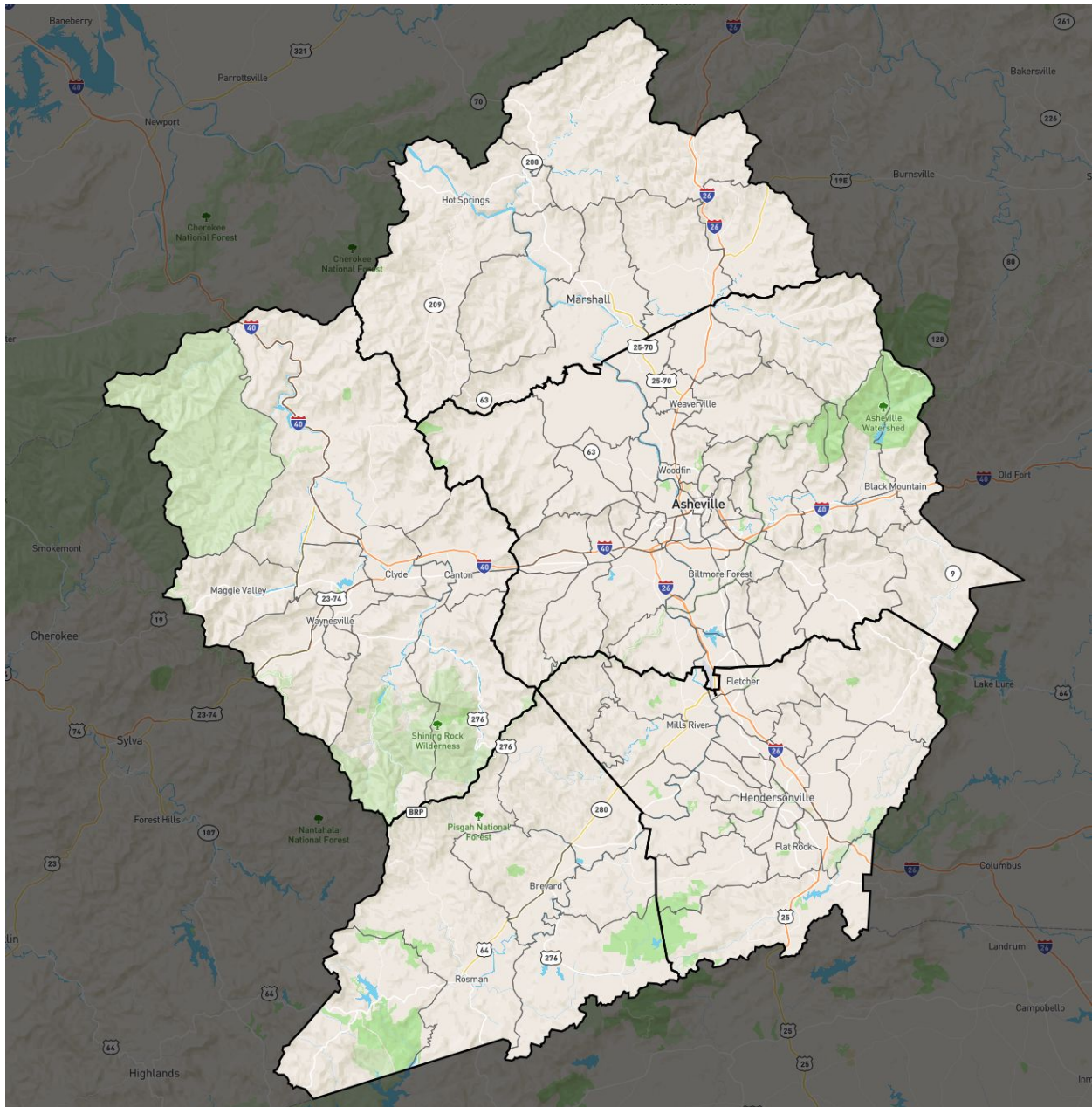
NEMAC team

Jim Fox	Director, Lead Facilitator
Nina Hall	Project Lead, Writer/Editor, Facilitator
Dave Michelson	Resilience Analyst, Facilitator
Matt Hutchins	Resilience Analyst
Karin Rogers	Resilience Analyst
Caroline Dougherty	Principal Designer
Kim Rhodes	GIS Associate/Cartography
Rachel Dunn	Writer (Student Intern)

The Land of Sky region

The project region—which includes the western North Carolina counties of Buncombe, Haywood, Henderson, Madison, and Transylvania and is referred to herein as the Land of Sky region—is one of the most diverse and beautiful areas in the country.

Extending from Tennessee to the north and the South Carolina border to the south, its topography ranges from fertile valleys to rugged mountains. The region is framed by the Blue Ridge Mountains to the east and the Great Smoky Mountains to the north and west.⁴



In total, the project area comprises around 2,420 square miles and had a 2016 estimated population of just under 475,000 people.⁵

The Land of Sky Regional Council desires to build resilience into its current and future plans, with an emphasis on economic development and transportation assets. By being proactive, the region can approach resiliency through a positive lens of opportunities rather than focusing on threats.

The purpose of the initial phase of the resilience project was to determine the threats on which to focus and to examine their potential impacts on the economic development/transportation asset set—how threats negatively affect these assets in the region. This phase also involved considering trends and future changes in climate conditions and determining exposure. The scope of the initial exposure analysis was limited to five asset-threat pairs.

From a review of regional planning documents, a handful of values and assets emerged as important, consistent, and vital to the way of life in the Land of Sky region. These assets contribute to the culture of the region, and in turn are highly valued. They include, in no particular order:

- Vibrant economy with backbones of tourism, agriculture, specialty manufacturing, and creative economy entrepreneurs
- Abundant natural systems
- Plentiful high-quality water supply
- Sustainable communities
- Productive farms and forests
- Cultural traditions, including clogging, bluegrass, pottery, and crafting

What is community resilience?

Resilience is defined as the capacity of a community, business, or natural system to prevent, withstand, respond to, and recover from a disruption.^{2,6} In the southeast and across the nation, many local governments are recognizing the need to build resilience to increasingly frequent and/or severe extreme weather events.

One of the primary distinctions in the climate-related efforts made by local governments is the difference between climate mitigation and climate resilience or adaptation. *Mitigation* refers to the reduction of greenhouse gases that are causing climate change. *Climate resilience* or *adaptation* refers to the efforts taken to cope with and withstand the impacts associated with existing climate-related hazard events or events attributed to climate change. Many local governments already focus on mitigation through other “green” initiatives, such as energy conservation. However, there is an increasing realization of the need to also focus on resilience and adaptation, with the expectation that some degree of future change is unavoidable.

Specifically, resilience involves three considerations: (1) building resilience to current climate variability or past hazard events; (2) building resilience to recently observed changing trends in climate threats and non-climate stressors; and (3) building resilience to future projected changes in climate threats and non-climate stressors. Changes in climate will result in existing threats becoming more frequent and/or severe.^{7,8}

Efforts to increase resilience to climate and non-climate impacts are built on the foundation of understanding—and reducing—vulnerability. *Vulnerability* is a ubiquitous term often used to describe susceptibility to harm. In the context of building climate resilience, a vulnerability assessment is a structured process that identifies ways in which an organization or community is susceptible to harm from existing or potential threats.

Vulnerability assessments tend to have three main components: (1) exposure; (2) potential impacts; and (3) adaptive capacity, where both physical and socioeconomic dimensions are considered. Another key concept used in a resilience assessment is the understanding of risk. Risk involves the likelihood and consequence of a climate threat.

Together, the concepts of vulnerability and risk within a resilience framework can serve to inform the development of strategies to reduce the vulnerability or risk. By taking an integrated viewpoint of these concepts, efforts can focus on building resilience for the assets that are most susceptible and most likely to be impacted. This approach also complements risk-hazard mitigation activities and management practices.

Another important aspect of a resilience assessment is to recognize the iterative nature of the process. Once strategies are implemented, it is necessary to monitor their effectiveness and to update the plan.

Overview of the “Steps to Resilience”

The U.S. Climate Resilience Toolkit³ provides an iterative, five-step process for communities to follow when planning for climate resilience.

This framework—known as the Steps to Resilience—is used as the foundation of this resilience assessment. The framework integrates the components of climate resilience that can be used in existing jurisdictional planning processes at the local and regional level, and can be used to understand the characteristics of vulnerability and risk in a community, inform policy, and evaluate the effectiveness of strategies that are implemented.

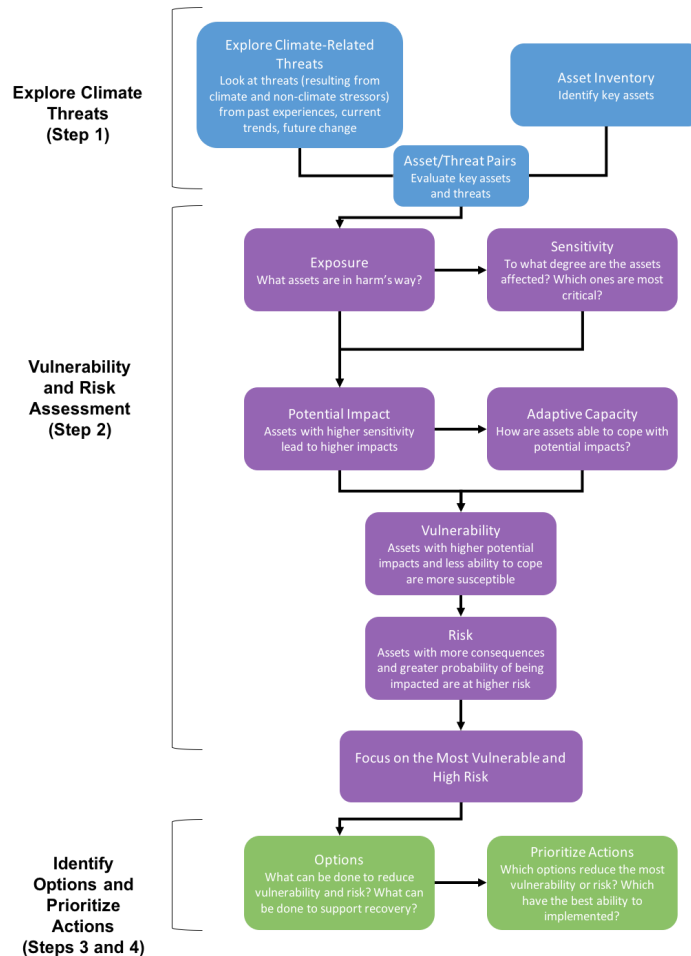
Step One: Explore Hazards

Step One suggests that a community begin by researching its past experiences with climate and weather events and explore regional climate trends and projections to understand how assets (people, infrastructure, services, or resources) may be threatened. This is followed by identifying stressors—both climate and non-climate—that cause or contribute to a threat or hazard event and cataloguing key community assets

Step Two: Assess Vulnerability and Risks

Step Two moves into a vulnerability assessment. The purpose of this step is to

Steps to Resilience and Supporting Components



understand how a community’s assets are likely to be impacted by the climate threats identified during Step One; the assessment then becomes the foundation for developing options to build resilience in Step Three.

Step Two begins by determining which of the assets identified in Step One could be impacted by a threat or hazard—those that have some level of “exposure.” *Exposure* is simply the presence of assets in places where they could be adversely affected.

Note that this report focuses on Step One and the exposure analysis portion of Step Two.

Vulnerability is defined as the susceptibility of societal assets to be impacted due to both physical and social factors. To define vulnerability, the assessment uses the exposure analysis to examine both potential impact and adaptive capacity. This can be thought of simply as $\text{vulnerability} = \text{potential impact} - \text{adaptive capacity}$.^{2,6,9}

Potential impact includes evaluating sensitivity, or the degree to which exposed assets are potentially affected.

Adaptive capacity is the ability to cope with identified impacts with minimal disruption or cost.

Vulnerability is then determined by considering both the potential impact and the adaptive capacity, with the most vulnerable having the highest potential impact and the lowest adaptive capacity.

For areas with high vulnerability, it is then necessary to scope the level of risk. Risk depends on both the probability of an event happening and the consequence of that event. That is, what is the chance of a loss? It is important to note that the scoping of risk at this stage is not the same as undertaking a detailed risk assessment, which can be a time- and cost-intensive process. Instead, risk scoping is an initial broad quantification of risk that can be used to compare general probabilities and consequences of certain threats occurring.

Step Three: Investigate Options

The ultimate goal of Step Three is to have actionable options to build resilience for the assets that are most vulnerable and at-risk. To be actionable, an option should have the potential of building resilience by (1) reducing exposure (removing assets from harm's way), (2) increasing adaptive capacity (increasing the asset's ability to cope with impacts), or (3) supporting response and recovery.

Step Four: Prioritize and Plan

Step Three often yields a large number of options, and it can be difficult to evaluate and compare them all. Prioritization is a two-part process, the first of which involves looking at the actions that will have the most impact. The second part of the prioritization process is to determine criteria on which to rank the options.

Step Five: Take Action

Step Five can be viewed as the most important, as it involves implementing the plan to build community resilience. This step can take years to fully implement, and it is critical for the community to monitor results as time passes—some of the assumptions made during the original analysis may have been faulty, or on-the-ground implementation may not have been completed. This is to be expected, and the community should be open to modifying its approach as needed.

Step 1 | Explore threats & hazards

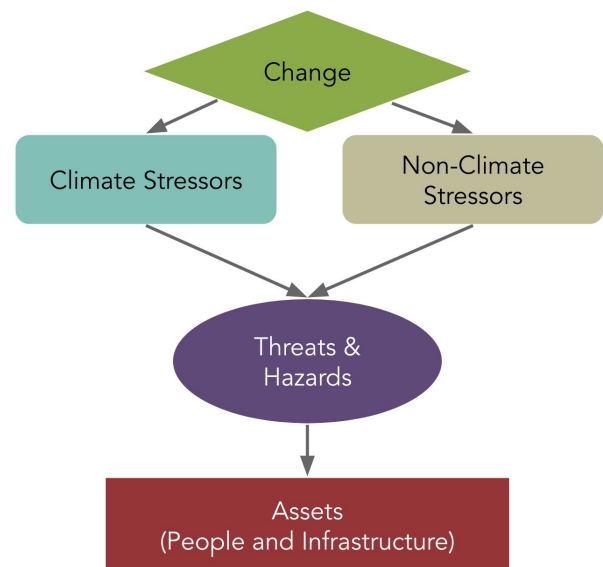
So that communities can understand climate-related impacts to make informed decisions, those impacts must be evaluated and measured in a structured way. To begin the evaluation, we ask four primary questions:

1. What is the normal regional climate?
2. What is changing or likely to change in the regional climate?
3. Will any of these changes cause an increased impact on things residents care about?
4. Is the Land of Sky region resilient to these threats (based on past events and possible future)?

To address these questions, it's best to break the system into its basic building blocks. One way to visualize these building blocks and see how they are related to one another is called a conceptual model—a technique that can be used to explore the causal relationships between stressors, threats, and assets that are potentially affected.

This conceptual model framework (right) illustrates the relationships between climate and non-climate stressors, threats and hazards, and assets that may be affected. The arrows in the model are drawn to reflect the causal influences between these different components.

This type of model can also be used to reveal strategies or actions (not shown) that have the potential to reduce vulnerability and build resilience.



As shown in the conceptual model, climate threats and hazards are the result of the interaction between climate and non-climate stressors. For example, the amount of precipitation (or lack thereof) in and of itself is not a threat. However, extreme precipitation is a climate stressor if enough precipitation falls in a given time, or in combination with a substantial amount of impervious surface that can lead to the threat of flooding. Likewise, the lack of precipitation (i.e., drought) is a climate stressor that can lead to the threat of water shortage.

Note also that threats and hazard events occur only where assets are potentially negatively affected. If an asset is potentially affected negatively by a threat (i.e., the asset is in harm's way), then it is considered exposed to that threat.

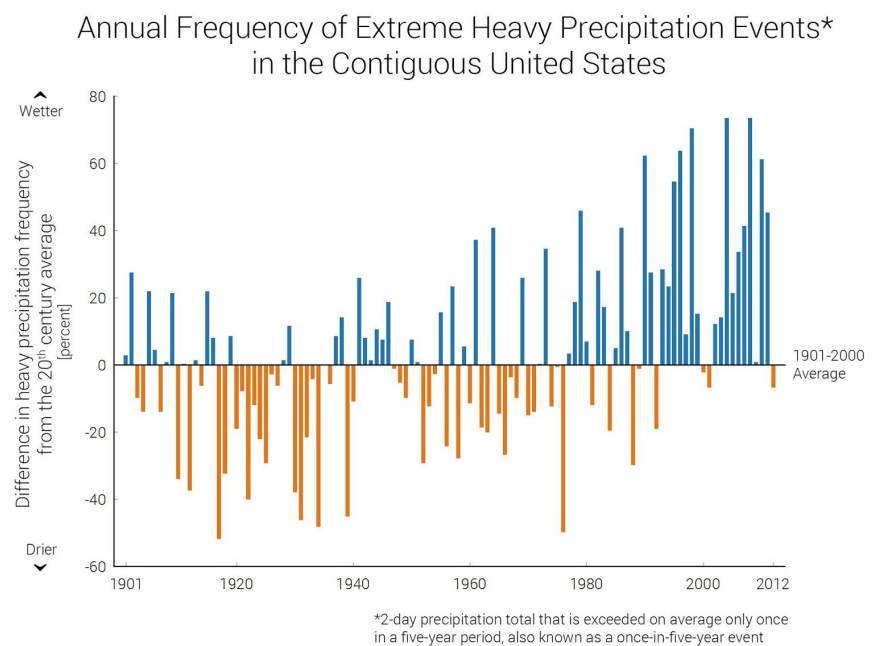
Climate stressors

The primary climate stressors for the Land of Sky region are heavy precipitation events, drought, and temperature variability.

Heavy precipitation events

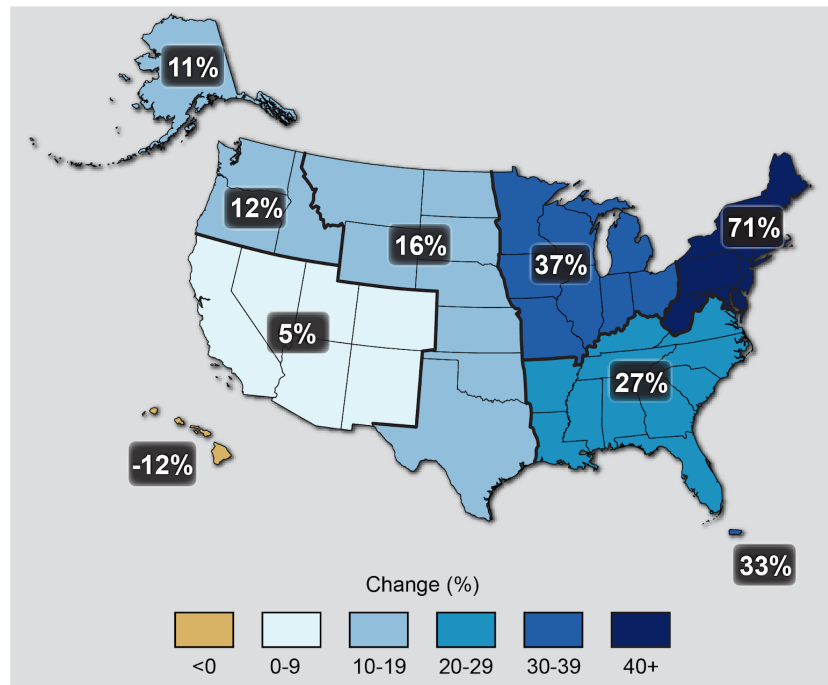
Overall, trends in precipitation are changing not only in the Southeast but nationwide, and contribute to climate threats such as flooding and landslides. The frequency of extreme heavy precipitation events (once in a five-year period) in the contiguous United States is increasing compared to the twentieth-century average. Also, according to the third National Climate Assessment, from 1958 to 2012 the Southeast region experienced a 27 percent increase in the heaviest one percent of precipitation events.² These national and regional trends show the importance of considering how extreme precipitation events impact communities.

The chart shows the difference in heavy precipitation frequencies from the twentieth-century average for the contiguous United States from 1901 to 2012. (Figure source: NOAA NCDC/CICS-NC²)



Observed Change in Very Heavy Precipitation

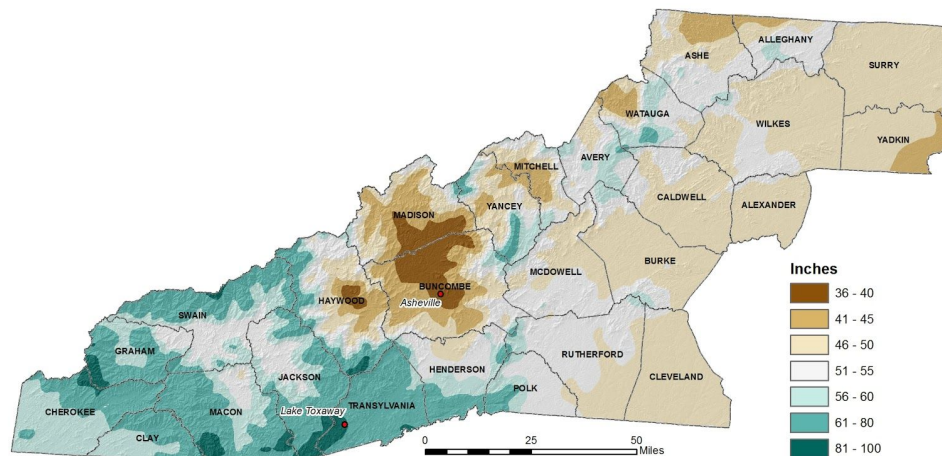
The map shows percentage increases in the amount of precipitation falling in very heavy events (defined as the heaviest one percent of all daily events) from 1958 to 2012 for each region of the continental United States. The changes shown in this figure are calculated from the beginning and end points of the trends for 1958 to 2012. (Figure source: NOAA NCDC/CICS-NC,² updated from Karl et al. 2009)



Changes in the frequency of heavy precipitation events may be the largest climate stressor for the Land of Sky region due to the impact on flooding and landslides.

It's important to also consider where the rain falls. The map shows average precipitation in western North Carolina. Consider the two towns indicated by red dots—Lake Toxaway and Asheville—both in the Land of Sky region.

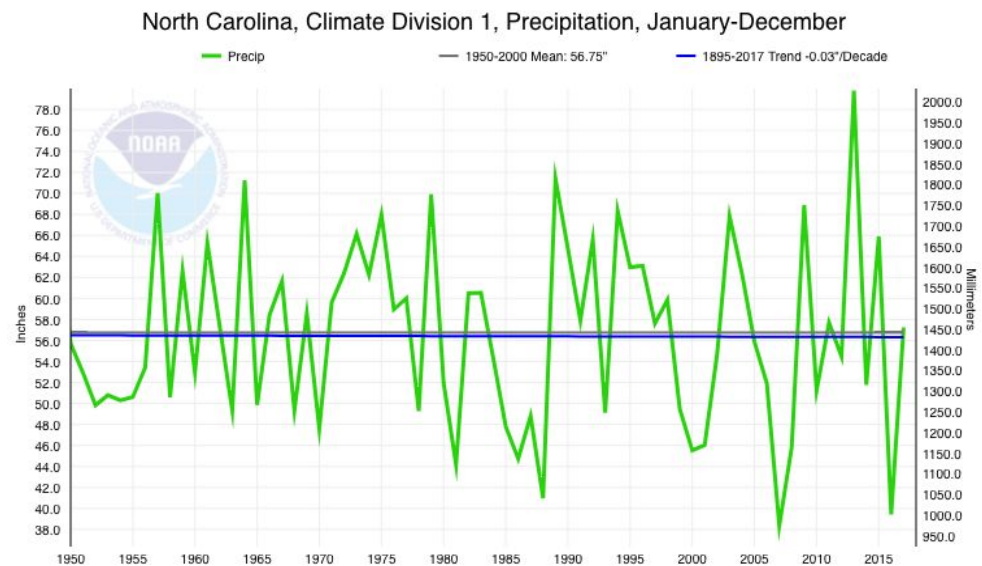
Average Annual Precipitation (1981 - 2010)



According to the State Climate Office of North Carolina, they are respectively the wettest and driest official weather recording stations in the region. Lake Toxaway, located in Transylvania County, has average annual precipitation of around 92 inches, and sits at the southern edge of

the Blue Ridge Escarpment. Moist air lifted over the mountains drops heavy amounts of rain on this high-elevation town; nearby areas are wet enough to be considered rain forests, and waterfalls abound. In contrast, the city of Asheville, in Buncombe County, has average annual precipitation of around 37 inches, and sits in the French Broad River basin. Shielded from the prevailing moist winds from the south and west by the Balsam and Smoky Mountains (where most of the rainfall is squeezed out), this area is the driest in the entire state of North Carolina. (Figure source: WNC Vitality Index)

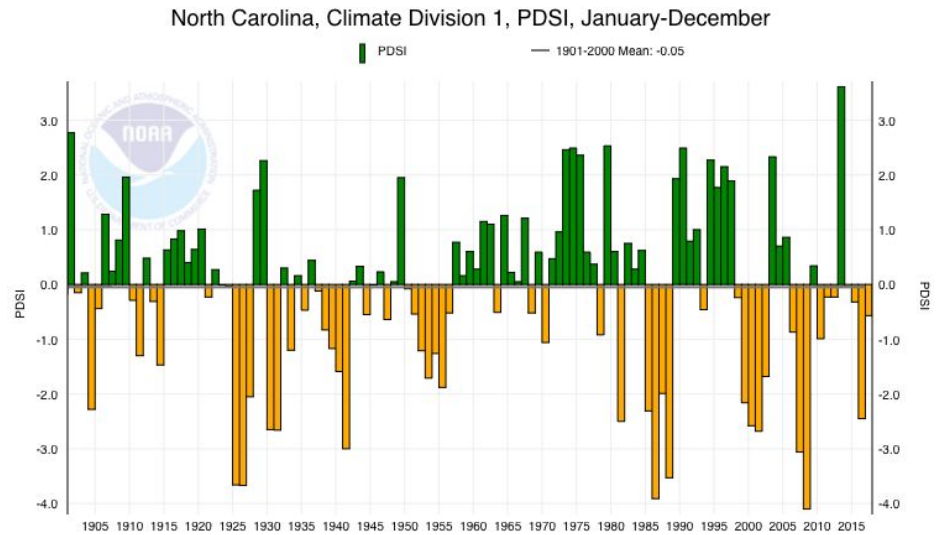
The chart at right shows that the area around the Land of Sky region has seen a very minor decrease in average annual precipitation since 1950—about 0.03 inches per decade. While the average may be mostly constant, the variability—especially the timing and severity of precipitation—is increasing. (Figure source: NOAA NCEI Climate at a Glance, U.S. Time Series)



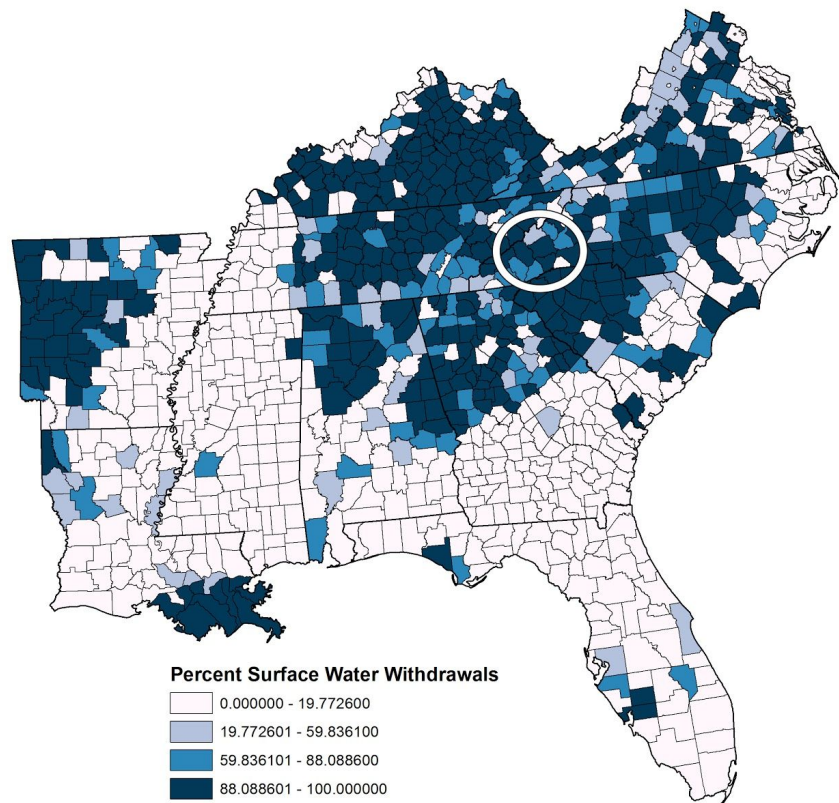
This underscores the need to move beyond an examination of average precipitation to a more detailed look at heavy precipitation events and drought and how these compare to one another.

Drought

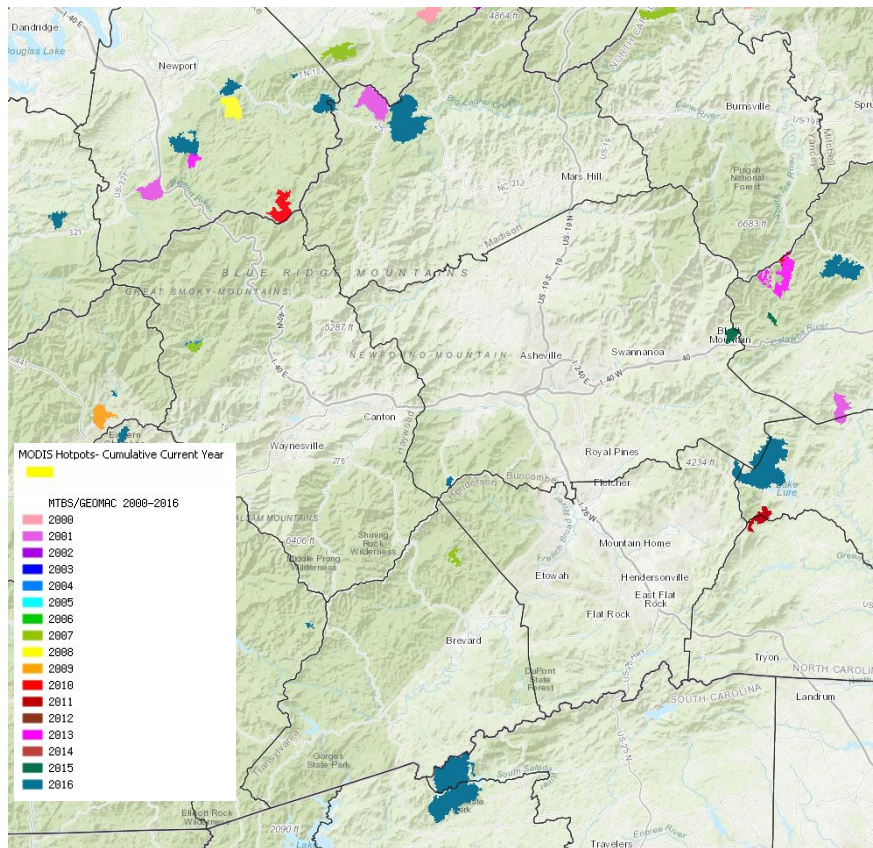
The Palmer Hydrological Drought Index for the area around the Land of Sky region indicates that droughts (indicated by the orange bars in the chart at right) are becoming more frequent and more severe. (Figure source: NOAA NCEI Climate at a Glance, U.S. Time Series)



In addition to precipitation variability, soil moisture may also decrease because of higher summer temperatures. This means that the Land of Sky region may want to consider planning for decreasing water availability, exacerbated by population growth and land use change. With increasing drought, surface water availability will be more limited. (Data source: U.S. Geological Survey)

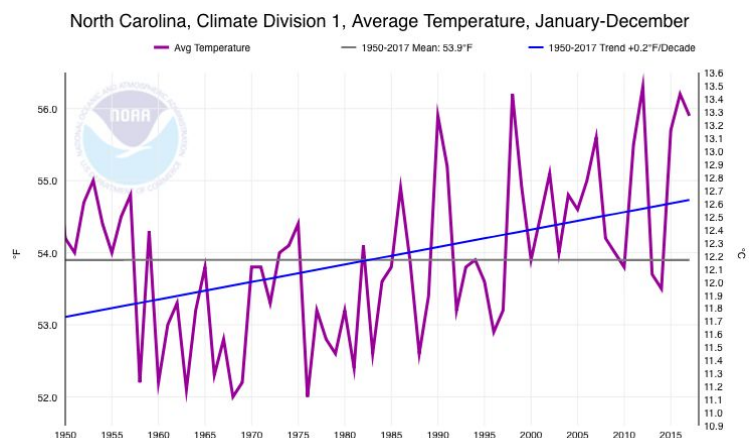


Increasing drought also increases the threat of wildfire. The peak wildfire season in western North Carolina is typically September through early December. Wildfire has a large impact on businesses and homes located in the wildland-urban interface. Additionally, smoke from wildfires impacts air quality, which in turn impacts human health. The map at right shows fire locations in the region since 2000. (Data source: U.S. Forest Service, Fire Perimeters and Hotspots)

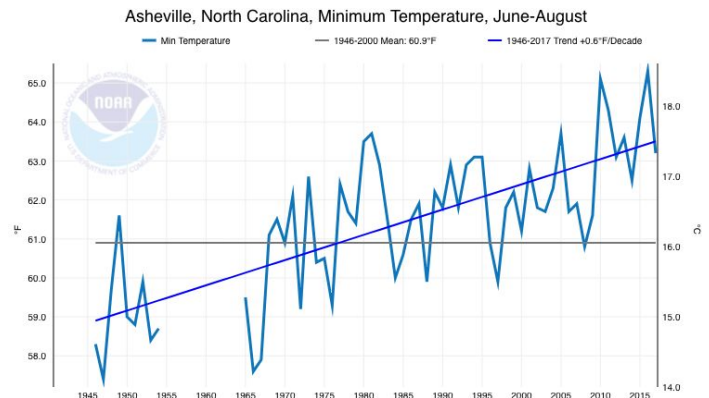


Temperature variability

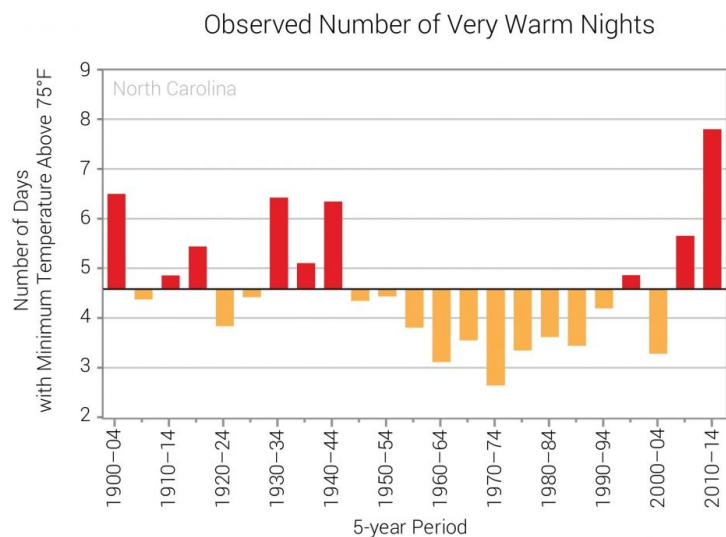
The average temperature for the region has been increasing since the mid-1980s; however, the increase is variable rather than a steady, year-to-year progression. This is the normal signature for cities across the Southeast: the trend shows an increase, with annual variability being the norm. (Figure source: NOAA NCEI Climate at a Glance, U.S. Time Series)



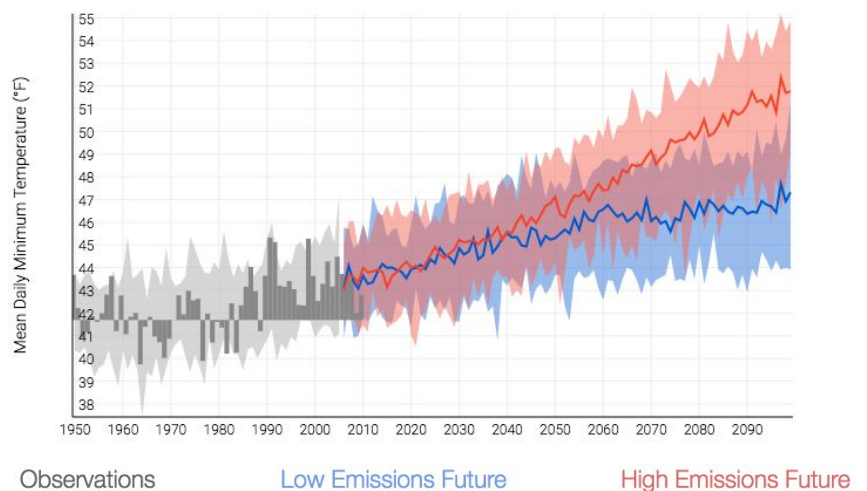
While the previous graph looks at average temperature, the graph at right shows minimum temperature during the summer (June–August). This indicates that summer nights are warmer than in the past. (Figure source: NOAA NCEI Climate at a Glance, U.S. Time Series)



The number of very warm nights is increasing. From the mid-1940s to the mid-1990s, the number of warm nights during each five-year period was comparatively low; however, the number of very warm nights has risen since 2005. Because of this, many air conditioning systems now run continuously during many parts of the summer. (Figure source: NOAA NCEI State Climate Summaries, North Carolina)

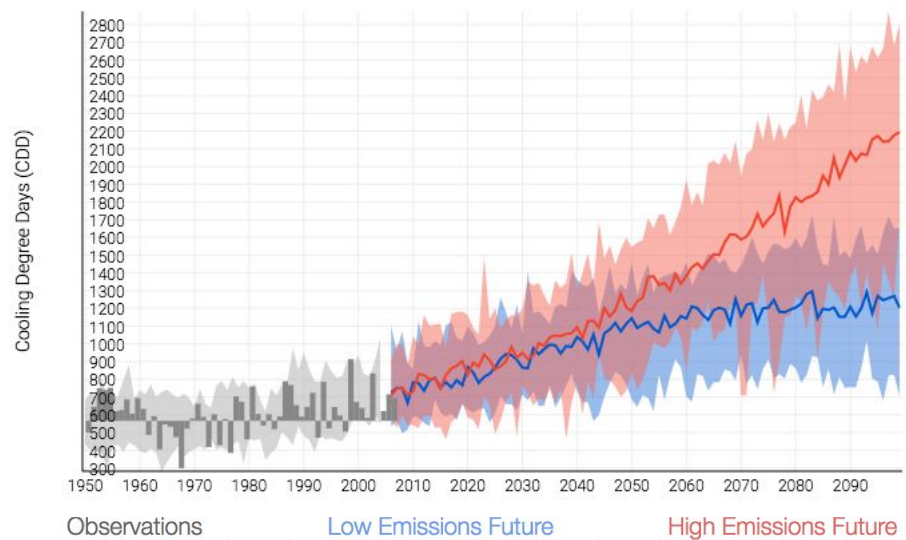


Projecting mean daily minimum temperature for the region into the future, the two main climate scenarios indicate that this warming trend will continue. Warmer summer nights will impact not only vulnerable populations—who may not be able to afford to cool their homes—but also put an increased demand on power providers. (Figure source: U.S. Climate Resilience Toolkit, Climate Explorer)

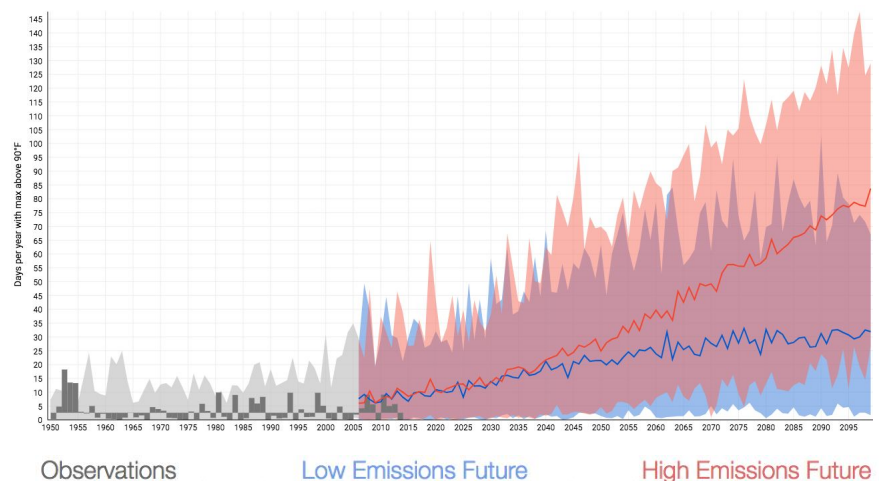


Another measure of temperature impact is cooling degree days, defined as the number of degrees by which the average daily temperature is higher than 65°F (cooling degree days) multiplied by the number of days this threshold is exceeded. This measure is a proxy that can show trends in expected energy demand for cooling.¹⁰ In

the Land of Sky region, the number of cooling degree days relative to the 1961–1990 average is projected to increase. (Figure source: U.S. Climate Resilience Toolkit, Climate Explorer)



Extreme heat may be the only threat with which we have limited experience in western North Carolina. The projected average increase in over-95°F days ranges from 0 to 10 for most of the western North Carolina region. The chart at right shows historical and projected days over 90°F for Buncombe County. (Figure source: U.S. Climate Resilience Toolkit, Climate Explorer)



Non-climate stressors

Both climate and non-climate stressors have the potential to change in the future and increase risk to economic development and transportation assets in the Land of Sky region. In some cases, changes to non-climate stressors can have greater influence on threats than climate stressors; however, some non-climate factors may help build resilience.

Non-climate stressors are factors or conditions that contribute to the occurrence of a threat. For example, impervious surfaces are a non-climate stressor and are known to contribute to increased runoff, erosion, and flooding in urban areas. Another example is that impervious surfaces and buildings also contribute to the urban heat island effect.

During Step One, the team identified key non-climate stressors facing the Land of Sky region. The challenges include:

- Population growth
- Land use conversion
- Median income
- Median home value
- Education level

- Commuting to work
- Water usage

In order to fully evaluate the impact of these non-climate stressors on the targeted economic development and transportation assets, the team must determine whether they are “valued and quantifiable.” Thus, this analysis attempts to determine how these stressors might be changing with time—with special attention to a 30-year planning horizon—and how they interact with threats.

For purposes of the analysis, these stressors were represented by different metrics and data. These include:

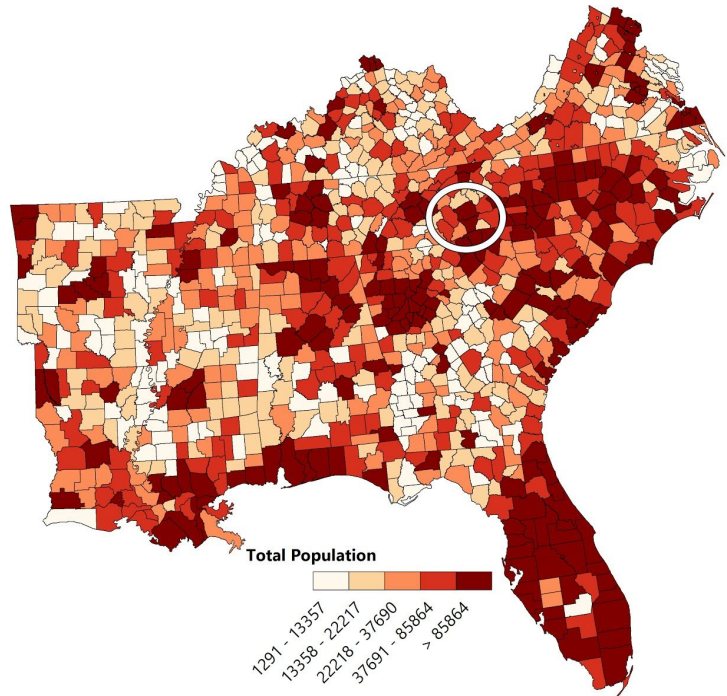
- Population and demographics: total population, population growth; and
- Economics: median income, educational attainment.

The following pages provide an overview of trends involving these non-climate stressors throughout the southeastern United States that can have implications for the Land of Sky region.

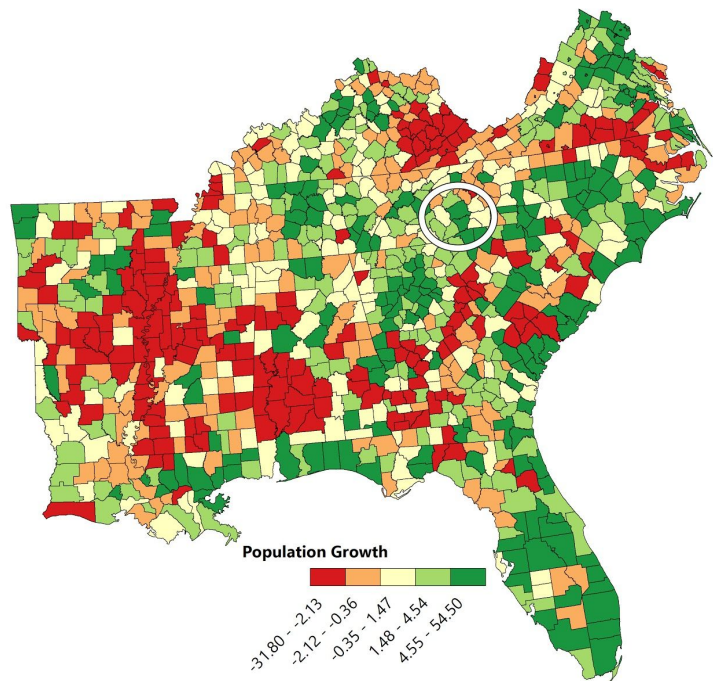
Population and demographics

While much of the country has experienced population growth over the past 50 years, the demographics of these areas are also changing. Demographic trends can often be explained by metrics related to growth and urban areas, median age, level of education, and similar factors.

A clear trend is seen when total population (right) is compared with population growth (below). The map at right shows the growth of urban centers in the Southeast, with a specific emphasis on suburban sprawl. Many counties in the Southeast have a relatively large total population that have also recently experienced high population growth. (Data source: U.S. Census Bureau, American Community Survey)



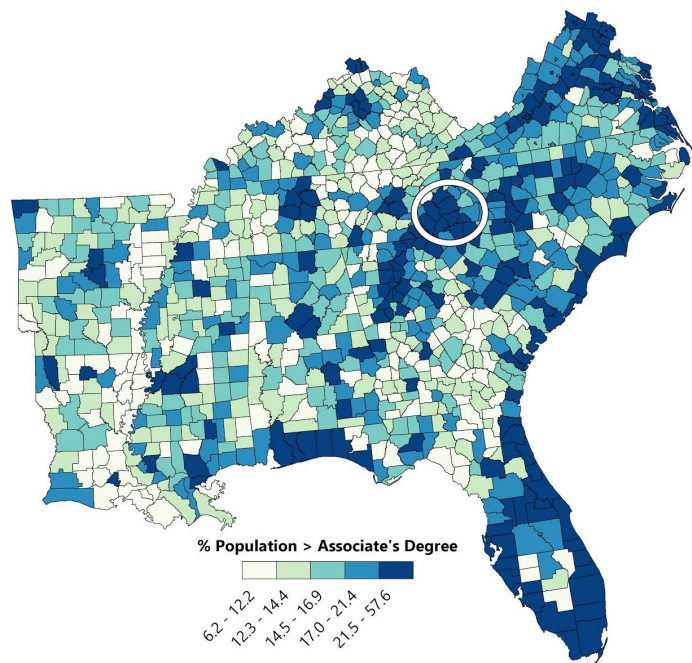
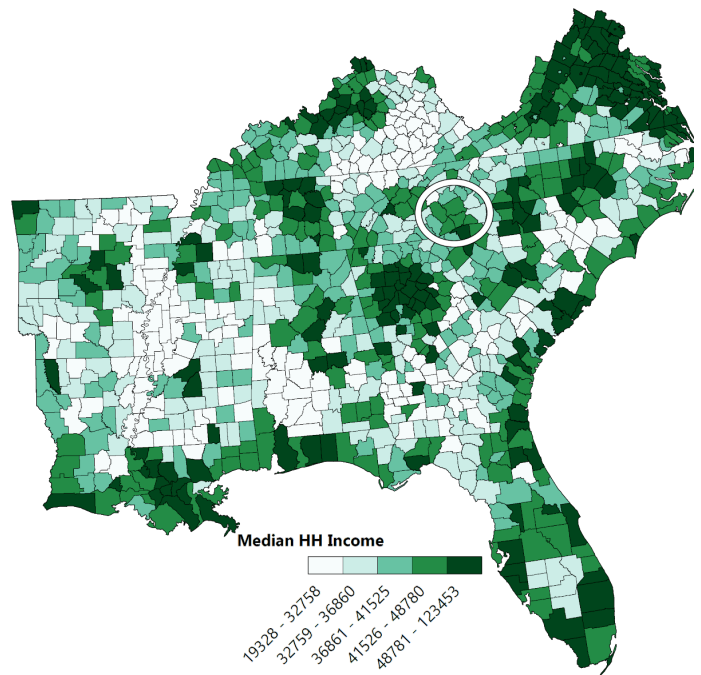
The Land of Sky region has particular demographic changes to consider. Buncombe County and Henderson County are in the highest growth category for the Southeast, and Transylvania County and Madison County are in the next highest. It should be noted that some other mountain counties are facing decreasing populations. This growth is largely the result of migration into the region, rather than changes to birth/death rates. (Data source: U.S. Census Bureau, American Community Survey)



Economics

An economics lens can help to explain various trends related to non-climate stressors in the Land of Sky region. This category includes information related to the income levels and educational attainment and can inform the region's overall resilience when facing both climate- and non-climate-related threats and stressors.

County-level data from the U.S. Census Bureau shows that the Land of Sky region has a relatively high median household income compared to many counties in the Southeast. This is a positive factor that provides a "social advantage" when examining local residents' ability to take personal financial responsibility in building resilience. Note, though, that urban areas have a higher median income than rural areas within the region, and that the region as a whole has a lower median income level than other urban areas in North Carolina (such as Charlotte and the Triangle region around Raleigh) and in the Southeast as a whole (such as Atlanta). (Data Source: U.S. Census Bureau, American Community Survey)



Education level is an important metric when looking at the ability to implement complex solutions to build resilience. For the region, while urban areas have a more educated population, each county in our region has a very high level of educational attainment. This factor will help in local implementation of actions to build resilience. (Data source: U.S. Census Bureau, American Community Survey)

Climate-related threats

According to the NOAA Storm Events Database, between 1997 and 2017 there has been an estimated \$159⁺ million in damage from climatic and extreme weather events in the Land of Sky region.¹¹

It should be noted that NOAA's National Centers for Environmental Information, which produces the database, recognizes this as a partial record for some events and notes that in some cases the damages are broad estimates.

The table below summarizes these events. Note that the events in this summary at least partially took place in the Land of Sky region—thus some of the estimates may include damage totals that may have been reported from neighboring counties. This summary helps to identify the types of past events that have been most devastating.

Storm events that included the Land of Sky region from 1997 to 2017

Event Type	Count	Estimated Losses
Storms (Hail, Heavy Rain, High/Strong/Thunderstorm Wind, Lightning, Tornado)	1,144	\$15,483,000
Flood/flash flood	232	\$136,069,000
Winter weather (Blizzard, Cold/Wind Chill, Extreme Cold/Wind Chill, Freezing Fog, Frost/Freeze, Heavy Snow, Ice Storm, Sleet, Winter Storm)	388	\$8,281,000
Drought	168	*
Wildfire	*	*
Total	1,933	\$159,833,000

* Data not available

In an initial review of comprehensive and hazard mitigation plans, regional counties and municipalities have acknowledged that they are facing shared climate-related threats and hazards. Some of these include:

- Flooding
- Nuisance flooding, runoff, and erosion
- Landslides
- Wildfire
- Extreme heat events
- Water shortage
- Supply chain interruption

The threats and hazards selected for this analysis were limited by the scope of work, but are existing hazard events that have impacted the community in the past and have the potential to change in frequency or severity in a changing climate.

The table is an inventory of the threats addressed in the exposure analysis and their associated climate and non-climate stressors. This inventory was captured based on the project team's institutional knowledge of past events, the NOAA National Centers for Environmental Information Storm Events Database,¹¹ and regional climate trends and projections from the second and third National Climate Assessments.^{2,12} The table is followed by a description of each of these threats.

Climate threats considered in the assessment

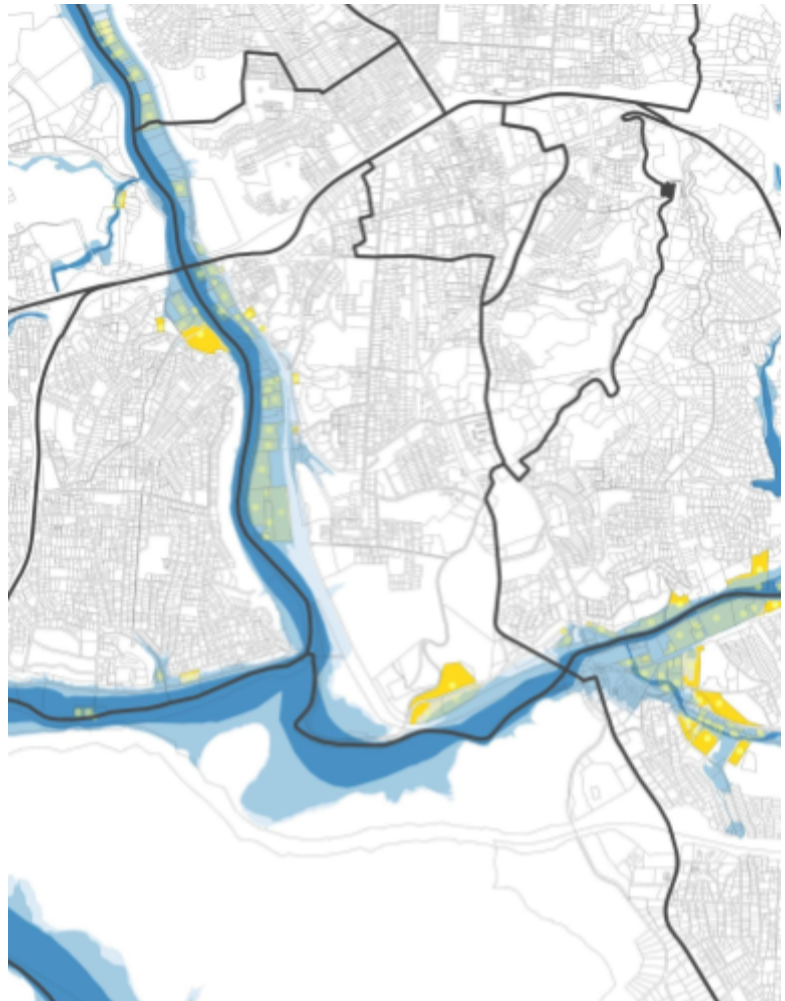
Climate Threat	Climate Stressor	Non-Climate Stressor
Flooding	Extreme precipitation	Impervious surfaces
Landslides	Extreme precipitation	Steep slope development and vegetation removal
Wildfire	Temperature variability, drought	Fuels and vegetation, human-caused ignitions

Flooding

Precipitation trends are changing both nationally and in the Southeast and contribute to climate threats such as flooding. For more information, refer also to the discussion of heavy precipitation events in the climate stressors section of this report, above.

For purposes of this assessment, the threat of flooding was defined by the flood hazard areas as determined by the North Carolina Floodplain Mapping Program (NCFMP)¹³; assets within any of these flood hazard zones were determined as being exposed to flooding.

A 100-year flood event has a one-percent chance of occurring every year, while a 500-year flood event has a 0.2-percent chance of occurring in any given year.

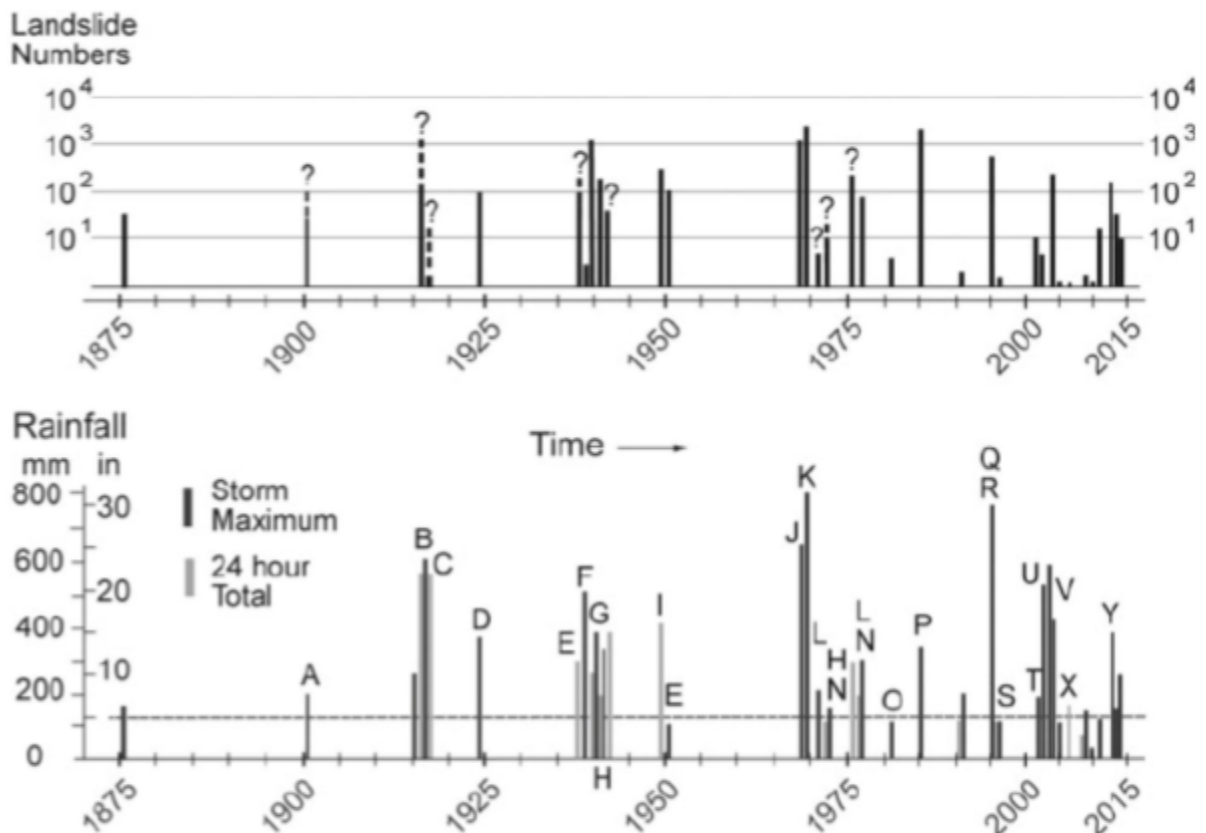


The map of downtown Asheville and the River Arts District shows industrial parcels exposed to flooding. Exposed parcels are shown in yellow, while the floodway, 100-year floodplain, and 500-year floodplain are shown in varying shades of blue.

Landslides

Landslides in western North Carolina are, like flooding, associated with climate stressors related to the amount and timing of precipitation. The primary non-climate stressors contributing to the threat of landslides are development and the removal of vegetation on steep slopes.

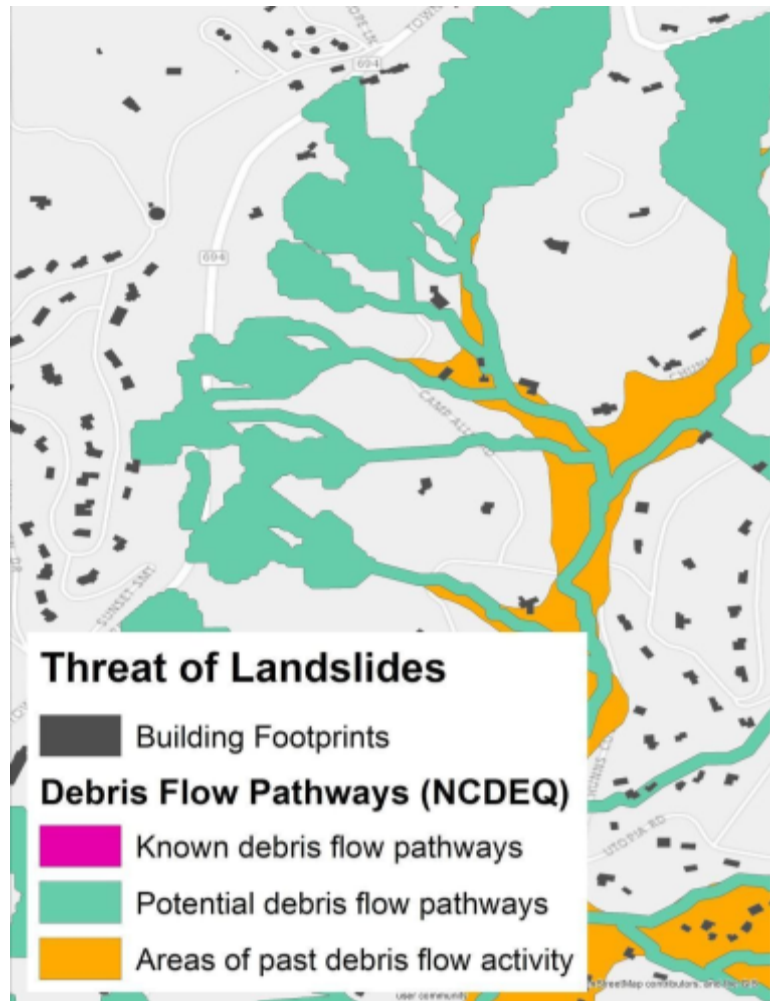
Landslide events include debris flows, rock slides, mudslides, earth slides, and movements.¹⁴ Most of the loss of life associated with the 2004 precipitation events in the region was attributed to landslides that occurred throughout western North Carolina. Research by scientists and North Carolina state geologists have explored how landslide events in western North Carolina are often associated with certain thresholds of extreme precipitation. For example, it is estimated that four rainfall events in 2013 resulted in at least 300 landslide events in the region.¹⁵ The chart below shows the rainfall amounts for selected storms that triggered landslides, mainly debris flows, in western North Carolina from 1876 through 2015.



The graphs show the association between amount of rainfall (bottom) and landslide numbers (top). Heavy rainfall events, especially those with at least 5-inch 24-hour totals, are associated with spikes in the number of landslide events. (Figure source: Wooten et al. 2016.)

For purposes of this assessment, the threat of landslides was defined by potential debris flow areas in Buncombe and Henderson counties, as determined by the North Carolina Department of Environmental Quality (NCDEQ).¹⁶ Assets within any of these potential debris flow pathways were determined as being exposed to landslides.

Landslide exposure was assessed only for Buncombe and Henderson counties; data was unavailable for Haywood, Madison, and Transylvania counties.



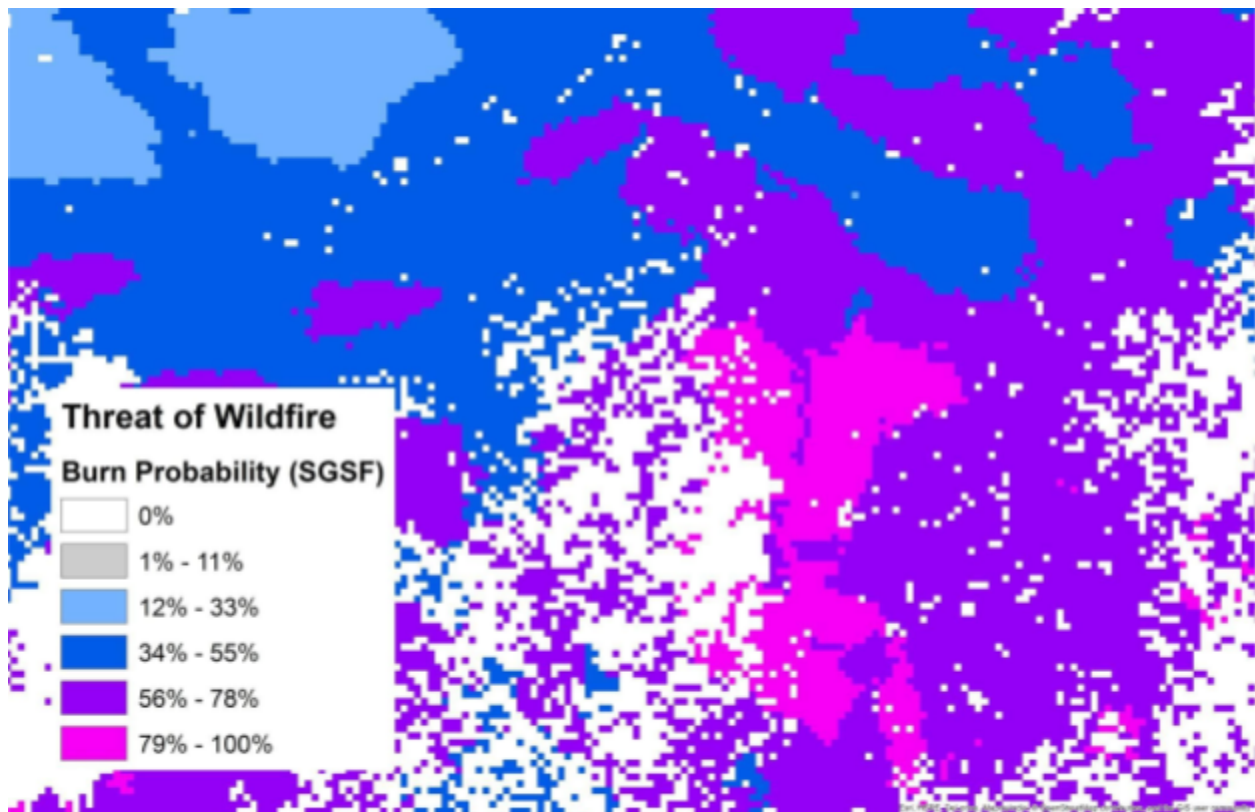
The map shows building structures just east of Town Mountain Road in Asheville, some of which are in potential debris flow pathways.

Wildfire

Wildfire is a natural disturbance that provides benefits to ecosystems and natural systems, but it can become a threat when it negatively impacts communities and the assets we value. Drought conditions can lead to a greater chance of wildfire.

The primary non-climate stressor related to the threat of wildfire is the management of fuels and vegetation. Lack of active fuel management can contribute to a decline in fire-resilient ecosystems, an increase in wildfire burn severity, and increased risk of destructive wildfires that damage landscapes and threaten people and communities.

The threat of wildfire was defined by areas with burn probability, as defined by the Southern Group of State Foresters (SGSF).¹⁷ Assets within areas with any burn probability were determined as being exposed to the threat of wildfire.



The map of an area around Haw Creek in Asheville shows burn probability, which was used to evaluate the threat of wildfire. Any assets within areas of burn probability were determined as being exposed to the threat of wildfire.

Assets

Assets were identified by exploring the project team's institutional knowledge of shared types of assets as well as local comprehensive and hazard mitigation plans, but were limited by the scope of work. The following asset categories (broad) and the assets that define them (more specific) were used for the exposure analysis.

Assets considered in the assessment

Asset Category	Description
Properties	
Commercial Properties	Includes non-residential properties that serve businesses and organizations. They also typically support commerce, jobs, and tourism. Includes Retail, Office, Industrial, Institutional, and Utility parcels.
Transportation	
Roads	Includes all major and secondary roads and considers the road infrastructure potentially inundated and exposed to damage.

Step 2 | Assess vulnerability & risks—exposure analysis

Exposure is the presence of people, assets, and ecosystems in places where they could be adversely affected by hazards.

This section of the report presents the results of an exposure assessment of spatially differentiable assets and threats in the Land of Sky region performed as the beginning of “Step 2—Assess Vulnerability & Risks” of the Steps to Resilience.

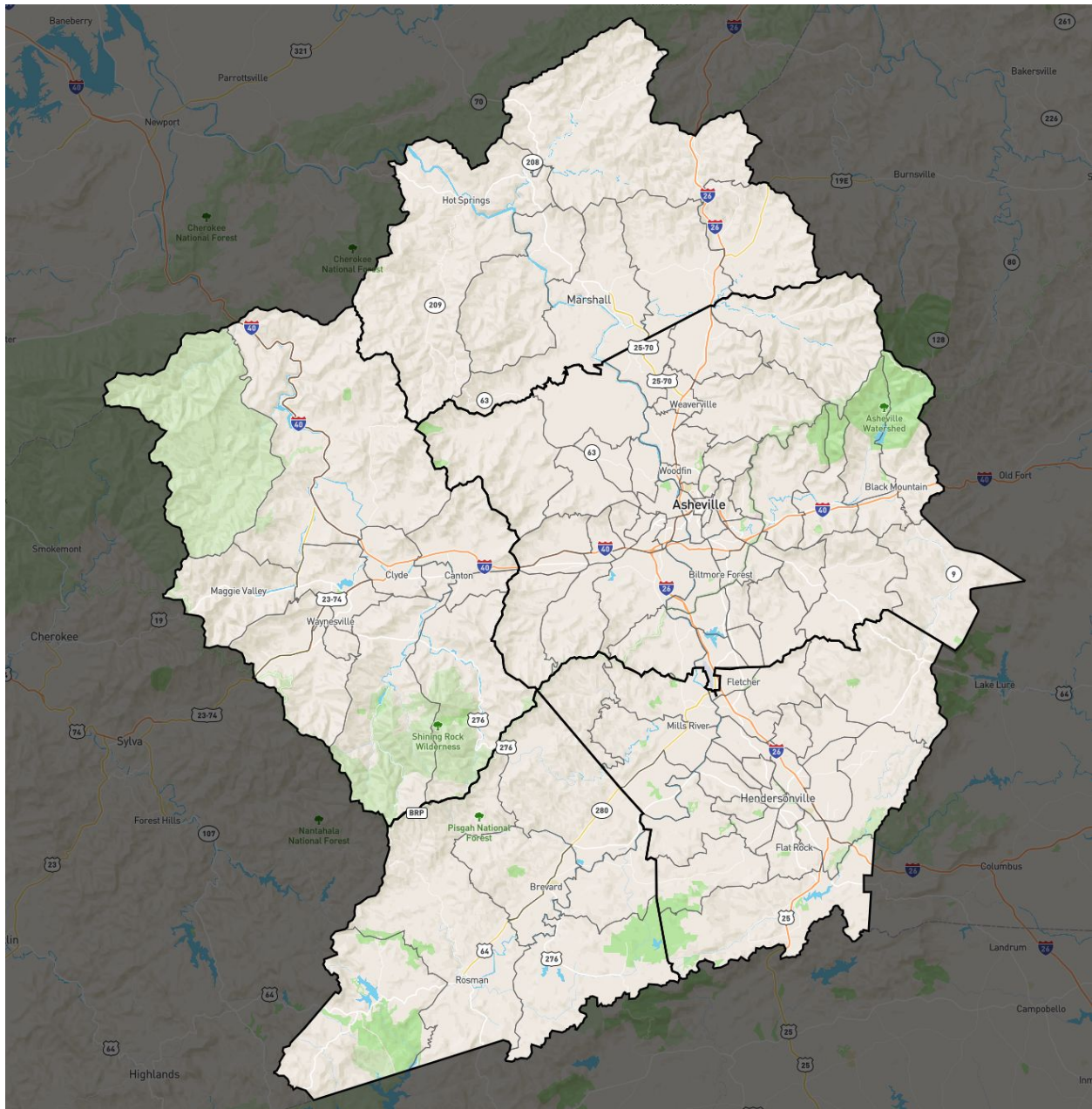
This exposure assessment can be used as the basis of any subsequent vulnerability assessment performed in the project’s next phase.

For each of the identified major assets and threats, the spatial intersection was assessed to determine the proportion of asset categories that are exposed to specific threats. This assessment was performed at the specific asset level (e.g., a property parcel or road segment) and then aggregated to the census tract scale, enabling comparison with socioeconomic data. This process is further described in Appendix A.

Key findings from the exposure assessment include:

- Landslide exposure was assessed only for Buncombe and Henderson counties due to the unavailability of data for Haywood, Madison, and Transylvania counties. As landslides are a significant region-wide threat, those counties should consider an investment in landslide mapping.
- Retail properties are exposed to flooding across the region.
- Regional wildfire exposure is very high.
- Transportation and economic development are linked assets when examining exposure (and subsequent vulnerability and risk).

Regional scale overview



- County boundaries
- Census tracts

Assets

Key assets to be analyzed were (i) identified in collaboration with the participant team, (ii) limited by the scope of work, and (ii) selected after determining which of the identified assets could be quantified. The following list of asset categories (broad) and the assets that define them (more specific) were used for the exposure analysis:

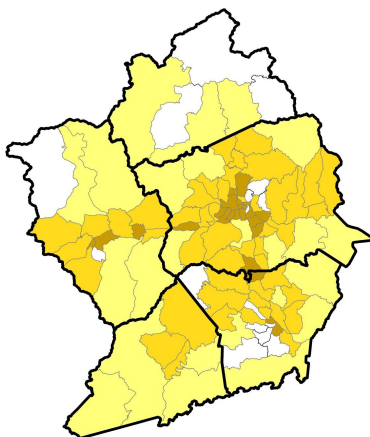
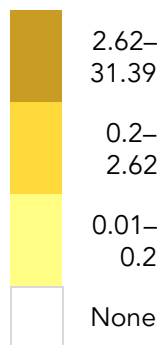
Asset Group	Total Assets
COMMERCIAL PROPERTY	
Industrial properties	1,296 parcels
Institutional properties	3,926 parcels
Office properties	1,610 parcels
Retail properties	6,541 parcels
Utility properties	695 parcels
TRANSPORTATION	
Roads	9,947 miles

Note: In the maps below, colors indicate the total number of assets in each census tract; darker colors in larger tracts may be misleading.

COMMERCIAL PROPERTY

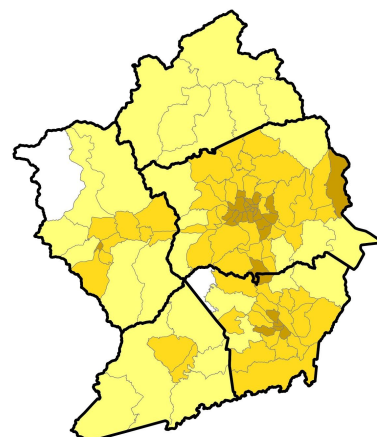
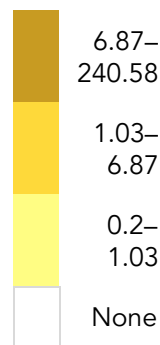
Industrial properties

Properties/sq mi



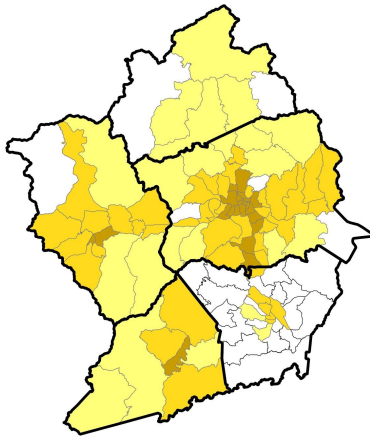
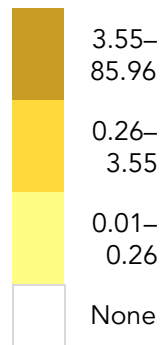
Institutional properties

Properties/sq mi



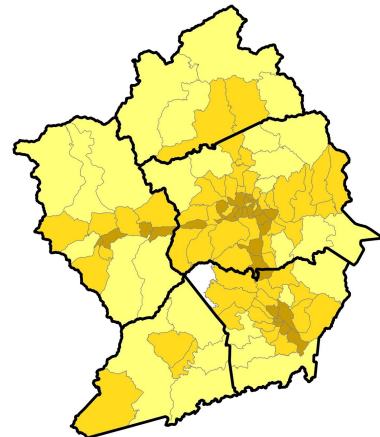
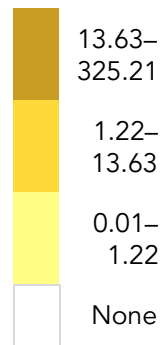
Office properties

Properties/sq
mi



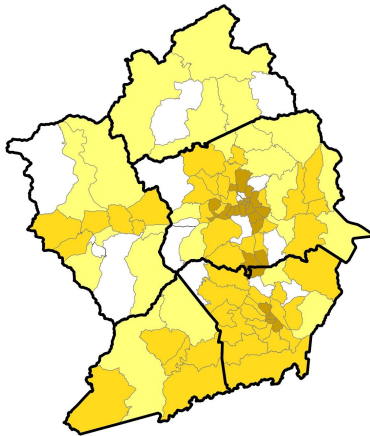
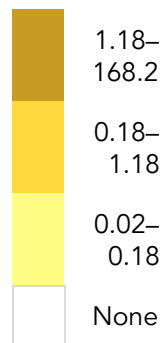
Retail properties

Properties/sq
mi



Utility properties

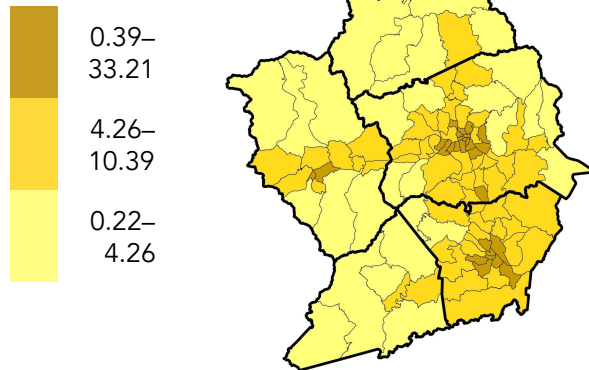
Properties/sq
mi



TRANSPORTATION

Roads

Linear
miles/sq mi



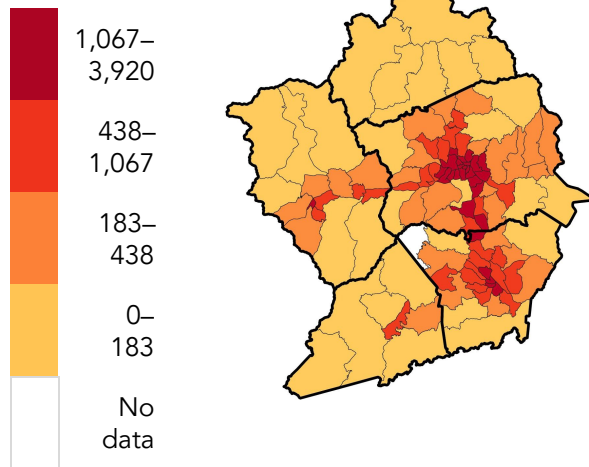
Demographics and socioeconomic

The U.S. Census Bureau and Esri's Business Analyst Online collect a variety of demographic, economic, and socioeconomic variables, and a number of these factors vary across the Land of Sky region. Several of these variables can be considered strengths: the region's population, for example, is well educated and enjoys a relatively high income level. Some of these factors, however, are challenges—urban areas have a higher median income than rural areas within the region, and the region as a whole has a lower median income level than other urban areas in North Carolina and in the Southeast. These factors should be used as a lens when examining equitable implementation of solutions.

Population and Growth

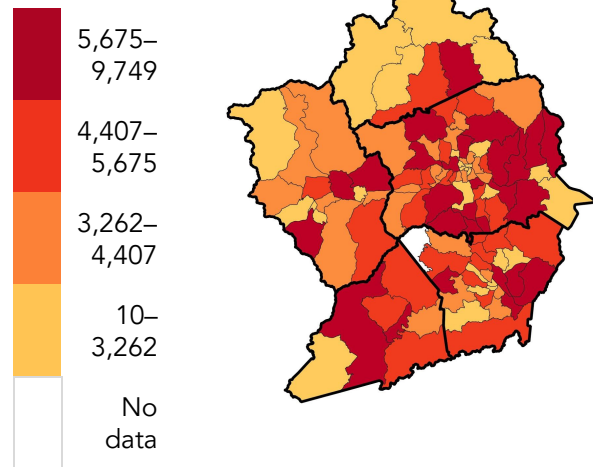
Population Density (2017)

People/sq mi



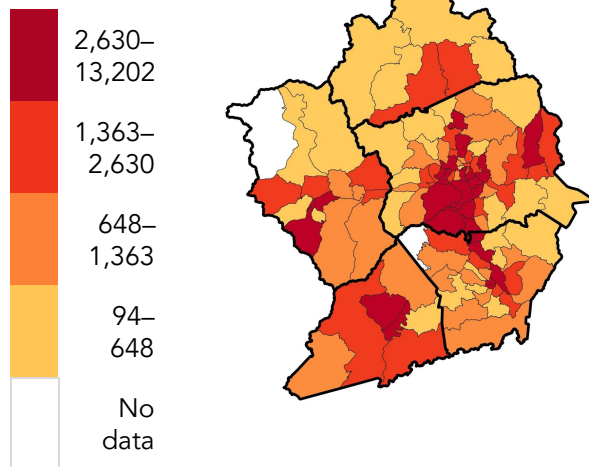
Total (Nighttime) Population (2017)

People/sq mi



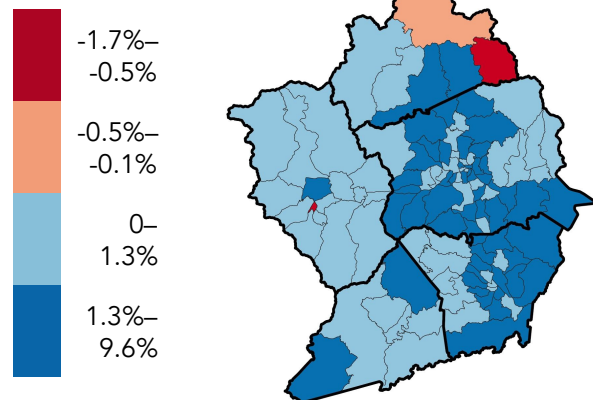
Daytime Population (2017)

People/sq mi



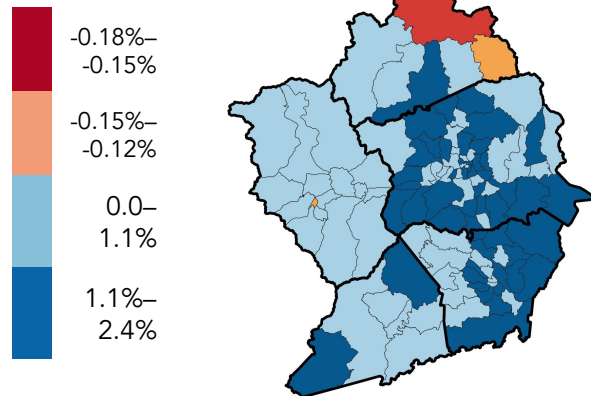
2010–2017 Population: Annual Growth Rate

Percent



2017–2022 Population: Projected Annual Growth Rate

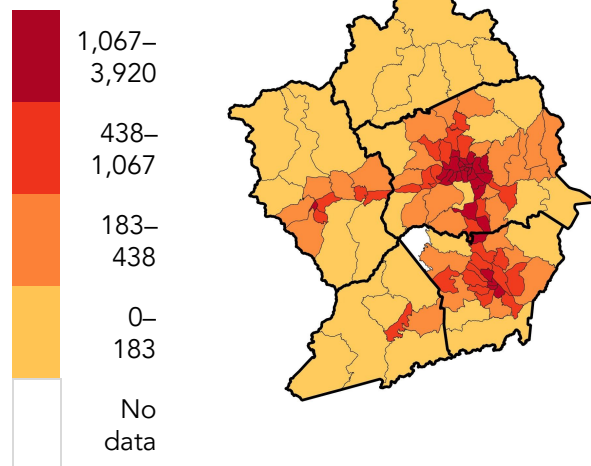
Percent



Social Vulnerability

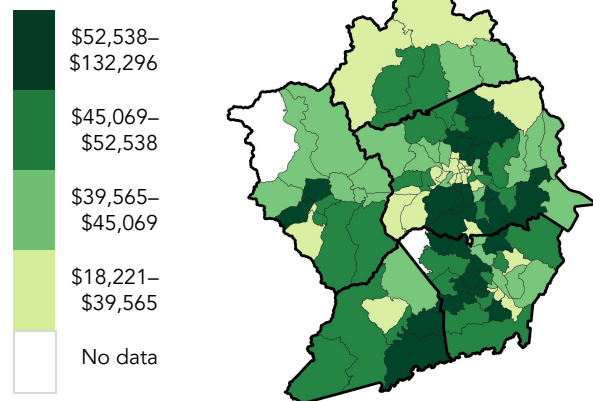
Population Density (2017)

People/sq mi



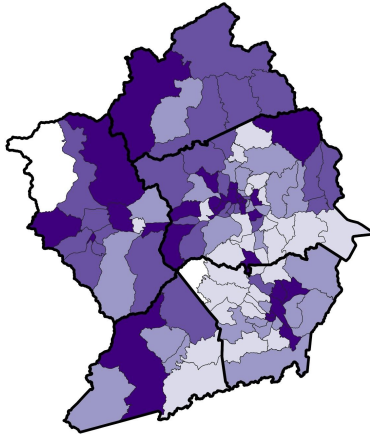
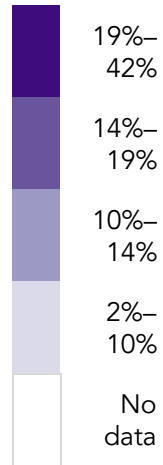
Median Household Income (2017)

U.S. Dollars



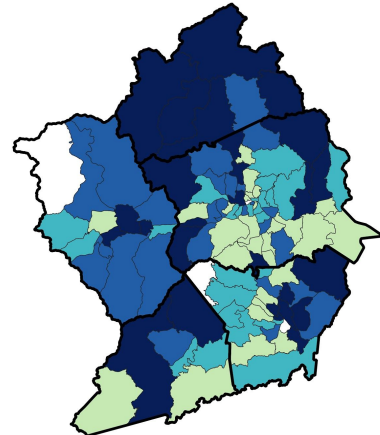
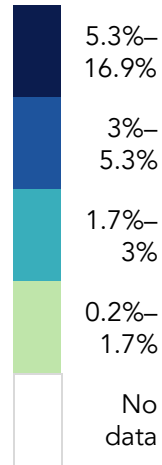
Percentage of Households Below Poverty Level (2011–2015)

Percent



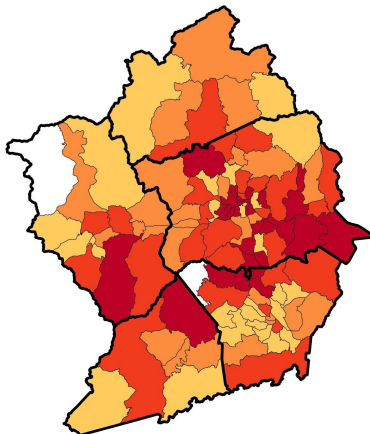
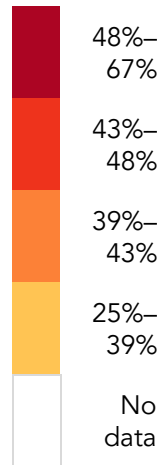
Percentage of Population with Education Less Than 9th Grade (2017)

Percent



Percentage of Workers Age 16+ (2011–2015)

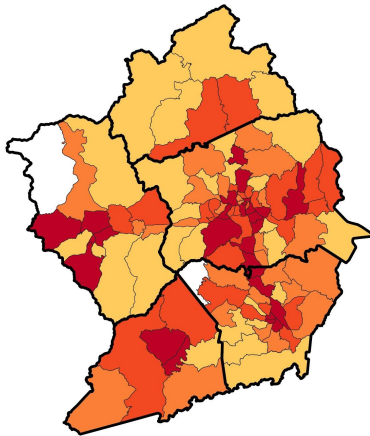
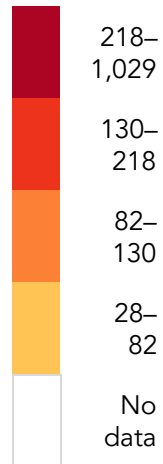
Percent



Economy

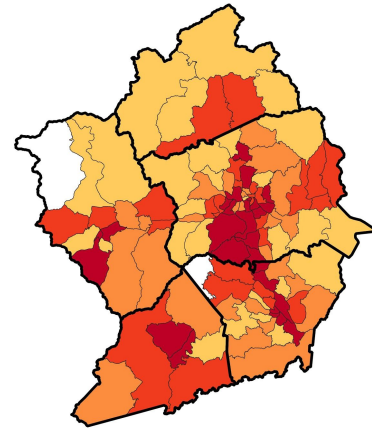
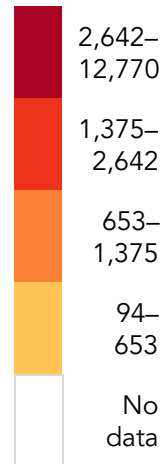
Total Businesses (2017)

Number



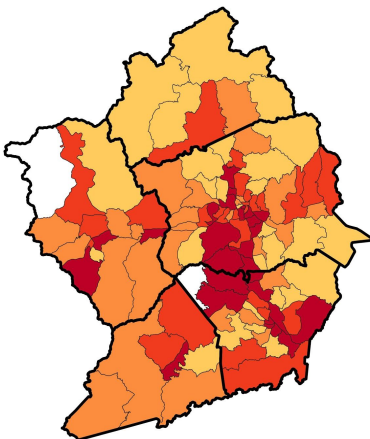
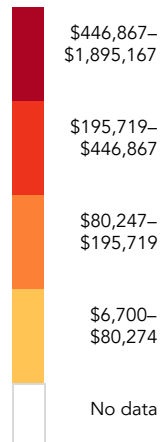
Total Employees (2017)

Number



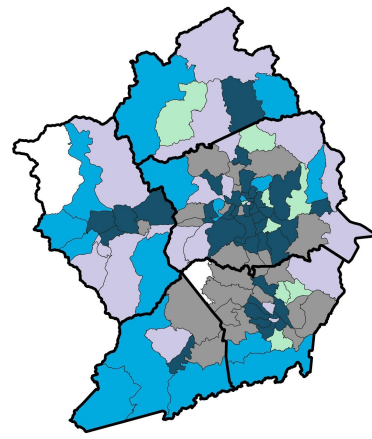
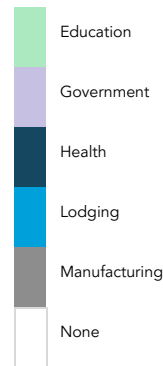
Total Sales (2017)

U.S. Dollars

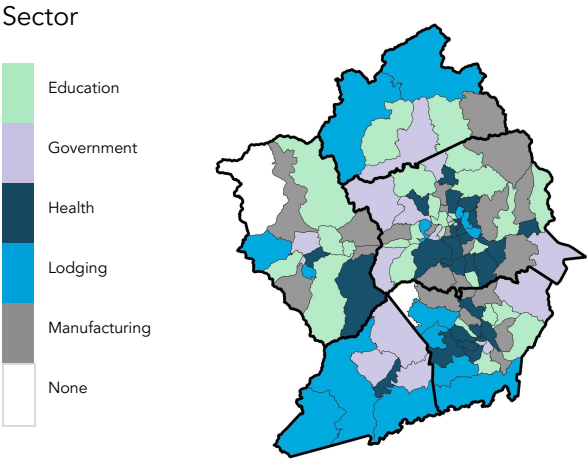


Majority Business Sector | By Number of Businesses (2017)

Sector

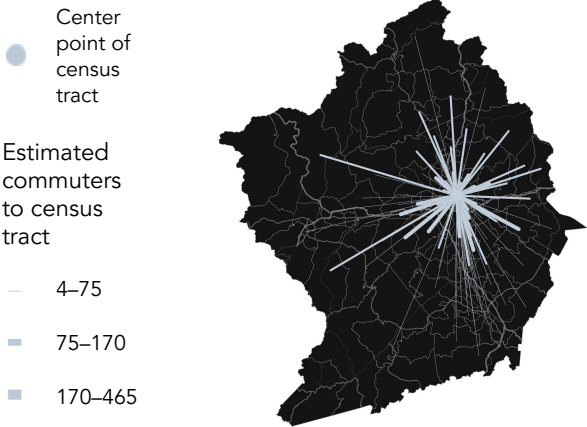


Majority Business Sector | By Number of Employees (2017)

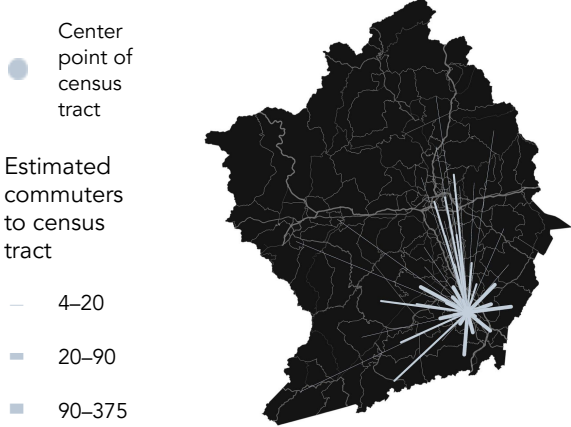


Workforce Commuting

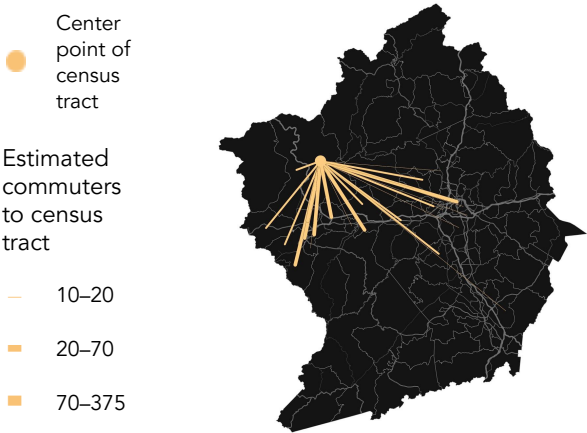
Work in Downtown Asheville
(Tract 37021000100)



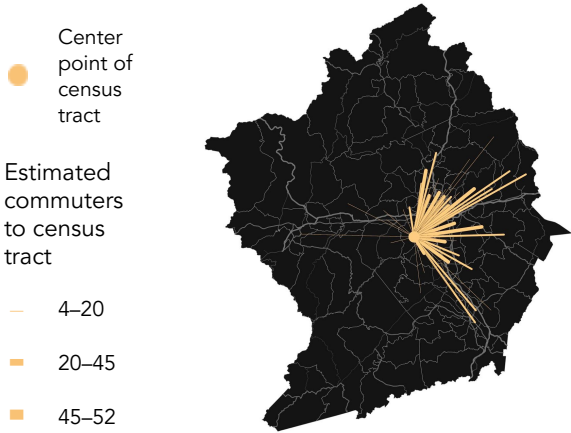
Work in Downtown Hendersonville
(Tract 37089931200)



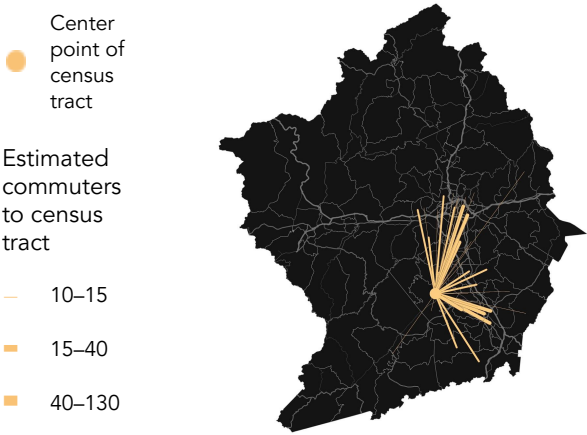
Live in Northeast Haywood County
(Tract 37087920102)



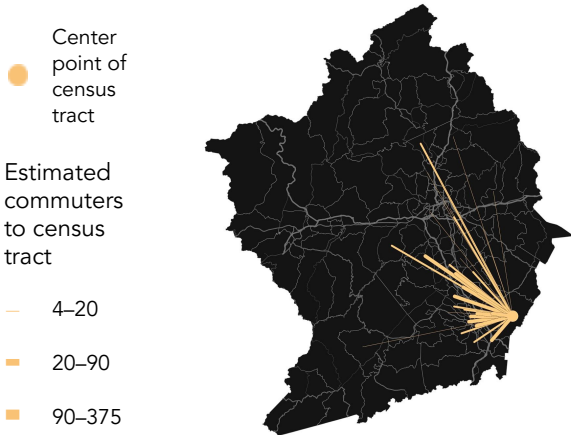
Live in Southwest Buncombe County
(Tract 37021002302)



Live in Northwest Henderson County
(Tract 37089930702)



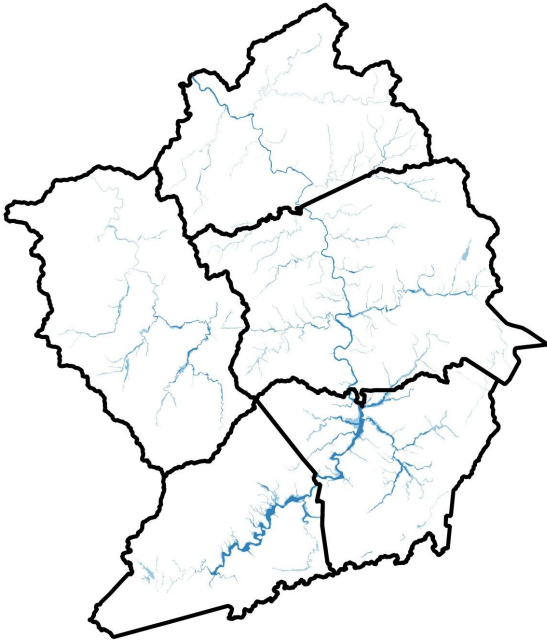
Live in Southeast Henderson County
(Tract 37089930200)



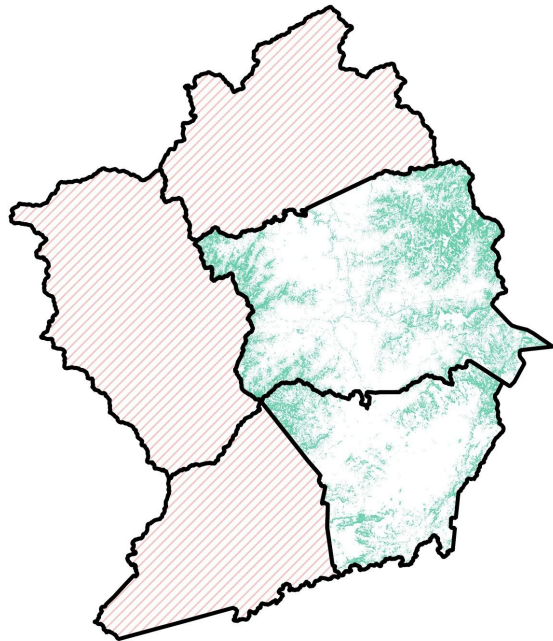
Threats

Two major threats can be mapped in detail across the Land of Sky region—flooding and wildfire—while landslides can be mapped for Buncombe and Henderson counties only. The maps below display the extent of the detailed hazard data available.

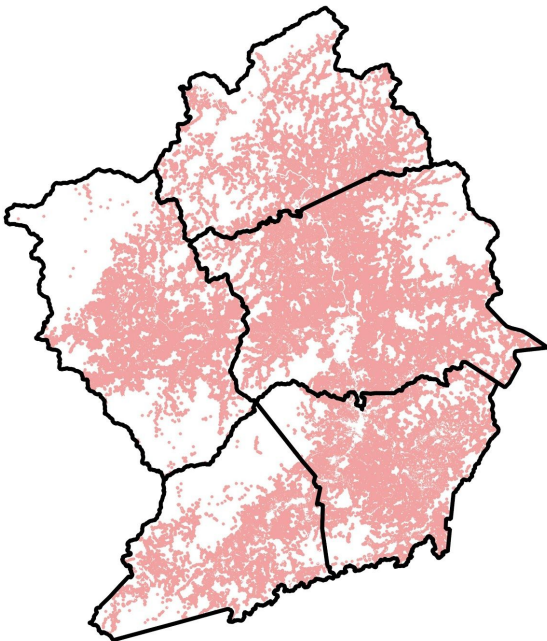
Flooding



Landslide



Wildfire



Asset-threat pair exposure

Comparing exposure across the collection of assets and threats begins to highlight the true set of issues that the Land of Sky region should address. The table below lists the number and percentage of total parcels exposed.

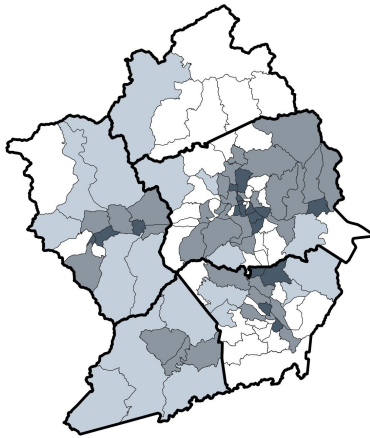
Asset Group	Flooding	Landslides*	Wildfire
COMMERCIAL PROPERTY (parcels)			
Industrial properties	481 (37%)	423/997 (42%)	1,191 (92%)
Institutional properties	853 (22%)	1,299/3,130 (42%)	3,517 (90%)
Office properties	270 (17%)	447/998 (45%)	1,288 (80%)
Retail properties	1,560 (24%)	1,372/4,390 (31%)	5,757 (88%)
Utility properties	155 (22%)	229/533 (43%)	538 (77%)
TRANSPORTATION (miles)			
Roads	402 (4%)	892/5,483 (16%)	N/A

** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

Industrial properties exposure

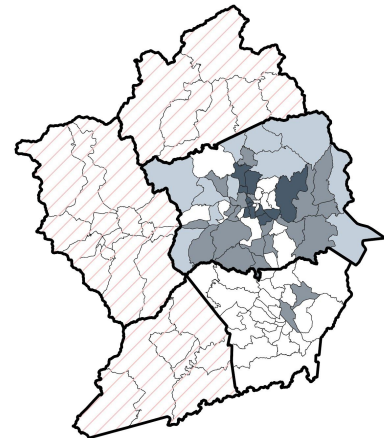
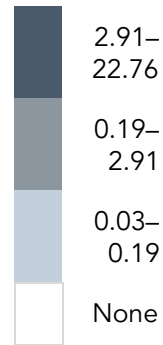
Flooding

Properties/sq
mi



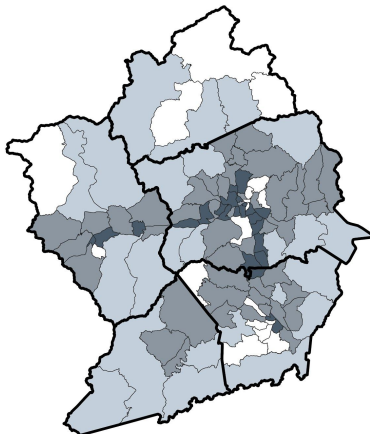
Landslides*

Properties/sq
mi



Wildfire

Properties/sq
mi

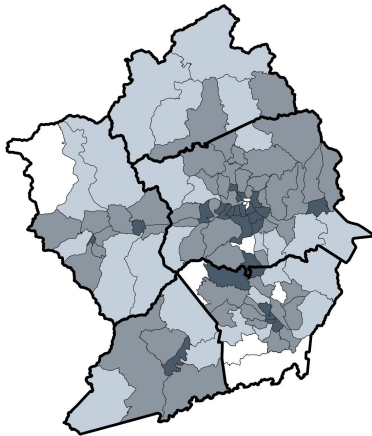
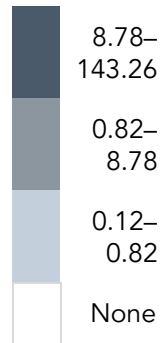


** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

Institutional properties exposure

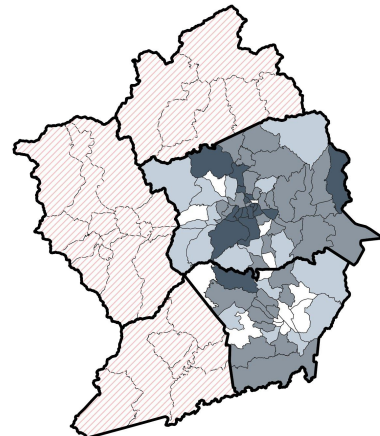
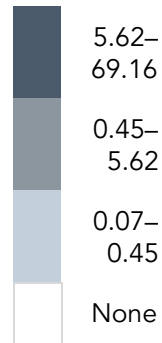
Flooding

Properties/sq
mi



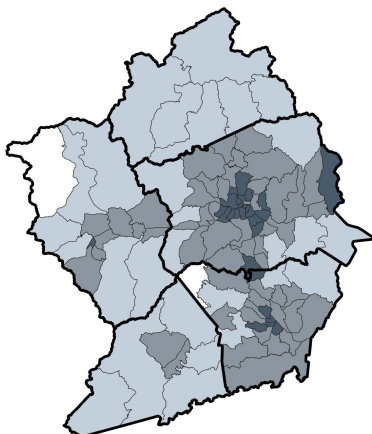
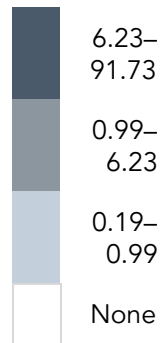
Landslides*

Properties/sq
mi



Wildfire

Properties/sq
mi

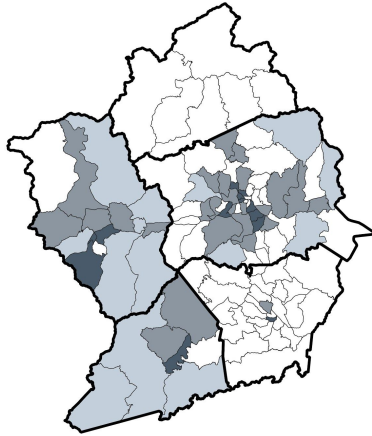
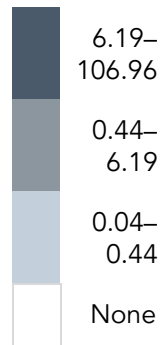


** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

Office properties exposure

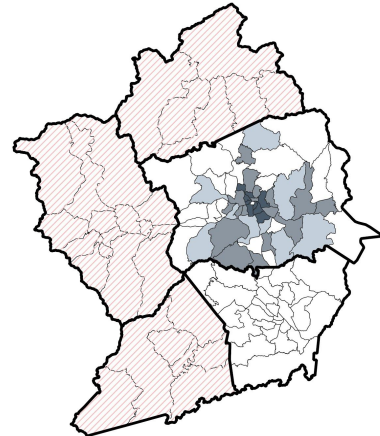
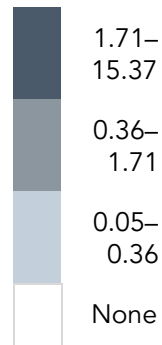
Flooding

Properties/sq
mi



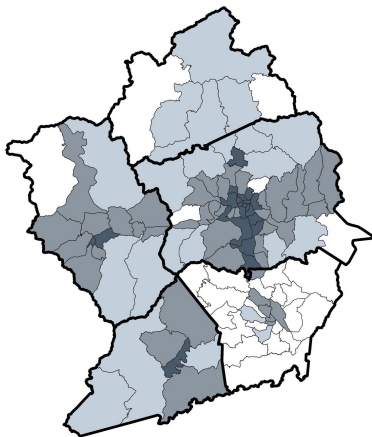
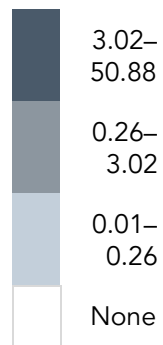
Landslides*

Properties/sq
mi



Wildfire

Properties/sq
mi

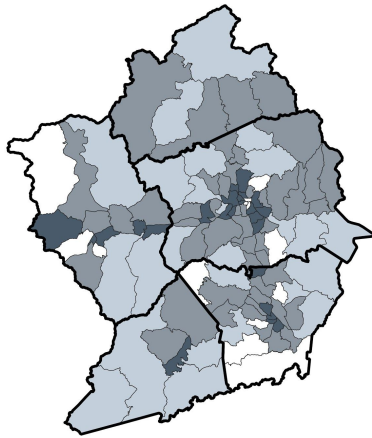
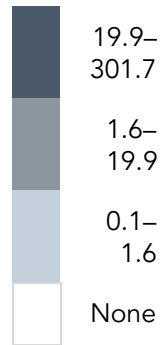


** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

Retail properties exposure

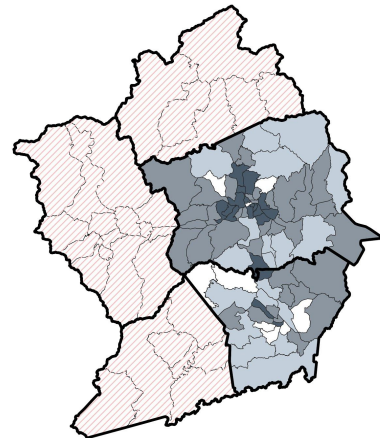
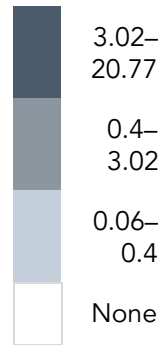
Flooding

Properties/sq
mi



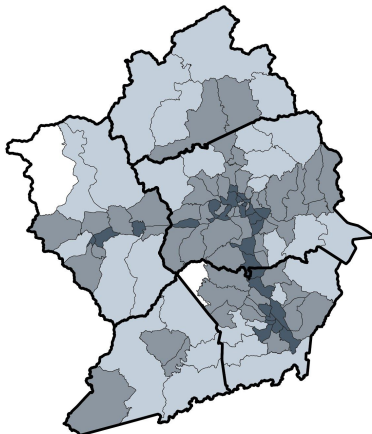
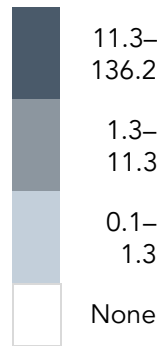
Landslides*

Properties/sq
mi



Wildfire

Properties/sq
mi

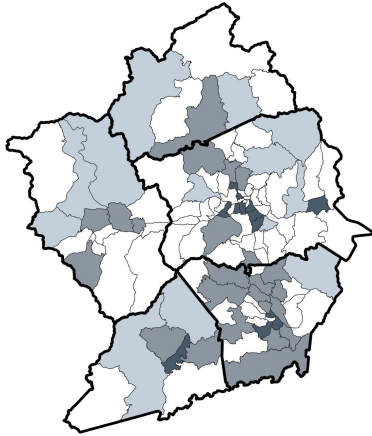
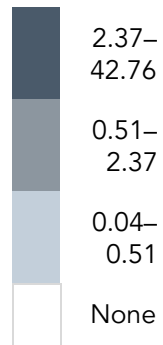


** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

Utility properties exposure

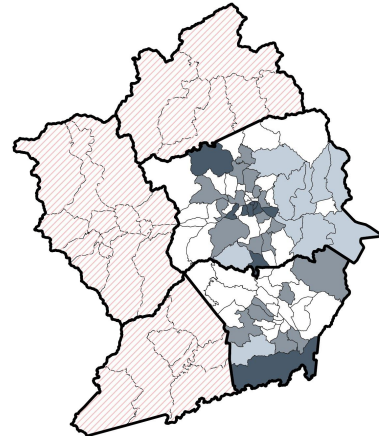
Flooding

Properties/sq
mi



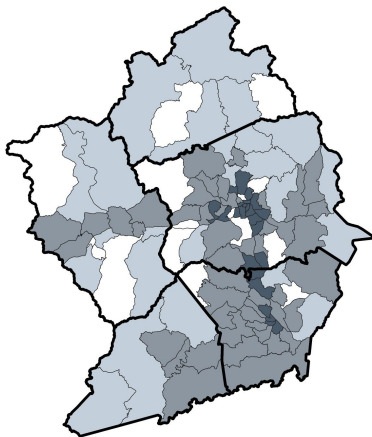
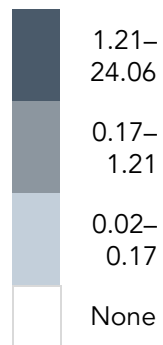
Landslides*

Properties/sq
mi



Wildfire

Properties/sq
mi

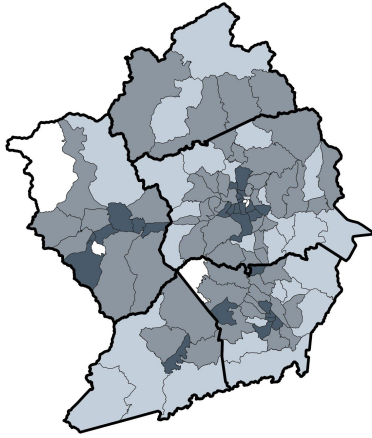


** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

Roads exposure

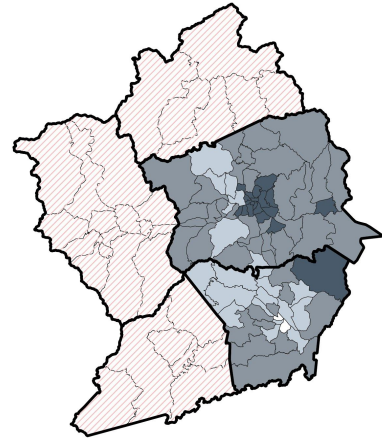
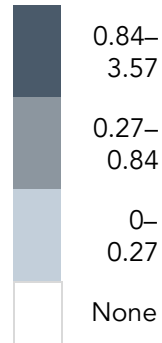
Flooding

Linear mi/sq
mi



Landslides*

Properties/sq
mi



** Note that threat model data does not cover the entire region; asset totals are for the extent of the data available (Buncombe and Henderson counties).*

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Metropolitan Statistical Area (MSA) data sources:

- <https://www.census.gov/programs-surveys/metro-micro.html>
- https://www.census.gov/population/metro/data/thematic_maps.html
- <https://www.bea.gov/regional/docs/msalist.cfm>
- <http://proximityone.com/metros2013.htm>

Appendix A: Analysis Technical Documentation

Process overview

The U.S. Climate Resilience Toolkit defines *exposure* as “the presence of people, assets, and ecosystems in places where they could be adversely affected by hazards.” For purposes of this assessment, “exposure” specifically means that an asset (e.g., a structure, parcel, or roadway) is spatially coincident with a specific hazard (e.g., flooding). For example, a warehouse located within the 500-year floodplain is considered to be “exposed.”

Conceptually, the hazards to which assets are exposed are affected by both climate and non-climate stressors (Figure 1). For purposes of this assessment, these hazards are presented using pre-existing hazard models, and discussion of how those hazards may change over time is presented through narrative and supporting information rather than modification of the hazard models using a variety of stressor scenarios.

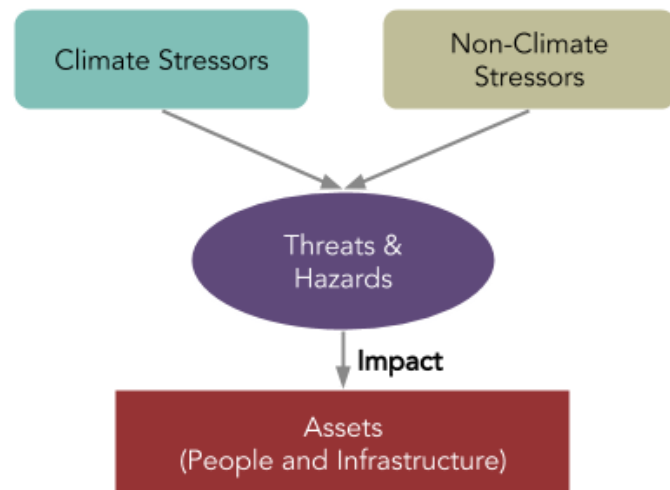
The assessment was conducted in three stages:

1. Asset data normalization and categorization;
2. Spatial relation of individual assets to each hazard layer; and
3. Aggregation of exposed assets to census tracts.

Asset data normalization and categorization

As the data for asset types differs, it must first be normalized into a general shape by removing superfluous fields and ensuring that the spatial data is complete, and then categorized according to the asset’s use. For this assessment, parcel data for property-based assets were categorized according to the parcel use codes attached to each parcel record. Other asset types did not require additional categorization.

Figure 1: Exposure concept diagram



Spatial relation of individual assets to hazard layers

For each asset-threat pair, we performed a spatial intersection of the asset with the hazard. Refer to Table 2 for definitions of asset types described below.

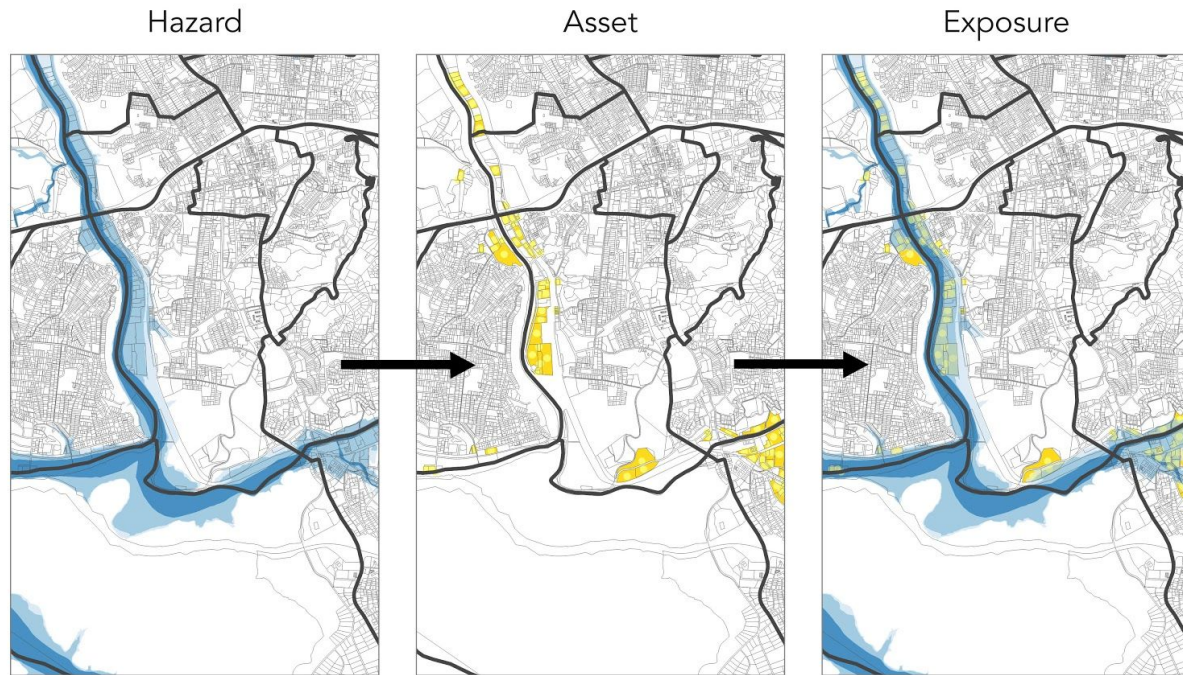
- For assets of Property Parcels type, if any part of the hazard extent fell within the extent of a given parcel, it was marked as exposed. Only the intersection of parcels to the hazard data was considered; structures were not considered for properties in the exposure assessment.
- For assets of Linear Feature type, if any part of a line segment of the feature intersected with the hazard geography, that line segment was cut at the intersection and the piece within the hazard was marked as exposed.

Aggregation of exposure to census tracts

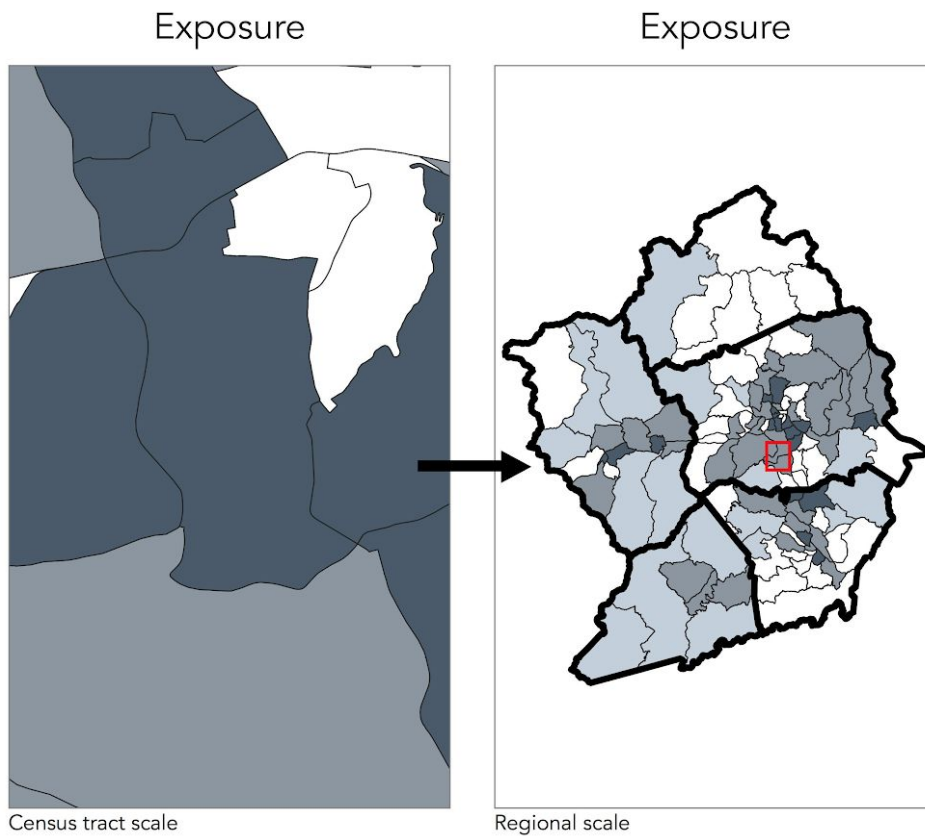
The U.S. Census Bureau defines census tracts ("tracts") as small, relatively permanent statistical subdivisions of a county or equivalent entity with a primary purpose of providing a stable set of geographic units for the presentation of statistical data.¹ A census tract generally has a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. In the assessment, tracts are used to aggregate localized analyses to the same scale as the socioeconomic variables published by the U.S. Census Bureau and Esri's Business Analyst Online (Figure 2). Using a common spatial unit for aggregation allows comparison across asset categories for a given hazard, and across hazards for a given asset.

¹ U.S. Census Bureau. "[Geography: Geographic Terms and Concepts - Census Tract.](#)" Last modified 6 December 2012.

Figure 2: Industrial property/flood exposure



Asset (parcel) scale



Census tract scale

Regional scale

Data sources

Table 1: Hazard data sources

Hazard	Source	Data format
Flooding	North Carolina Flood Risk Information System	Vector features
Landslides	NCDEQ	Vector features
Wildfire	Southern Group of State Foresters	Raster

Table 2: Asset and socioeconomic data sources

Asset Group	Source	Asset Type
Industrial Property	Land of Sky	Property Parcels
Institutional Facilities	Land of Sky	Property Parcels
Office Property	Land of Sky	Property Parcels
Retail Property	Land of Sky	Property Parcels
Utility Property	Land of Sky	Property Parcels
Roads	Open Street Map Geofabrik	Linear Features
Commute Data	Federal Highway Administration	
Economic Data	ESRI and Infogroup (via Business Analyst Online)	
Demographic Data	ESRI, U.S Census, American Community Survey (ACS) (via Business Analyst Online)	

Asset group classification

Parcel-based asset groups

All properties are extracted from ELUSE_OMEGA file geodatabase supplied by Land of Sky. Specific use types were determined by values found in the field final_trm.

Asset Group	final_trm
Industrial	IND
Institutional	HOSPTL CIVIC GOV SCHOOL SPECIAL CAMP
Office	OFFICE HIOFFC MU
Retail	SERVICE HWYRET RETAIL MALL ENT COMSTP LODGING
Utility	UTILITY
Disregarded parcels not included in the analysis	GROUP SENIOR RR VL L ML M MH H VH UH FARM WATER VACANT GRNSPC NATARA NAFBPMA CO_LINE ROW

	ROAD ROW RDROW UNK
--	--------------------------

Parcel assessment and summary statistics

Total Unique Parcels	294,684
Total parcel value*	\$92,187,111,096
Total parcel improvement value*	\$35,013,466,229
Assessed parcels	14,068 (4.77%)
Assessed parcel value*	\$14,520,048,78 (15.75%)
Assessed parcel improvement value*	\$9,289,995,270 (26.53%)
Disregarded parcels	294,684 (95.23%)
Disregarded parcel value*	\$77,667,062,315 (84.25%)
Disregarded parcel improvement value*	\$25,723,470,959 (73.47%)

* Parcels values do not include Transylvania County.

Non-parcel feature asset groups

Asset Group	Datasource
Roads	Open Street Map Geofabrik

Label (Grouping)	Hendersonville city, North Carolina!!Total population!!Number
Total population	10,420
SEX AND AGE	
Male	4,719
Female	5,701
Under 5 years	539
5 to 9 years	577
10 to 14 years	567
15 to 19 years	532
20 to 24 years	574
25 to 34 years	1,116
35 to 44 years	1,257
45 to 54 years	1,140
55 to 59 years	446
60 to 64 years	424
65 to 74 years	1,208
75 to 84 years	1,398
85 years and over	642
Median age (years)	45.4
18 years and over	8,410
Male	3,649
Female	4,761
21 years and over	8,103
62 years and over	3,508
65 years and over	3,248
Male	1,145
Female	2,103
RELATIONSHIP	
Population	10,420
In households	9,622
Householder	4,579
Spouse	1,811
Child	2,232
Own child under 18 years	1,738

Other relatives	565
Under 18 years	209
Nonrelatives	435
Unmarried partner	165
In group quarters	798
Institutionalized population	556
Noninstitutionalized population	242
HOUSEHOLDS BY TYPE	
Households	4,579
Family households (families)	2,557
With own children under 18 years	949
Married-couple family	1,811
With own children under 18 years	537
Female householder, no husband present	590
With own children under 18 years	346
Nonfamily households	2,022
Householder living alone	1,836
Householder 65 years and over	1,010
Households with individuals under 18 years	1,070
Households with individuals 65 years and over	1,967
Average household size	2.1
Average family size	2.8
HOUSING TENURE	
Occupied housing units	4,579
Owner-occupied housing units	2,611
Renter-occupied housing units	1,968
Average household size of owner-occupied unit	2.07
Average household size of renter-occupied unit	2.14

Label (Grouping)	Hendersonville city, North Carolina
Total:	13,137
Population of one race:	12,844
White alone	10,475
Black or African American alone	1,203
American Indian and Alaska Native alone	59
Asian alone	154
Native Hawaiian and Other Pacific Islander alone	41
Some Other Race alone	912
Two or More Races:	293
Population of two races:	282
White; Black or African American	110
White; American Indian and Alaska Native	33
White; Asian	26
White; Native Hawaiian and Other Pacific Islander	4
White; Some Other Race	81
Black or African American; American Indian and Alaska Native	4
Black or African American; Asian	16
Black or African American; Native Hawaiian and Other Pacific Islander	0
Black or African American; Some Other Race	2
American Indian and Alaska Native; Asian	0
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
American Indian and Alaska Native; Some Other Race	0
Asian; Native Hawaiian and Other Pacific Islander	1
Asian; Some Other Race	1
Native Hawaiian and Other Pacific Islander; Some Other Race	4
Population of three races:	7
White; Black or African American; American Indian and Alaska Native	3
White; Black or African American; Asian	0
White; Black or African American; Native Hawaiian and Other Pacific Islander	1
White; Black or African American; Some Other Race	1
White; American Indian and Alaska Native; Asian	0
White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
White; American Indian and Alaska Native; Some Other Race	0
White; Asian; Native Hawaiian and Other Pacific Islander	0
White; Asian; Some Other Race	0
White; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; American Indian and Alaska Native; Asian	1
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
Black or African American; American Indian and Alaska Native; Some Other Race	0
Black or African American; Asian; Native Hawaiian and Other Pacific Islander	0
Black or African American; Asian; Some Other Race	0
Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	1
American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
American Indian and Alaska Native; Asian; Some Other Race	0
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0

Population of four races:	4
White; Black or African American; American Indian and Alaska Native; Asian	4
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; American Indian and Alaska Native; Some Other Race	0
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; Asian; Some Other Race	0
White; Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
White; American Indian and Alaska Native; Asian; Some Other Race	0
White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
Black or African American; American Indian and Alaska Native; Asian; Some Other Race	0
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Population of five races:	0
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; American Indian and Alaska Native; Asian; Some Other Race	0
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Population of six races:	0
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0

Label (Grouping)	Hendersonville city, North Carolina
Total:	15,137
Population of one race:	14,060
White alone	11,300
Black or African American alone	1,080
American Indian and Alaska Native alone	67
Asian alone	191
Native Hawaiian and Other Pacific Islander alone	102
Some Other Race alone	1,320
Population of two or more races:	1,077
Population of two races:	1,036
White; Black or African American	172
White; American Indian and Alaska Native	188
White; Asian	67
White; Native Hawaiian and Other Pacific Islander	1
White; Some Other Race	563
Black or African American; American Indian and Alaska Native	12
Black or African American; Asian	9
Black or African American; Native Hawaiian and Other Pacific Islander	3
Black or African American; Some Other Race	8
American Indian and Alaska Native; Asian	0
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
American Indian and Alaska Native; Some Other Race	6
Asian; Native Hawaiian and Other Pacific Islander	4
Asian; Some Other Race	2
Native Hawaiian and Other Pacific Islander; Some Other Race	1
Population of three races:	38
White; Black or African American; American Indian and Alaska Native	16
White; Black or African American; Asian	4
White; Black or African American; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; Some Other Race	4
White; American Indian and Alaska Native; Asian	0
White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
White; American Indian and Alaska Native; Some Other Race	2
White; Asian; Native Hawaiian and Other Pacific Islander	3
White; Asian; Some Other Race	5
White; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; American Indian and Alaska Native; Asian	0
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	2
Black or African American; American Indian and Alaska Native; Some Other Race	1
Black or African American; Asian; Native Hawaiian and Other Pacific Islander	0
Black or African American; Asian; Some Other Race	0
Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	1
American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
American Indian and Alaska Native; Asian; Some Other Race	0
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0

Population of four races:	3
White; Black or African American; American Indian and Alaska Native; Asian	0
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; American Indian and Alaska Native; Some Other Race	0
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; Asian; Some Other Race	2
White; Black or African American; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
White; American Indian and Alaska Native; Asian; Some Other Race	1
White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
Black or African American; American Indian and Alaska Native; Asian; Some Other Race	0
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Population of five races:	0
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	0
White; Black or African American; American Indian and Alaska Native; Asian; Some Other Race	0
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
White; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0
Population of six races:	0
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race	0

TAB 4

Funding Sources Comparison Chart

Source	1 Information of Availability	2 Application Procedures	3 Support Given	4 Support Not Given	5 Motivations for Giving	6 Sources of Money	7 Decision Making
Government Grants (Federal, State, Local)	<i>Lots of it! Time between publication of RFP and submission deadline often very short.</i>	<i>Long and complex. Personal contact advised.</i>	<i>Contracts, formula (entitlements), project, demonstration, research, planning</i>	<i>Endowment, capital, funds for building</i>	<i>Public needs (emphasis in federal money is shifting to state level), legislative mandates</i>	<i>Taxes (subject to legislative priorities)</i>	<i>6 months to 2 years</i>
Foundation Grants	<i>Some available, but not enough!</i>	<i>Proposal follows personal contact. Personal contact is VERY important.</i>	<i>Project, demonstrations, community activities, maybe capital funds or endowments</i>	<i>Rare to receive ongoing operating expenses.</i>	<i>Philanthropic, publicity, desire to support innovation, tax sheltering</i>	<i>Income and Assets (subject to shifts in economy)</i>	<i>3-6 months</i>
Corporation Grants (also local businesses)	<i>Difficult to find. Sometimes only accessible through employee recommendation. Emphasis on communities where they are.</i>	<i>Few formal procedures. Personal contact VERY important.</i>	<i>Community activities, innovative and creative projects, annual support, Research, some capital funds or endowments, volunteers</i>	<i>Rare to receive ongoing operating expenses.</i>	<i>Employee benefit, public image, executive pet projects</i>	<i>Profits: percentage given away is subject to economic fluctuations</i>	<i>1 week to 6 months</i>



2017-2018 Municipal and County Parks and Recreation Services Study

FOCUS ON TRENDS



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Table of Contents

Introduction.....	1
Methods.....	2
Summary of Trending Issues.....	4
Parks and Recreation Budgets and Staffing.....	11
Limitations.....	15
Appendix.....	17

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2017-2018 Municipal and County Parks and Recreation Services Study: Focus on Trends

Study conducted by [Recreation Resources Service](#) (RRS)

RRS is a technical assistance program for North Carolina (NC) parks and recreation providers offered through a cooperative partnership between NC Division of Parks and Recreation and NC State University Department of Parks, Recreation, and Tourism Management

Introduction

Each year the Municipal and County Parks and Recreation Services Study (MCPRSS) seeks to assess the status of local government parks and recreation departments in NC based on a number of rotating metrics. The goal of the MCPRSS is to provide data to parks and recreation agencies as well as local governments in NC as they evaluate current services to assist in budget planning, preparation, and justification for leisure services.

The MCPRSS for fiscal year 2017-18 marks the 68th year of assessment for municipal leisure service providers and the 48th year for county leisure service agencies. This year's survey focused on several pertinent trends in the local-level parks and recreation realm: greenways, active transportation, homelessness in parks, mobile recreation, and bond referendums. In a follow up from previous studies, we sought information to identify any new trends related to dog parks and policies on tobacco use in parks, as these are frequent topics of discussion among agencies.

In addition to information on the trending topics, the MCPRSS offers local-level leisure providers an important tool for analysis and comparison of tax-supported funding and personnel levels across the state. RRS hopes this study will assist managers and administrators in making informed decisions on the operation of their agencies and the delivery of leisure services to their communities.

For more information about this or previous studies please contact RRS or visit the RRS Library:
<http://go.ncsu.edu/rrs>

Acknowledgment

The goal of this initiative is to provide a resource for enhancing leisure services delivery across our great state. The report's strength originates with the determined effort, detailed information, and meticulous reporting of the participating departments. RRS greatly appreciates the time and effort each department contributed to completing this survey.

2017-18 Study Note

Due to severe weather events and record flooding across the state in 2018, many departments were unable to participate in this survey as well as the annual state budget reporting process conducted by the NC Department of Commerce, which also contributes to this study. Some of these communities are still actively recovering, and we are all grappling with longer-term questions about resilience in light of a changing climate. Our thoughts go out to those still putting their lives back together and rebuilding across communities.

Methods

In October 2018 a request to complete the questionnaire was emailed to 232 of the 243 local government parks and recreation departments in NC. After removing 39 responses due to incomplete survey data or duplicate submission, a total of 74 usable responses were received and suitable to include for analysis, which translates to a response rate of approximately 32%.

Organization of Results

In addition to examining data across the entire state, the data may also be analyzed within certain categories in order to facilitate more practical comparisons between departments. These categories include department type (county, municipal, or combination), population class, and prosperity zone. The Appendix document lists each department in NC along with each department's details with relation to these three categories, and participation in this year's M CPRSS is indicated. The below table shows a summary of respondents by department type (Table 1).

Table 1. Department type across NC and in M CPRSS.

Department Type	Statewide	Respondents	Respondents (%)
All types	243	74	30
Combination	6	1	17
County	76	21	28
Municipal	161	52	32

Population classes are based on categories typically used by the US Census Bureau and regional planning agencies. This year we added Population Class F to offer a better representation of NC parks and recreation departments by shedding light on the many smaller communities of our state. A department's population class is determined by the size of the population served; the classes are broken up according to the criteria in Table 2.

Table 2. Departments by population class across NC and in M CPRSS.

Population Class	Population Served	Departments Statewide	Respondents	Respondents (%)
A	100,000 and up	29	10	34
B	50,000 to 99,999	28	8	29
C	25,000 to 49,999	41	13	32
D	10,000 to 24,999	55	20	36
E	5,000 to 9,999	29	13	45
F	4,999 and under	61	10	16

Prosperity Zones are determined by the NC Department of Commerce. These eight Economic Prosperity Zones are administrative regions established to offer better collaboration between state and local agencies in an effort to enhance communication and interaction for citizens and businesses. Areas of specialty range from transportation and environmental topics to workforce development and community planning. **NOTE:** Additional information may be found at nccommerce.com/about-us/nc-prosperity-zones.

These zones are frequently used to represent geographic regions by many funding agencies, including a measure of geographic distribution for the NC Parks and Recreation Authority when awarding Parks and Recreation Trust Fund (PARTF) grants. Because local governments are familiar with Prosperity Zones used by NC Commerce, we applied these regional boundaries to make geographic comparisons of MCPRSS data. While there are exceptions where departments offer services across prosperity zone boundaries, we have assigned every department to one zone (Table 3). The distribution of departments across the state and the prosperity zones is represented visually below (Figure 1).

Table 3. Departments by prosperity zone across NC and in MCPRSS.

Prosperity Zone	Departments Statewide	Respondents	Respondents (%)
Northeast	21	4	19
Northwest	24	3	13
North Central	47	20	43
Piedmont-Triad	33	12	36
Sandhills	23	5	22
Southeast	32	11	34
Southwest	39	13	33
West	24	6	25

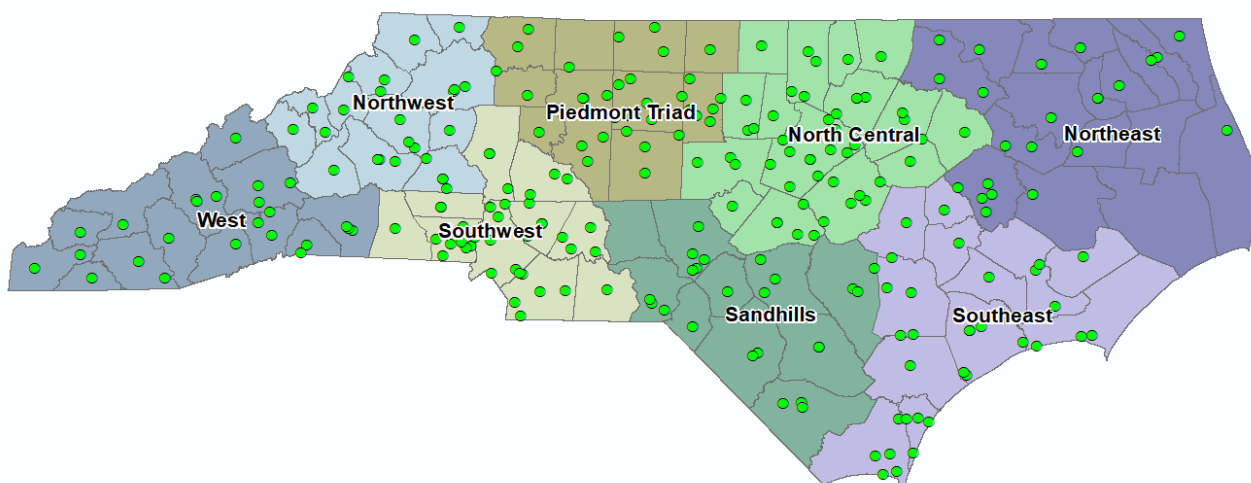


Figure 1. NC Economic Prosperity Zones and public parks and recreation departments.

Summary of Trending Issues

This year's study intended to examine current issues and new practices on the local parks and recreation level. Key trends were identified based on a review of recent parks and recreation publications and based on questions fielded by RRS staff from current practitioners. Results of this portion of the survey are divided into sections according to those trends. They include: greenways, active transportation, homelessness in parks, mobile recreation, and bond referendums, plus a follow up from previous studies with questions about dog parks and policies on tobacco use in parks. Brief descriptions of the results follow, but more detailed results may be provided upon request. Our goal is that managers will be able to make more informed decisions and stay up to date on current practices.

Greenways



Greenways (GW) are linear parks interconnected to form a city/county-wide network of natural open space with or without developed trails and paths. They are vital infrastructure for communities to facilitate recreation activities, active transportation, and flood protection. This study reviewed planning, trail surface, and connection of local trails to a regional system.

Approximately two thirds of responding agencies have a GW masterplan or are in the process of developing one, and this is pretty evenly distributed across population classes. The earliest masterplan reported is from 1976, but the majority of these plans have been developed since the mid-2000s. More than 70% of responding departments already have some amount of GW in place. As for trails in GW corridors, more trail miles are hard surface than natural surface, and communities of Population Class A have many more miles than communities of the other Population Classes (this skewness is mostly

attributable to Raleigh and Cary). Nonetheless, departments from all Population Classes do have GW trails. **NOTE:** *The 2019 MCPRSS will collect more detailed data about facilities, including trails.*

Just under half of respondents indicated that their GW system is connected to a regional trail system of some variety. While more than a dozen trail systems were mentioned, the Mountains-to-Sea State Trail and Carolina Thread Trail were overwhelmingly the most common systems listed. The East Coast Greenway, American Tobacco Trail, Haw River Trail, and the Mecklenburg County Greenway system were also mentioned more than once.



Active Transportation



Active transportation (AT) uses only the physical activity of the human being for travel. The most common forms are walking and cycling, but other activities, like skateboarding or rollerblading, also facilitate AT.

More than half of respondents indicated that the majority of their facilities are accessible by AT, and many of them maintain infrastructure, like greenway trails, that are intended to accommodate AT. Half of respondents actively promote or market AT to their constituents. Nonetheless, respondents estimate that relatively few park visitors use AT to travel to and from their park facilities. These results are relatively consistent across prosperity zones and population classes. While scooter share programs have been controversial, only one department in our survey reported having one in their community. Bike share programs were reported in only six communities.

For the purposes of this survey, mobile recreation programs, mobile recreation units, and pop-up parks are all grouped together as “mobile recreation.” Mobile recreation (MR) often brings opportunities for recreational activities to places with underutilized facilities or inadequate access to parks or programs. MR is frequently offered as a partnership between parks departments and other organizations within the community.

Respondents report that their MR programs most frequently target youth, families, teens, and senior citizens. Some departments mentioned that MR is used to target very specific populations from time to time, such as hurricane evacuees in temporary housing or residents in high crime residential areas. Many activities and amenities were reported to be offered in MR programs, but the most common ones by far are open play and arts/cultural programs, as indicated in the word cloud (Figure 2). The bigger the word, the more frequently it appeared in the data. Toys, extreme/adventure sports, health education, and team sports, and snacks/nutrition assistance were each reported by five or more departments.



Homelessness in Parks

6

circumstances of homelessness in their communities. However, only three respondents indicated that their departments offer recreational programming that *specifically* targets the homeless population.

Nonetheless, many departments reported providing services to the homeless. Restroom facilities top the list, but shelter during inclement weather, showers, phone or computer access, fitness/health and wellness, and food assistance were all reported by multiple departments. Some departments reported providing many of these services, while nearly half of respondents reported providing no services to the homeless population. A small portion of respondents work with outside agencies, primarily local non-profits, to provide outreach to the homeless population.

The vast majority of respondents report that authorities remove encamped people from parks a few times per year or less, and more than half of these respondents said that authorities never remove encamped people. When asked about the length of notice provided before removing encamped people, nearly every department reported that little or no notice is provided. However, a small percentage of departments give people anywhere from 24 to 72 hours' notice.



Bond Referendums

Park and recreation bond referendums (BR) may be placed before voters to fund infrastructure improvements or land purchases. Park related BR include any ballot measures for parks, recreation, greenways, and or open space.

We asked for the number of BR placed before voters in the last five years, within the last six to ten years, and more than ten years ago in hopes of recognizing a trend over time. 18 respondents reported 15, 11, and 22 BR on ballots during those three periods, respectively. Out of these 48 BR, 20 were approved by voters. We also asked for the amount of the most recently approved BR. Based on 8 responses, a total of \$228.9 million was reported for an average of \$28.6 million; the median value was \$15.4 million.

Trend Follow Up

Previous studies examined trends with dog park facilities and tobacco use in parks. While dog parks appear to be a standard facility in many communities, questions are still posed by parks professionals as well as many small communities just starting to provide these recreation opportunities for their citizens.

Tobacco use policies also appeared to level off, but the introduction of and concern about new products such as e-cigarettes and vaping has introduced new policy questions.

Dog Parks



Many recreational needs surveys rank dog parks (DP) among the most desired park facilities across towns and counties, whether urban, suburban, or rural. This study looked at types of dog park facilities, policies (e.g. restrictions for use), and reported conflicts at the parks. DP are in high demand in NC, and agencies across the state have responded accordingly by installing them in various forms.

In this survey, just under half of responding departments have a DP, and there is no clear trend based on prosperity zone or population class. Looking back to the last MCPRSS that focused on trends (2012-2013), this represents an increase. In the previous study, one in four departments had a DP.

While most respondents only have one DP, some departments have multiple DP, and this is more common for communities that fall in larger population classes. Most DP are reported to be attached to other park facilities, although there are some stand-alone DP, too. In most cases, DP are unlighted and departments have no plans to add lighting; however, some departments currently have lighted DP or are planning to light their DP. Most departments have some sort of restriction in place, but there is great variety in this regard. Restrictions on dog size are most common, followed by restrictions on the number of dogs per person at the DP. Only one in three responding departments indicated that children 12 or under are allowed inside the dog park area.

Notwithstanding some vocal proponents, unfenced and off-leash DP are rare (although a few were reported), and respondents indicated that demand for this amenity is generally low, but highest in communities that fall in Population Class A. Open-ended responses on unfenced, off-leash DP demonstrate that this is a contentious idea. While some respondents view it positively, others see it as "too much of a liability." Overall, though, it seems that most departments believe that their constituents are satisfied with current dog park offerings.

Respondents in this survey overwhelmingly indicated that conflicts between DP users and other facility users are rare. We requested that respondents describe occasions where there was conflict between DP patrons and other facility users. The low number of responses we received (n=4) further indicate that these conflicts are not common. However, issues do arise sporadically. Comments indicate that conflicts occur most frequently when dogs are off-leash. While most conflicts may be more innocuous, dogs have bitten parks patrons in some extreme cases.

Tobacco Use in Parks



Across NC, local governments have passed ordinances restricting smoking in public parks. Generally, most community residents support, and even lobby for smoke-free outdoor spaces. Although this is most often the case, there can be some pushback from park patrons who use tobacco products. This section collected information on the frequency of tobacco bans among public parks departments. This section attempted to draw distinctions between smoking, vaping, and other forms of tobacco use, but inconsistencies in responses indicate that the questions were not clear or specific enough. Nonetheless, some conclusions can still be drawn from the data.

Traditional smoking is more restricted than vaping or the use of electronic cigarettes, and many respondents did not consider “vaping or e-cigarettes” a form of tobacco use. Out of 67 respondents, 39 reportedly ban “smoking” on all property while only 28 of those departments ban “vaping or e-cigarettes” on all property.

Many respondents shared their local government's smoking policy or the relevant ordinance (n=44). These were each coded to fit one of three categories: total ban, permitted (except indoors), or some

restrictions (i.e., somewhere between the other two categories), and this tended to align with population class. (Figure 3.) A higher proportion of “permitted” departments are in small population classes. A higher proportion of “banned” departments are in large population classes. More of the “in-between” departments, which have some restrictions on tobacco use but do not ban it outright, are in the medium population classes.

Is smoking/tobacco use banned, permitted, or somewhere in between? (n=44)

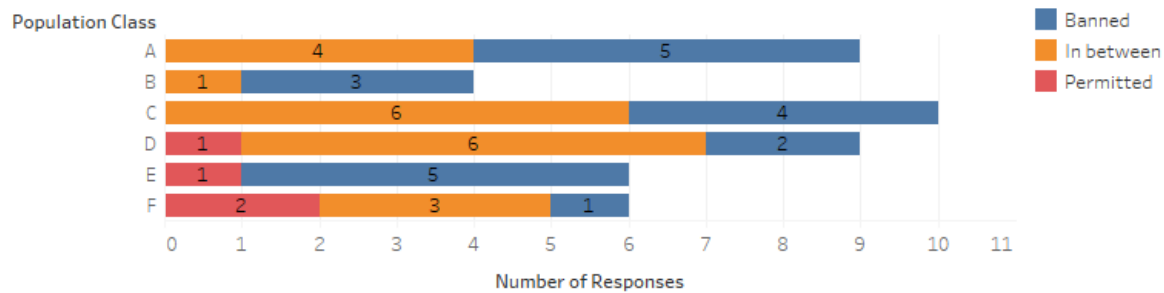


Figure 3. Smoking restrictions by population class.

Comparing this to the last MCPRSS that focused on trends (2012-2013), smoking restrictions have increased. While two out of three departments in the previous study permitted smoking in parks, only about 55% of departments (n=24) that provided smoking policies in the current study permit smoking. Of this group, only four allow unrestricted smoking in their parks.

Parks and Recreation Budgets and Staffing

Data from This Year's MCPRSS

The MCPRSS solicits data regarding parks and recreation departments' budgets and staffing. A number of particular budget metrics related to revenue sources are captured, and their descriptions have been included here (Table 4).

Table 4. Revenue types and meanings as used in the survey.

Revenue Type	Meaning
Fees and charges	Revenues from recreation program fees
Concessions	Revenues from contracted or self-run food and beverage operations at park facilities
Facility rentals	Revenues from use of gyms, tennis courts, etc.
Federal grants	All monies awarded by federal grants to support recreation and parks
State grants	All monies awarded by state grants to support recreation and parks
Local government entities	All monies awarded by local grants or monies provided by other local governments to support the provision of recreation and parks
Gifts	All monies freely given for recreation and parks for their operation and not as a result of services rendered or payments required
Mandatory land dedication	All monies solely for acquisition, development or rehabilitation of park land or improvements realized from subdivision ordinance fee-in-lieu option
Hotel/motel occupancy tax	All monies realized for recreation and parks operation/capital improvements from local occupancy tax
Other	Anything not covered above

Values associated with these revenue sources were totaled and divided by the number of responses to produce an average per department, and the median has been reported (Table 5).

Table 5. Summary of revenue data collected in MCPRSS.

Revenue type	Number Reporting	Average Value (\$)	Median Value (\$)
Fees and charges	63	498,732	100,000
Concessions	44	16,251	2,500
Facility rentals	58	43,586	17,678
Federal grants	32	45,996	0
State grants	38	110,463	868
Local government entities	31	28,451	0
Gifts	35	56,580	4,500
Mandatory land dedication	28	2,756	0
Hotel/motel occupancy tax	30	123,430	0
Other	30	300,813	5,168

Departments also reported the amount in their general fund, revenues for Fiscal Year (FY) 2016-2017, capital and operating budget for FY2016-2017, and capital and operating budget for FY 2017-2018. These values have been summarized in total and across population classes. For each of these metrics, average per department and median values have been reported here (Table 6, Table 7).

Table 6. Summary of general fund and revenue data collected in MCPRSS.

Population Class	General Fund			Revenue in FY 16-17		
	Number responding	Mean	Median	Number responding	Mean	Median
All	64	\$1,839,783	\$1,000,000	59	\$843,921	\$234,572
A	10	\$4,999,685	\$1,916,418	9	\$3,843,853	\$795,025
B	6	\$1,489,199	\$905,553	6	\$191,963	\$159,136
C	11	\$1,620,285	\$1,155,620	11	\$340,173	\$247,000
D	18	\$1,385,652	\$1,346,050	16	\$388,042	\$232,946
E	10	\$859,243	\$501,215	9	\$281,875	\$234,572
F	9	\$924,001	\$514,000	8	\$194,685	\$111,273

Table 7. Summary of budget data collected in MCPRSS.

Population Class	General Fund			Revenue in FY 16-17		
	Number responding	Mean	Median	Number responding	Mean	Median
All	63	\$10,189,301	\$1,036,994	64	\$10,297,619	\$1,149,650
A	9	\$14,825,923	\$5,462,749	9	\$16,121,449	\$5,462,749
B	7	\$63,906,747	\$1,041,378	7	\$64,085,555	\$1,080,011
C	11	\$2,026,975	\$1,799,811	11	\$2,128,156	\$1,794,066
D	17	\$1,460,675	\$1,156,100	18	\$1,469,534	\$1,276,000
E	11	\$876,457	\$598,799	10	\$1,054,731	\$633,771
F	8	\$547,027	\$495,325	9	\$549,672	\$514,000

The MCPRSS also solicits the number of staff each department employs with relation to full- and part-time status as well as seasonality. Means and medians for each have been provided (Table 8)

Table 8. Summary of staffing data collected in MCPRSS.

Position Type	Number Reporting	Average Number of Staff	Median Number of Staff
Full time	70	22	9
Part time	60	80	10
Seasonal full time	31	4	0
Seasonal part time	58	43	16

Statewide Budget Data

While the Services Study does ask for some budget information, we also solicit budget data from the state treasurer's office. For FY 2017-2018, 254 local governments reported parks and recreation expenditures to that agency. Of that total, 88 governments have formalized parks and recreation departments. A summary of each group is compiled and reported below. Statewide reported spending by local governments surpassed \$400 million (Table 9), and spending by local governments with recognized parks and recreation departments accounts for the majority of this (Table 10).

Table 9. Reported FY 2016-2017 parks and recreation expenditures for local governments in NC.

Government Type	Number Reporting	Population Represented	Operating expenditures (\$)	Capital Expenditures (\$)	Total Expenditures (\$)
County	28	2,778,438	\$35,050,095	\$15,247,037	\$50,297,132
Municipality	226	3,004,008	\$239,339,163	\$129,645,467	\$368,984,630
Total	254	5,782,446	\$274,389,258	\$144,892,504	\$419,281,762

Total Parks and Recreation
Expenditures Reported:

~\$420 Million

or

\$72.50 per Resident

Table 10. Reported FY 2016-2017 expenditures for parks and recreation departments in NC.

Department Type	Number Reporting	Population Represented	Operating Expenditures (\$)	Capital Expenditures (\$)	Total Expenditures (\$)
Combination	2	368,859	\$3,627,293	\$984,249	\$4,611,542
County	21	1,801,067	\$27,305,486	\$13,183,702	\$40,489,188
Municipality	65	2,646,678	\$220,420,029	\$120,494,108	\$340,914,137
Total	88	4,816,604	\$251,352,808	\$134,662,059	\$386,014,867

The MCPRSS historically has compared statewide parks and recreation spending per capita from year to year, and this year's spending has been added for comparison (Figure 4). This is calculated by dividing total reported statewide spending by the populations of the reporting agencies for that category. While the reliability of the data is tied to sample size, the population numbers used to calculate per capita spending are only pulled from agencies that report expenditures to offer comparable metrics from year to year. This year's budget data indicate an increase in local government spending on parks and recreation.

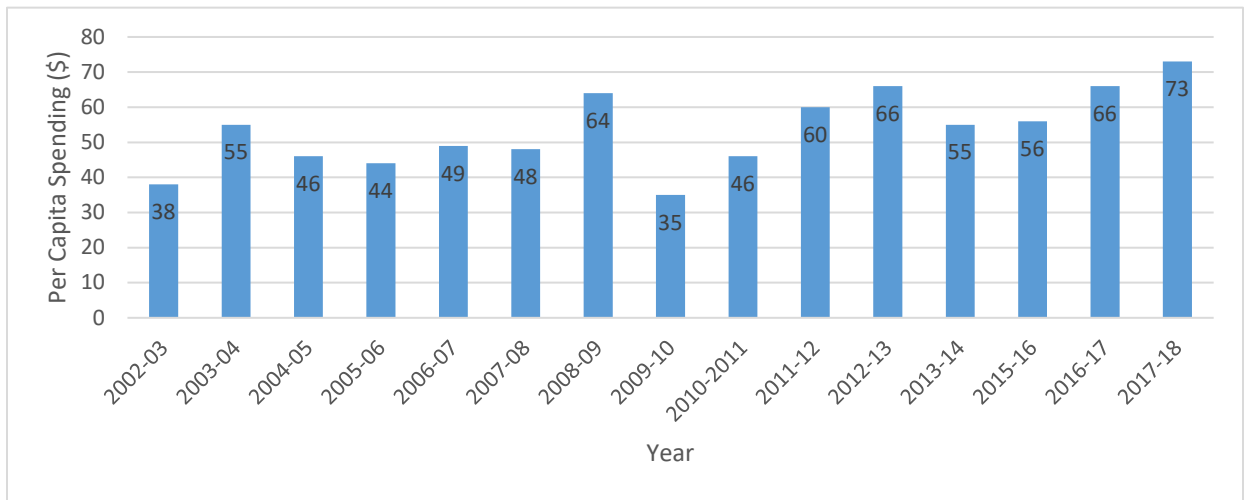


Figure 4. Statewide parks and recreation spending per capita since 2002-03.

Limitations

Survey data have been reported as disclosed by the departments and state budget data have been reported as received from the state treasurer's office. Bear in mind that response rate impacts the reliability of the analyses. While descriptive statistics have been used to highlight the general picture provided by the data, these should be interpreted with caution as small sample sizes may not generalize accurately to the larger group they are intended to represent.

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Appendix

List of all recognized departments in the state including department type, population class, and population zone. **Bolded departments** are those that responded to this year's MCPRSS.

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Aberdeen Parks & Recreation	Municipal	E	Sandhills
Alamance County Recreation & Parks	County	A	Piedmont-Triad
Albemarle Parks & Recreation	Municipal	D	Southwest
Alexander County Recreation	County	C	Northwest
Alleghany County Parks & Recreation	County	D	Northwest
Andrews Recreation	Municipal	F	West
Angier Parks & Recreation	Municipal	C	North Central
Anson County Parks & Recreation	County	C	Southwest
Apex Parks Recreation & Cultural Resources	Municipal	C	North Central
Archdale Parks & Recreation	Municipal	D	Piedmont-Triad
Ashe County Parks & Recreation	County	C	Northwest
Asheboro Parks & Recreation	Municipal	C	Piedmont-Triad
Asheville Parks & Recreation	Municipal	B	West
Avery County Parks & Recreation	County	D	Northwest
Ayden Recreation & Parks	Municipal	F	Northeast
Beech Mountain Parks & Recreation	Municipal	F	Northwest
Belmont Parks & Recreation	Municipal	F	Southwest
Benson Parks & Recreation	Municipal	F	North Central
Bertie County Parks & Recreation	County	D	Northeast
Bessemer City Recreation	Municipal	E	Southwest
Black Mountain Recreation & Parks	Municipal	E	West
Bladen County Parks & Recreation	County	C	Sandhills
Blowing Rock Parks & Recreation	Municipal	F	Northwest
Boiling Spring Lakes Parks And Recreation	Municipal	E	Southeast
Brunswick County Parks & Recreation	County	A	Southeast
Buncombe County Parks & Recreation Services	County	A	West
Burgaw Parks & Recreation	Municipal	F	Southeast
Burke County Recreation & Parks	County	B	Northwest

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Burlington Recreation & Parks	Municipal	B	Piedmont-Triad
Butner Parks & Recreation	Municipal	E	North Central
Cabarrus County Parks & Recreation	County	A	Southwest
Camden County Parks & Recreation	County	D	Northeast
Canton Recreation & Parks	Municipal	F	West
Carolina Beach Recreation & Parks	Municipal	E	Southeast
Carrboro Recreation & Parks	Municipal	D	North Central
Carteret County Parks & Recreation	County	B	Southeast
Cary Parks, Recreation & Cultural Resources	Municipal	A	North Central
Caswell County Parks & Recreation	County	D	Piedmont-Triad
Catawba County Parks	County	A	Northwest
Chadbourn Parks & Recreation	Municipal	F	Sandhills
Chapel Hill Parks & Recreation	Municipal	B	North Central
Chatham County Recreation	County	B	North Central
Cherokee County Recreation	County	C	West
Clay County Recreation	County	D	West
Clayton Parks & Recreation	Municipal	D	North Central
Clinton Recreation & Parks	Municipal	D	Sandhills
Columbus County Parks & Recreation	County	B	Sandhills
Concord Parks & Recreation	Municipal	B	Southwest
Cornelius Parks & Recreation	Municipal	C	Southwest
Cramerton Parks & Recreation	Municipal	E	Southwest
Craven County Recreation & Parks	County	A	Southeast
Creedmoor Parks	Municipal	F	North Central
Currituck Co Parks & Recreation	County	C	Northeast
Dare County Parks & Recreation	County	C	Northeast
Davidson County Recreation	County	A	Piedmont-Triad
Davidson Parks & Recreation	Municipal	D	Southwest
Davie County Recreation & Parks	County	C	Piedmont-Triad
Dunn Parks & Recreation	Municipal	E	North Central
Durham Parks & Recreation	Municipal	A	North Central
Eden Parks & Recreation	Municipal	D	Piedmont-Triad

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Edenton-Chowan Parks & Recreation	Combination	D	Northeast
Elizabeth City-Pasquotank Parks & Recreation	Combination	C	Northeast
Elizabethtown Parks & Recreation	Municipal	F	Sandhills
Elkin Recreation & Parks	Municipal	F	Piedmont-Triad
Elon Recreation & Parks	Municipal	D	Piedmont-Triad
Emerald Isle Parks & Recreation	Municipal	F	Southeast
Enfield Recreation & Parks	Municipal	F	Northeast
Erwin Parks & Recreation	Municipal	F	North Central
Faison Recreation Department	Municipal	F	Sandhills
Farmville Parks	Municipal	F	Northeast
Fayetteville-Cumberland Parks & Recreation	Combination	A	Sandhills
Fletcher Parks & Recreation	Municipal	E	West
Forest City Parks & Recreation	Municipal	E	West
Forsyth County Parks & Recreation	County	A	Piedmont-Triad
Franklin County Parks & Recreation	County	B	North Central
Fuquay-Varina Parks, Rec. & Cultural Resources	Municipal	C	North Central
Garner Parks & Recreation	Municipal	C	North Central
Gaston County Parks & Recreation	County	A	Southwest
Gastonia Parks & Recreation	Municipal	B	Southwest
Gates County Parks & Recreation	County	D	Northeast
Gibsonville Parks & Recreation	Municipal	E	Piedmont-Triad
Goldsboro Parks & Recreation	Municipal	C	Southeast
Graham County Recreation & Parks	County	E	West
Graham Recreation & Parks	Municipal	D	Piedmont-Triad
Granite Falls Recreation	Municipal	F	Northwest
Granville County Parks & Grounds	County	B	North Central
Greene County Parks & Recreation	County	D	Southeast
Greensboro Parks & Recreation	Municipal	A	Piedmont-Triad
Greenville Recreation & Parks	Municipal	B	Northeast
Hamlet Recreation	Municipal	E	Sandhills
Harnett County Parks & Recreation	County	A	North Central
Harrisburg Parks & Recreation	Municipal	D	Southwest

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Havelock Recreation	Municipal	D	Southeast
Haw River Recreation	Municipal	F	Piedmont-Triad
Haywood County Recreation	County	B	West
Henderson County Parks & Recreation	County	A	West
Henderson-Vance Recreation & Parks	Combination	C	North Central
Hickory Parks & Recreation	Municipal	C	Northwest
High Point Parks & Recreation	Municipal	A	Piedmont-Triad
Highlands Parks & Recreation	Municipal	F	West
Hoke County Parks & Recreation	County	B	Sandhills
Holly Ridge Parks & Recreation	Municipal	F	Southeast
Holly Springs Parks & Recreation	Municipal	C	North Central
Hope Mills Parks & Recreation	Municipal	D	Sandhills
Hudson Parks & Recreation	Municipal	F	Northwest
Huntersville Parks & Recreation	Municipal	B	Southwest
Indian Trail Parks & Recreation	Municipal	C	Southwest
Iredell County Parks & Recreation	County	A	Southwest
Jackson County Recreation & Parks	County	C	West
Jacksonville Recreation & Parks	Municipal	B	Southeast
Jamestown Parks & Recreation	Municipal	F	Piedmont-Triad
Jones County Recreation	County	D	Southeast
Kannapolis Parks & Recreation	Municipal	C	Southwest
Kenansville Recreation	Municipal	F	Southeast
Kenly Recreation	Municipal	F	North Central
Kernersville Parks & Recreation	Municipal	C	Piedmont-Triad
Kinston-Lenoir Parks & Recreation	Combination	B	Southeast
Knightdale Parks & Recreation	Municipal	D	North Central
Landis Parks & Recreation	Municipal	F	Southwest
Lee County Parks & Recreation	County	B	North Central
Leland Parks, Rec., & Environmental Programs	Municipal	D	Southeast
Lenoir Parks & Recreation	Municipal	D	Northwest
Lexington Parks & Recreation	Municipal	D	Piedmont-Triad
Liberty Recreation	Municipal	F	Piedmont-Triad

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Lillington Parks & Recreation	Municipal	F	North Central
Lincoln County Parks & Recreation	County	B	Southwest
Lincolnton Recreation	Municipal	D	Southwest
Locust Parks & Recreation	Municipal	F	Southwest
Louisburg Parks & Recreation	Municipal	F	North Central
Lowell Parks & Recreation	Municipal	F	Southwest
Lumberton Recreation & Parks	Municipal	D	Sandhills
Macon County Recreation	County	C	West
Madison County Parks & Recreation	County	D	West
Madison-Mayodan Recreation Commission	Combination	F	Piedmont-Triad
Maiden Parks & Recreation	Municipal	F	Northwest
Marshville Parks & Recreation	Municipal	F	Southwest
Matthews Parks, Rec., & Cultural Resources	Municipal	C	Southwest
McDowell County Parks & Recreation	County	C	Northwest
Mebane Recreation & Parks	Municipal	D	Piedmont-Triad
Mecklenburg County Park & Recreation	County	A	Southwest
Mills River Parks & Recreation	Municipal	E	West
Mitchell County Parks & Recreation	County	D	Northwest
Monroe Parks & Recreation	Municipal	C	Southwest
Moore County Parks & Recreation	County	B	Sandhills
Mooresville Recreation	Municipal	C	Southwest
Morehead City Parks & Recreation	Municipal	E	Southeast
Morganton Recreation & Parks	Municipal	D	Northwest
Morrisville Parks, Rec. & Cultural Resources	Municipal	C	North Central
Mount Airy Parks & Recreation	Municipal	D	Piedmont-Triad
Mount Holly Parks & Recreation	Municipal	D	Southwest
Mount Olive Parks & Recreation	Municipal	F	Southeast
Nash County Recreation & Parks	County	B	North Central
Nashville Parks & Recreation	Municipal	E	North Central
New Bern Recreation & Parks	Municipal	C	Southeast
New Hanover County Parks	County	A	Southeast
Newton Parks & Recreation	Municipal	D	Northwest

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
North Wilkesboro Parks & Recreation	Municipal	F	Northwest
Northampton County Recreation	County	D	Northeast
Norwood Recreation	Municipal	F	Southwest
Oak Island Parks & Recreation	Municipal	E	Southeast
Oak Ridge Parks & Recreation	Municipal	E	Piedmont-Triad
Oakboro Parks & Recreation	Municipal	F	Southwest
Ocean Isle Beach Recreation	Municipal	F	Southeast
Onslow County Parks & Recreation	County	A	Southeast
Orange County Parks & Recreation	County	A	North Central
Oxford Parks & Recreation	Municipal	E	North Central
Pamlico County Parks & Recreation	County	D	Southeast
Pender County Parks & Recreation	County	B	Southeast
Perquimans County Recreation	County	D	Northeast
Person County Recreation, Arts & Parks	County	C	North Central
Pine Level Parks & Recreation	Municipal	F	North Central
Pinebluff Parks & Recreation	Municipal	F	Sandhills
Pinehurst Parks & Recreation	Municipal	D	Sandhills
Pineville Parks & Recreation	Municipal	E	Southwest
Pitt County Community Schools & Recreation	County	A	Northeast
Pittsboro Parks & Recreation	Municipal	F	North Central
Pleasant Garden Parks & Recreation	Municipal	F	Piedmont-Triad
Polk County Recreation	County	D	West
Raleigh Parks, Recreation & Cultural Resources	Municipal	A	North Central
Randleman Parks & Recreation	Municipal	F	Piedmont-Triad
Reidsville Recreation	Municipal	D	Piedmont-Triad
Richmond County Parks & Recreation	County	C	Sandhills
Roanoke Rapids Parks, Recreation & Library	Municipal	D	Northeast
Robersonville Recreation	Municipal	F	Northeast
Robeson County Parks & Recreation	County	A	Sandhills
Rockingham Recreation	Municipal	E	Sandhills
Rocky Mount Parks & Recreation	Municipal	B	North Central
Rolesville Parks & Recreation	Municipal	E	North Central

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Rowan County Parks & Recreation	County	A	Southwest
Rutherford County Parks & Recreation	County	B	West
Salisbury Parks & Recreation	Municipal	C	Southwest
Sampson County Parks & Recreation	County	B	Sandhills
Scotland County Parks & Recreation	County	C	Sandhills
Scotland Neck Parks & Recreation	Municipal	F	Northeast
Selma Parks & Recreation	Municipal	E	North Central
Shelby Parks & Recreation	Municipal	D	Southwest
Siler City Parks & Recreation	Municipal	E	North Central
Smithfield Parks & Recreation	Municipal	D	North Central
Southern Pines Recreation & Parks	Municipal	D	Sandhills
Southport Recreation	Municipal	F	Southeast
Spindale Recreation	Municipal	F	West
Spring Lake Recreation & Parks	Municipal	D	Sandhills
Spruce Pine Parks & Recreation	Municipal	F	Northwest
Stallings Parks & Recreation	Municipal	D	Southwest
Stanley Parks & Recreation	Municipal	F	Southwest
Statesville Rec. & Parks	Municipal	C	Southwest
Stokes County Recreation	County	C	Piedmont-Triad
Summerfield Parks & Recreation	Municipal	D	Piedmont-Triad
Surf City Parks & Recreation	Municipal	F	Southeast
Surry County Parks & Recreation	County	B	Piedmont-Triad
Swain County Parks & Recreation	County	D	West
Swansboro Parks & Recreation	Municipal	F	Southeast
Tarboro Parks & Recreation	Municipal	D	North Central
Thomasville Parks & Recreation	Municipal	C	Piedmont-Triad
Transylvania County Parks & Recreation	County	C	West
Troutman Parks & Recreation	Municipal	F	Southwest
Tryon Parks & Recreation Department	Municipal	F	West
Union County Parks & Recreation	County	A	Southwest
Valdese Recreation	Municipal	F	Northwest
Wake County Parks, Recreation & Open Space	County	A	North Central

DEPARTMENT	TYPE	POP. CLASS	PROSPERITY ZONE
Wake Forest Parks & Recreation	Municipal	C	North Central
Wallace Parks & Recreation	Municipal	F	Southeast
Warren County Parks & Recreation	County	D	North Central
Warsaw Parks & Recreation	Municipal	F	Southeast
Washington County Parks & Recreation	County	D	Northeast
Washington Parks & Recreation	Municipal	E	Northeast
Watauga County Parks & Recreation	County	B	Northwest
Waxhaw Parks & Recreation	Municipal	D	Southwest
Waynesville Parks & Recreation	Municipal	D	West
Wendell Parks & Recreation	Municipal	E	North Central
Whiteville Parks & Recreation	Municipal	E	Sandhills
Wilkes County Parks & Recreation	County	B	Northwest
Wilkesboro Parks & Recreation	Municipal	F	Northwest
Williamston Parks & Recreation	Municipal	E	Northeast
Wilmington Parks Recreation & Downtown	Municipal	A	Southeast
Wilson Parks & Recreation	Municipal	C	North Central
Winston Salem Recreation & Parks	Municipal	A	Piedmont-Triad
Winterville Parks & Recreation	Municipal	E	Northeast
Wrightsville Beach Planning & Parks	Municipal	F	Southeast
Yadkin County Parks & Recreation	County	C	Piedmont-Triad
Yancey County Recreation	County	D	Northwest
Youngsville Parks & Recreation	Municipal	F	North Central
Zebulon Parks & Recreation	Municipal	F	North Central

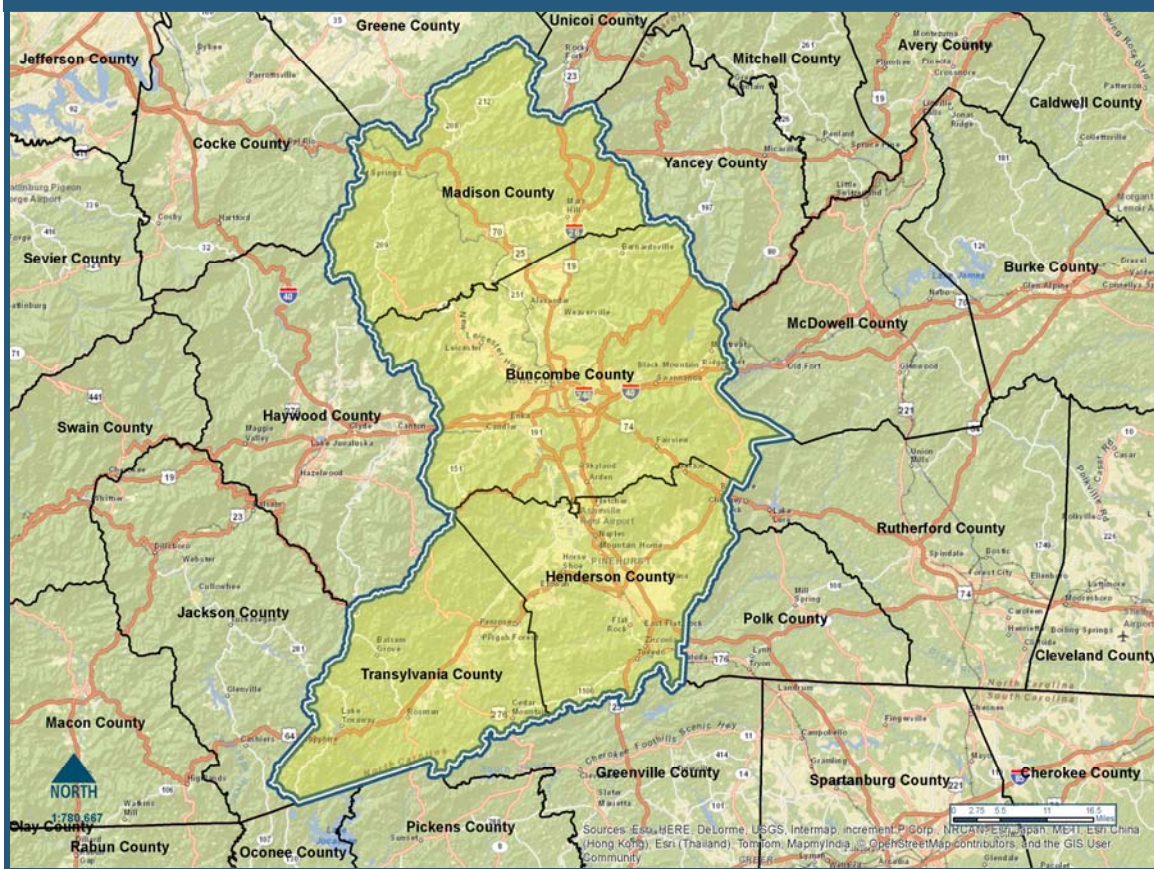


TAB 5

EXECUTIVE SUMMARY

The purpose of this report is to conduct a Housing Needs Assessment of the four-county region that includes and surrounds the city of Asheville, North Carolina. The four counties evaluated in this report are Buncombe, Henderson, Madison, and Transylvania. This evaluation takes into account the demographics, economics and housing supply of the region, along with the input of area stakeholders, and estimates the housing gaps and needs of the study area between 2015 and 2020 for the subject region. The research and analysis, which includes a collection of primary data, analysis of secondary data and on-site market research, was conducted between October and December of 2014. This executive summary addresses key highlights from the full Housing Needs Assessment.

REGION STUDY AREA



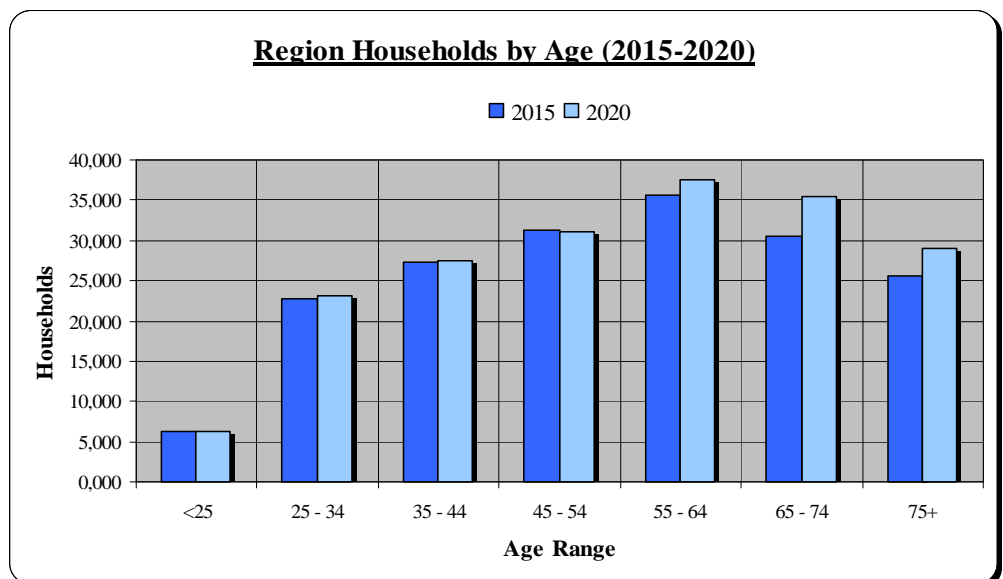
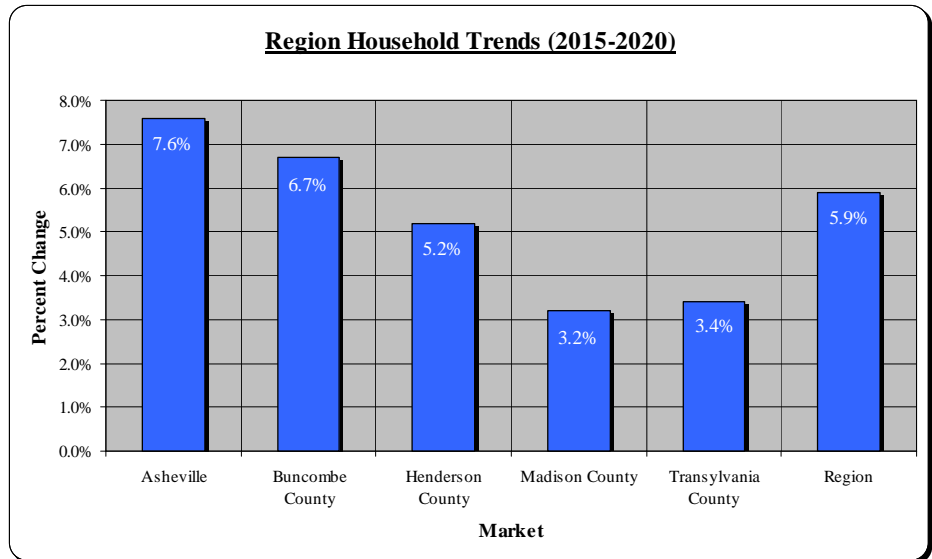
Demographics

The subject region is projected to experience a population increase of 5.8% between 2010 and 2015 and a 5.5% growth rate between 2015 and 2020. These growth rates are comparable to North Carolina statewide growth trends. Between 2015 and 2020, the

overall region is projected to add 10,506 (5.9%) households. Counties with the greatest projected percent growth of households from 2015 to 2020 include Buncombe (6.7%) and Henderson (5.2%). The 7,219 new households projected to be added to Buncombe County between 2015 and 2020 represent over two-thirds (68.7%) of the

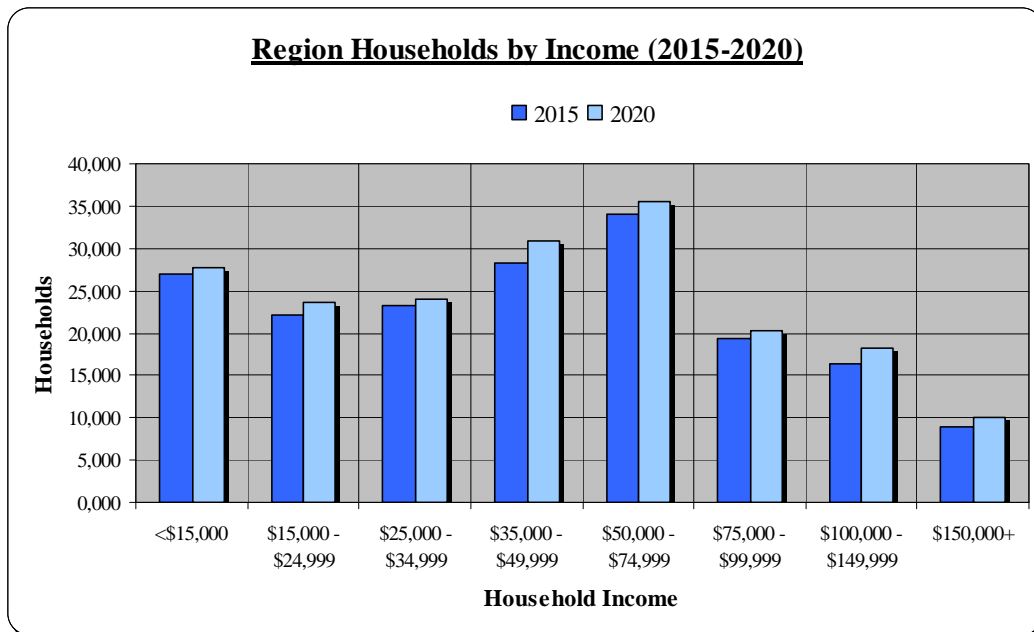
household growth for the overall region during this time. Regardless, new household growth is projected to occur among all four of the region's counties, adding to growing need for more housing in each county. The city of Asheville is projected to experience a 7.6% household growth rate, outpacing each of the subject counties and the region.

It is projected that most of the growth in the region between 2015 and 2020 will occur among households age 55 and older. This age group is projected to increase by 10,342 (11.3%) households during this five-year period. The largest increase within a single age group will be among seniors between the ages of 65 and 74, which is projected to add 4,996 (16.4%) households. These senior growth trends are primarily attributed to seniors aging in place, and essentially moving from the non-senior household segment and into the senior (age 55+) household segment. Modest regional growth is projected to occur among households between the ages of 25 and 34 (319, 1.4%) and between 35 and 44 (186, 0.7%). As such, housing needs will be diverse.



Among *renter* households in the region, the greatest share of household sizes in 2015 will be one-person households, which will represent 40.3% of the total households in the region. Two-person households will represent the second largest share (28.3%). Three-person or larger households will represent nearly one-third (31.4%) of the households. The share of households by size will change slightly between 2015 and 2020, with the greatest increase occurring among one-person households (increasing from 40.3% to 40.7% and adding 1,797 one-person households). Two-person households will increase by 928 (5.6%) through 2020, while three-person and larger households will increase by 1,098 (6.0%). These growth trends indicate that while smaller units (e.g. studio to two-bedrooms) will likely be needed to accommodate the disproportionate growth of one- and two-person households, with more than 1,000 three-person households expected to be added to the region, there will also need to be larger bedroom types added to the region's housing stock over the next several years. In 2015, it is projected that the largest share of *owner*-occupied households by size within the region will consist of two-person households, representing 42.3% of all owner households. One- and two-person households will represent a combined share of 67.9% of all households in 2015. It is projected that between 2015 and 2020 the greatest household growth will be among two-person households, which will add 2,400 (4.6% increase) households. Three-person or larger households are also projected to grow by 2,153 (5.5%) during this time, increasing the likely need for additional larger housing units such as three-bedroom or larger units for the foreseeable future.

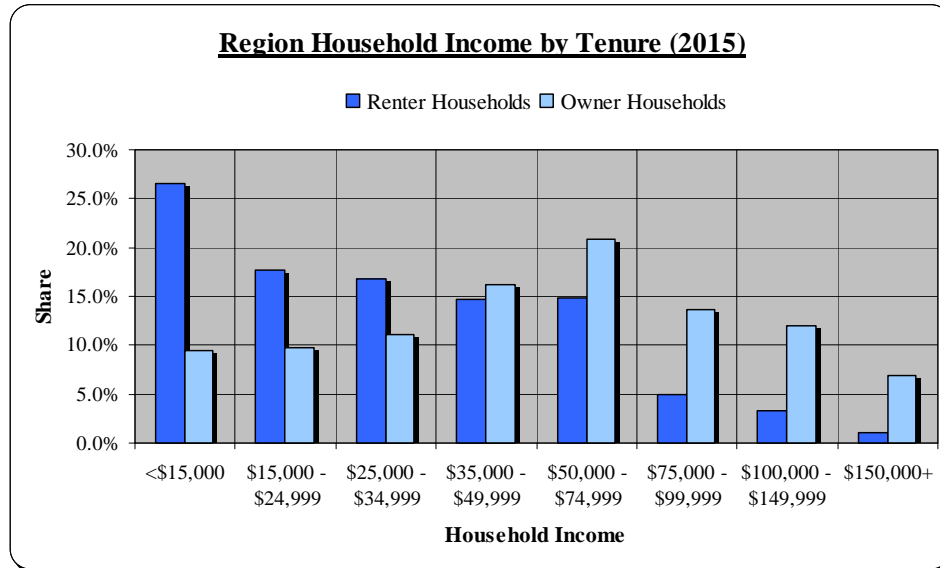
Between 2015 and 2020, all income household segments within the region are projected to increase. The greatest of the household growth within the region is projected to occur among households that make between \$35,000 and \$49,999 a year, which are projected to increase by 2,725 (9.7%) during this five-year period. Notable growth is projected to occur among households with incomes between \$15,000 and \$24,999 (1,453 households, 6.6% growth), between \$50,000 and \$74,999 (1,371, 4.0%), and between \$100,000 and \$149,999 (1,734, 10.6%). As such, a variety of housing needs by price point and rent will grow.



The specific distribution of households by income and tenure for 2015 and 2020 are illustrated in the tables on the following page.

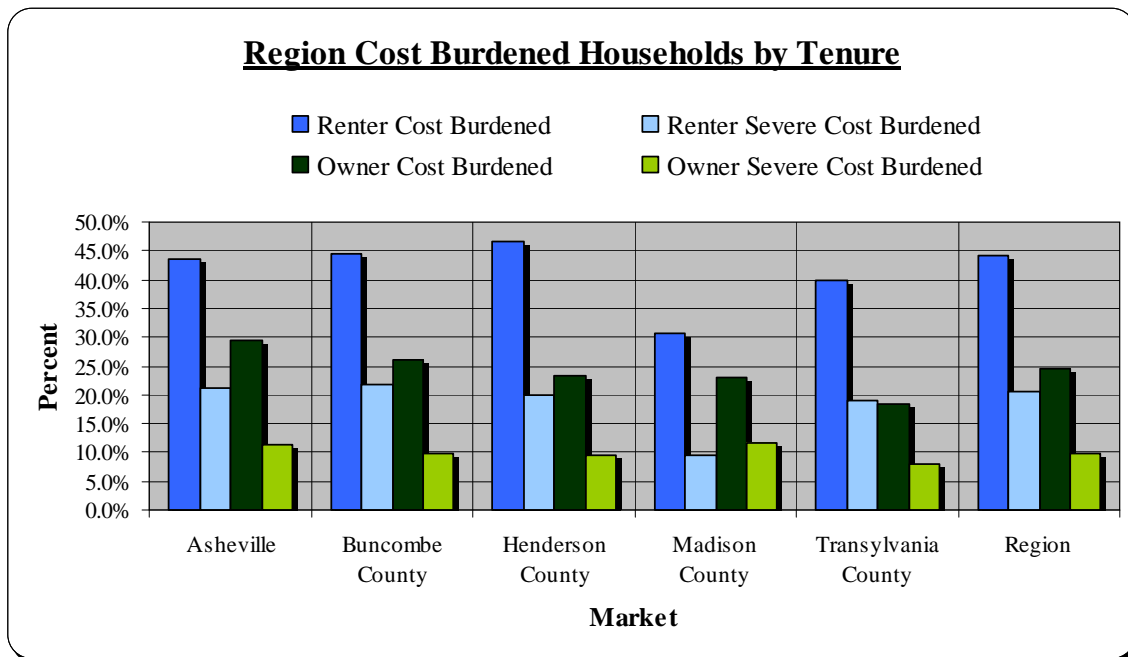
		Renter Households by Income								
		<\$15,000	\$15,000 - \$24,999	\$25,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$99,999	\$100,000 - \$149,999	\$150,000+	Total
Region	2015	15,446 (26.5%)	10,300 (17.7%)	9,758 (16.8%)	8,525 (14.7%)	8,674 (14.9%)	2,908 (5.0%)	1,919 (3.3%)	656 (1.1%)	58,185 (100.0%)
	2020	15,532 (25.0%)	11,262 (18.2%)	11,262 (18.2%)	10,165 (16.4%)	8,767 (14.1%)	3,070 (5.0%)	2,135 (3.4%)	910 (1.5%)	62,011 (100.0%)
	Change	86 (0.6%)	962 (9.3%)	411 (4.2%)	1,641 (19.2%)	93 (1.1%)	161 (5.5%)	216 (11.2%)	255 (38.8%)	3,826 (6.6%)
		Owner Households by Income								
		<\$15,000	\$15,000 - \$24,999	\$25,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$99,999	\$100,000 - \$149,999	\$150,000+	Total
Region	2015	11,528 (9.5%)	11,824 (9.7%)	13,478 (11.1%)	19,692 (16.2%)	25,417 (20.9%)	16,526 (13.6%)	14,515 (12.0%)	8,357 (6.9%)	121,336 (100.0%)
	2020	12,116 (9.5%)	12,314 (9.6%)	13,889 (10.8%)	20,777 (16.2%)	26,694 (20.9%)	17,156 (13.4%)	16,033 (12.5%)	9,044 (7.1%)	128,024 (100.0%)
	Change	588 (5.1%)	491 (4.1%)	411 (3.1%)	1,085 (5.5%)	1,278 (5.0%)	630 (3.8%)	1,519 (10.5%)	687 (8.2%)	6,688 (5.5%)

Source: 2000 Census; 2010 Census; ESRI; Urban Decision Group; Bowen National Research



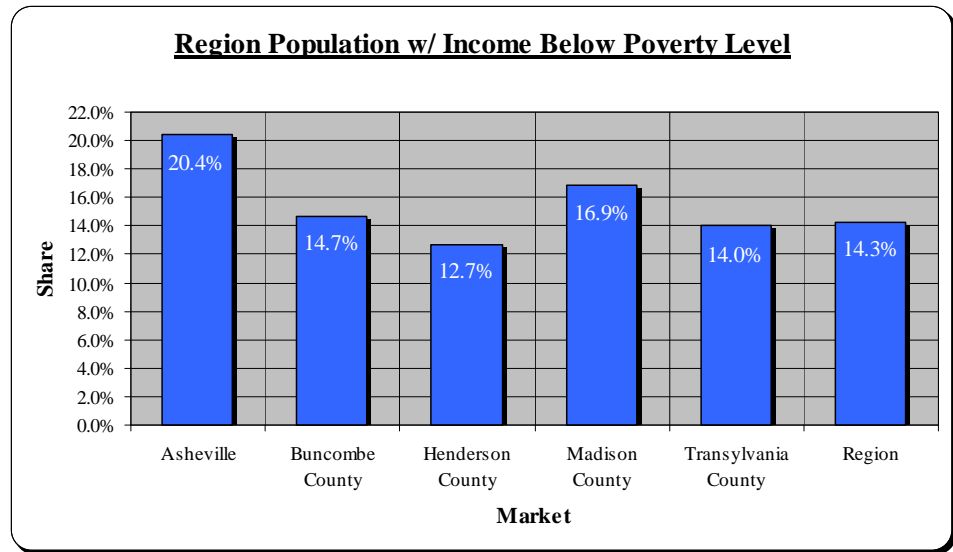
As the preceding tables illustrate, while all renter household income segments are projected to grow, the greatest *renter* household *growth* between 2015 and 2020 within the region is projected to occur among those with annual incomes between \$35,000 and \$49,999. Notable renter households by income growth is projected to occur among households with incomes between \$15,000 and \$24,999, as well as between \$25,000 and \$34,999. All *owner* household income segments are projected to grow between 2015 and 2020, with the greatest projected growth among homeowners expected to occur among households with income between \$100,000 and \$149,999, though notable owner household growth is projected to occur among those with income between \$35,000 and \$49,999, and between \$50,000 and \$74,999. These renter and owner household income trends are fairly consistent in each of the four counties and within Asheville. As a result, there will likely be an increase in demand for more housing that is affordable to lower income households, as well as more affluent households.

Cost burdened households are those paying over 30% of their income towards housing costs, while *severe* cost burdened households are considered as those paying over 50% of their income towards housing costs. Among the region's renter households, a total of 23,317 (44.2%) are cost burdened and 10,926 (20.7%) are *severe* cost burdened. The greatest *number* and *share* of severe cost burdened renter households is in Buncombe County. A total of 28,131 (24.4%) owner households in the region are cost burdened while 11,187 (9.7%) are severe cost burdened. While the region's shares of cost burdened and severe cost burdened households are slightly below state averages, they remain significant and indicate that large shares of regional households are paying high portions of their income towards housing. As such, the affordability of area housing is an important factor that should be considered in future housing plans for the region.



Overcrowded housing is considered a housing unit with 1.01 or more persons per room, while severe overcrowding housing is considered a unit with 1.51 or more persons per room. In the region, 1,783 (3.4%) renter households and 1,517 (1.3%) owner households are experiencing overcrowded housing situations. A total of 485 (0.9%) renter households and 385 (0.3%) owner households in the region are experiencing *severe* overcrowded housing conditions. Buncombe County has the region's highest share of severe overcrowded renter households, while the share of owner households with severe overcrowding is relatively even among the counties. Generally, the city of Asheville has slightly higher shares of people living in overcrowded and severe overcrowded housing units than the overall region.

It is estimated that 56,739 people in the region live in poverty, representing 14.2% of the region's population. Of those living in poverty, over one-half (58.7%) are between the ages of 18 and 64. It should be noted that 17,106 people living in poverty are children under the age of 18, representing 20.8% of all children. As such, one in five children is believed to be living in poverty. Over one in 11 seniors age 65 or older live in poverty. These ratios are slightly below the state of North Carolina averages.



Special Needs Populations

The following table summarizes the various special needs populations within the region that were considered in this report. It should be noted that county level data, when available, is presented and discussed in the county chapters of this report.

Asheville Region Special Needs Populations			
Special Needs Group	Persons	Special Needs Group	Persons
HIV/AIDS	641	Persons with Disabilities (PD)	59,980
Victims of Domestic Violence (VDV)	731	Elderly (Age 62+) (E62)	105,830
Persons with Substance Abuse (PSA)	466	Frail Elderly (Age 62+) (FE62)	11,366
Adults with Mental Illness (MI)	16,425	Ex-offenders (Parole/Probation) (EOP)	855
Adults with Severe Mental Illness (SMI)	290	Unaccompanied Youth (UY)	87
Co-Occurring Disorders (COD)	6,857	Homeless Veterans	469
Multi-Generational Households (MGH)	5,068	Homeless Population	4,066

Note: Data sources cited in *Addendum A: Sources*

Excluding the homeless population, the largest number of special needs persons is among those age 62 and older, persons with disabilities, adults with mental illness and the frail elderly (persons age 62+ requiring some level of Assistance with Daily Living). According to our interviews with area stakeholders, housing alternatives that meet the specific needs of the special needs population are limited. Detailed commentary and analysis regarding these groups is provided starting on page 41 of the Region analysis portion of this report.

Housing Supply

This housing supply analysis considers both rental and owner for-sale housing. Understanding the historical trends, market performance, characteristics, composition, and current housing choices provide critical information as to current market conditions and future housing potential. This is only a sample survey of the more than 200,000 housing units in the region.

The housing structures included in this analysis are:

- **Rental Housing** – Multifamily rentals, typically with three or more units were inventoried and surveyed. Additionally, rentals with two or fewer units, which were classified as non-conventional rentals, were identified and surveyed. Other rentals such as vacation rentals, mobile homes, and home stays (a single bedroom or portion of a larger unit) were also considered in this analysis.
- **Owner For-Sale Housing** – We identified attached and detached for-sale housing, which may be part of a planned development or community, as well as attached multifamily housing such as condominiums.
- **Senior Care Housing** – Facilities providing housing for seniors requiring some level of care, such as adult care facilities, multi-unit assisted facilities and nursing homes were surveyed and analyzed.

Based on research conducted by Bowen National Research and secondary data sources, an inventory of surveyed and/or evaluated housing stock was compiled. Overall, a total of 167 multifamily rental properties, 101 non-conventional rentals (e.g. single-family homes, duplexes, etc.), 101 home stay rentals (individual bedrooms or *portions* of larger units rented), 377 vacation rentals, 171 mobile home parks, 22,330 recently sold housing units and 3,669 currently available for-sale units, and 58 senior care facilities with 4,682 beds were identified and analyzed in the region. The region's surveyed housing supply is summarized as follows.

Region Surveyed Housing Supply				
Product Type	Total Units	Vacant Units	Vacancy Rate	Price/Rent Range
Multifamily Apartments	14,198	137	1.0%***	\$222 - \$2,550
Non-Conventional Rentals	25,835*	101	5.2%*	\$380 - \$3,800
Home Stays	N/A	101	N/A	\$150 - \$1,136
Vacation Rentals	N/A	377	N/A	\$1,620-\$75,705
Mobile Home Rentals	10,477*	N/A	N/A	\$425-\$795
Owner For-Sale Housing	22,330**	3,669	2.4%*	\$5,500-\$10,750,000
Senior Care Housing	4,682	236	5.0%	\$1,060-\$4,273
<i>Independent Living</i>	1,041	37	3.6%	\$1,060-\$4,273
<i>Multi-Unit Assisted Housing</i>	643	13	2.0%	\$1,525-\$5,978
<i>Adult Care Homes</i>	1,176	97	8.3%	\$1,298-\$5,295
<i>Nursing Homes</i>	1,822	89	4.9%	\$5,322-\$12,318

*Based on 2011-2013 American Community Survey

**Units sold between 2010 and 2014

***Vacancy rate based on physical vacancies, not economic vacancies

Bowen National Research identified and studied 71,898 total housing units among the various housing segments studied in this report. Our research identified 4,857 vacant /available units (Note: vacant units include units in apartments, available for-sale housing, and vacant beds or units in senior care housing). While there are likely other vacancies in the region such as shelter housing, institutional housing such as student dormitory units, for-sale housing by owner, vacant/abandoned or other short-term housing units that are vacant, the 4,857 identified vacant/available units are likely a reasonable representation of the overall market's conditions of available housing.

Based on Bowen National Research's analysis of the region's housing supply, it is evident that the demand for housing in the region is very strong and that there is limited availability. The inventoried supply has vacancy rates by product type ranging from 1.0% (multifamily apartments) to 8.3% (adult care homes). Although the standards used for defining the health of a housing market vary to some degree, vacancy rates generally between 4.0% to 6.0% for rental housing and for-sale housing markets and generally between 9.0% and 11.0% for senior care housing are considered representative of healthy and stable markets. As such, vacancy rates for the various housing segments in the region are considered very low and are clear indications that demand for each housing segment is strong.

Multifamily Rental Housing – A total of 167 multifamily housing properties with a total of 14,198 units were identified and inventoried within the region. These rentals have a combined vacancy rate of 1.0%. It is critical to point out that this 1.0% vacancy rate is based on physical vacancies, which are considered vacant units that are available for immediate occupancy. This differs from economic vacancies, which are considered units that are not being rented due to being uninhabitable, being renovated or prepared for rent or other reasons that prevent them from immediate occupancy. Economic vacancies are generally two percentage points higher than physical vacancies. Therefore, it is likely that multifamily rentals are operating at a 3.0% economic vacancy rate. As such, the region's multifamily housing supply has an extremely low vacancy rate which is an indication that there is very limited availability among multifamily apartments in the region. While market-rate housing offers the largest number of surveyed multifamily units in the region, these particular units appear to remain in high demand as evidenced by the 1.5% vacancy rate among the 9,379 market-rate units in the region. More importantly, all 3,706 government-subsidized units and all 1,113 Tax Credit units surveyed in the market are fully occupied. Additionally, of the 50 fully occupied subsidized projects surveyed in the region, 46 (92.0%) maintain wait lists ranging from 150 households to up to eight years in duration. Among the 33 fully occupied Tax Credit projects surveyed in the region, 30 (90.9%) maintain wait lists with up to 150 households. Besides the inventory of affordable housing units, there are approximately 2,223 Housing Choice Vouchers issued to very low income households in the region and an estimated 1,071 households on the local housing authorities' wait lists for the next available vouchers. This Voucher wait list, combined with the limited available government-subsidized units and wait list for these units, indicate the significant pent-up demand and need for affordable rentals within the region. Median rents by bedroom/bathroom type range from \$832 to \$3,300 for the market-rate units and from \$583 to \$1,187 for Tax Credit units.

Non-Conventional Rental Housing – Non-conventional rentals are considered one- or two-unit structures, such as single-family homes, duplexes, units over store fronts or other alternatives not contained within a multifamily development. Based on data provided by the American Community Survey, it is estimated that the region’s non-conventional supply is operating at a vacancy rate of around 5.2%. This is considered a fair vacancy rate. Bowen National Research identified and evaluated 101 vacant non-conventional rental units, which is considered a sample survey of such properties. The collected rents for non-conventional rentals identified range from \$380 to \$3,800. The median rents were \$625 for a one-bedroom unit, \$850 for a two-bedroom unit, \$1,200 for a three-bedroom unit and \$1,500 for a four-bedroom or larger unit. Generally, the highest non-conventional rents are within Buncombe and Henderson counties.

Vacation Rentals – Bowen National Research conducted a sample survey of vacation rentals within the region. Overall, a total of 377 individual units were identified and inventoried. The base rents for the identified vacation rentals range from \$1,620 to \$3,750, depending upon bedroom type. The median rents are \$4,470 for a one-bedroom unit, \$4,500 for a two-bedroom unit, \$6,000 for a three-bedroom unit, and \$10,313 for a four-bedroom or larger unit. The rental rates of vacation rentals are significantly higher than most conventional multifamily apartments surveyed in the market. Generally, such rentals are four times higher than conventional rentals, essentially eliminating this type of housing as a viable long-term housing alternative to most area renters. However, due to this rent differential, such housing may appeal to owners of traditional, long-term conventional rentals who may want to convert their housing to vacation rentals. This is addressed in the case study analysis, near the end of the Region section.

Home Stay Rentals – A home stay rental is generally considered a bedroom or a few rooms that are rented to tenants on a short-term basis and typically represents a portion of a full rental unit. Tenants in a home stay rental often have shared access to common areas such as bathrooms and kitchens. Overall, a total of 101 individual home stay rental “units” were identified and surveyed. The rents for home stay rentals identified range from \$150 to \$1,136 per month. The median rent is \$450 per unit/room. The rental rates of home stay rentals are generally lower than most multifamily apartments surveyed in the market, which is not surprising since such rentals are typically limited to a single room with shared access to common areas (e.g. bathrooms, kitchens, etc.). While home stay rentals represent a viable option for low-income households, such rentals likely only primarily accommodate one-person households, limiting their ability to serve couples and families.

Mobile Home Rentals – Based on information from the American Community Survey, there are a total of 27,906 occupied mobile home units in the region, of which 17,429 (62.5%) are owner-occupied units and 10,477 (37.5%) are renter-occupied units. Bowen National Research identified more than 170 mobile home parks in the four-county region through secondary resources. Based on a sample survey of mobile home park operators, typical vacancy rates average around 10%, though some parks are reporting no vacancies. Reported lot rents range from \$110 to \$410 per month, while actual mobile home units rent from \$425 to \$795 per month depending on size and condition of the unit. Based on this data, it appears that mobile homes provide an affordable rental housing option for area residents. Although the quality of the mobile homes varies, they are generally considered to be of lower quality than many of the area’s other rental alternatives.

For-Sale Housing – Bowen National Research identified 22,330 homes sold since January 2010 and 3,669 homes currently available for purchase in the region. Excluding the partial year of 2014, annual residential for-sales activity within the subject region has ranged between 3,529 in 2010 and 5,480 in 2013. The annual sales activity has grown each of the past three full years, with above 20 percent growth in each of the past two years. The region is currently on pace to sell over 5,650 residential units for all of 2014, which will be a five-year high. The region has experienced positive increases in median sales *prices* in the past three years. The median sales price of \$202,950 through November of 2014 is a five-year high for the region. The positive trends among sales volume and sales prices are good indications of a healthy and stable for-sale housing market in the region. Within the region, the *available* homes have a median list price by county ranging from \$270,445 in Madison County to \$300,000 in Buncombe County, with a regional median list price of \$290,418. In order for a typical household to be able to afford such a home priced at or above the median home price they would generally need to have a minimum income of around \$100,000. Within the region, only 12.1% of owner households have an income of \$100,000 or higher. As such, there appears to be a mismatch between household prices and affordability.

Senior Care Housing – Within the region there are a total of 87 senior care facilities identified, including a mix of independent living facilities, multi-unit assisted housing, adult care homes, and nursing homes. In October and November of 2014, Bowen National Research surveyed a total of 58 of these facilities containing a total of 4,682 units/beds. The senior care facilities have vacancy rates by product type ranging from 2.0% to 8.3%, with an overall vacancy rate of 5.0%. Nationally, depending on the type of senior care product, vacancy rates for senior care housing range from 9.9% to 11.0%. As such, the region's senior facilities are performing at levels similar to or better than national standards. Regionally, the median base monthly fees are \$1,250 for independent living facilities, \$2,663 for multi-unit assisted facilities, \$2,550 for adult care homes, and \$6,782 for nursing care. Generally, it appears the highest senior care housing fees are within Madison and Transylvania counties, while the lowest housing fees are within Buncombe County. With relatively limited availability among the region's senior care facilities and a large growing base of seniors, it is anticipated that the region will need additional senior care housing in the years ahead.

Housing Gap Estimates

Bowen National Research conducted housing gap/need analyses for rental and for-sale housing for the subject region. The **housing needs** estimates include growth, cost burdened households, households living in substandard housing, and units in the development pipeline. These estimates are considered a broad evaluation of the needs of the market. The **housing gap** analysis includes all of the same metrics used in the housing needs analysis except for cost burdened households, but includes units required for a balanced market. Cost burdened households are excluded from the housing gap analysis as they are considered to have their housing needs met, even though they are paying a disproportionately high share of their income towards housing expenses. The housing gap estimates are considered a more conservative representation of the housing shortage in the market and indicative of the more immediate housing requirements of the market. Only the housing gap estimates are included in this Executive Summary.

A housing needs analysis was also conducted for senior care facilities in the region. While senior care facilities can range widely in prices, levels of care, physical accommodations, quality and other factors, and be diverse in the populations they serve due the varying needs of seniors, we have used national standards to establish the potential housing needs estimates for senior care housing. We have applied national standard disability rates associated with households requiring assistance with Activities of Daily Living (e.g. dressing, bathing, medicine reminders, etc.). It is important to understand that because the various housing facilities differ greatly in the types of services they offer and typical age groups they serve, we have assumed that any resident living in a senior care facility will require assistance with a minimum of three Activities of Daily Living and be age 62 or older.

Housing Gap Analysis

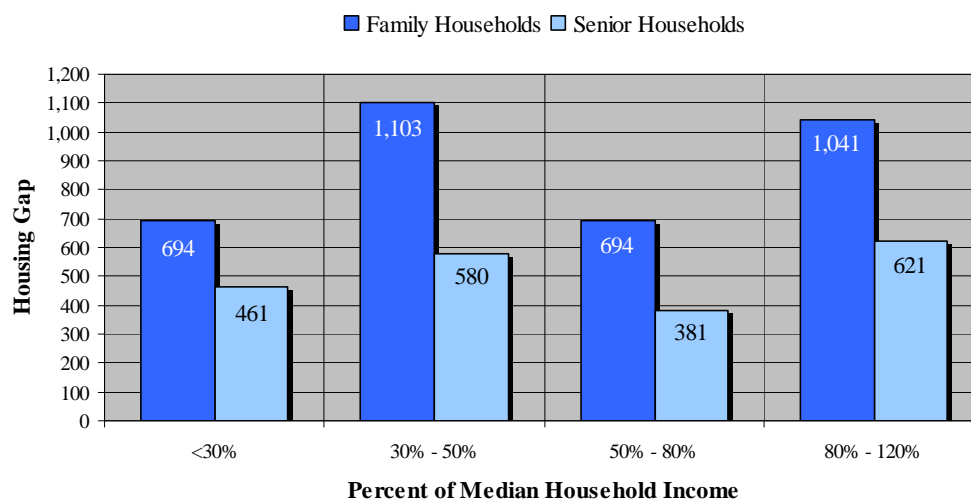
The tables below illustrate the region's rental housing gap, assuming the housing gap originates exclusively from *new household growth*, *units required for a balanced market*, and *replacement of substandard housing* only.

Demand Component	Rental Housing Gap Estimates – Family Households				
	Percent Of Median Household Income				
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	Total
New Households (2015-2020)	-61	595	204	1,100	1,838
Balanced Market	492	345	350	484	1,671
Substandard Housing	365	265	276	447	1,353
Development Pipeline	-102	-102	-136	-990	-1,330
Total Housing Gap	694	1,103	694	1,041	3,532

Demand Component	Rental Housing Gap Estimates – Senior Households				
	Percent Of Median Household Income				
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	Total
New Households (2015-2020)	148	368	207	633	1,356
Balanced Market	200	142	128	198	668
Substandard Housing	152	110	100	179	541
Development Pipeline	-39	-40	-54	-389	-522
Total Housing Gap	461	580	381	621	2,043

Based on the preceding analysis, the housing gaps by income level range from 694 to 1,103 for the *family* units and from 381 to 621 for the *senior* units. Rental housing priorities should consider the housing segments demonstrating the greatest housing gaps. It should be noted that despite the fact that more than 1,000 units that would be affordable to households with incomes between 80% and 120% of AMHI are currently within the development pipeline, the housing gap remains significant among this household income segment. This is primarily attributed to the large number of new renter households that are projected to be added to this income segment between 2015 and 2020.

Region Rental Housing Gap by Income



Owner Housing Gap Analysis

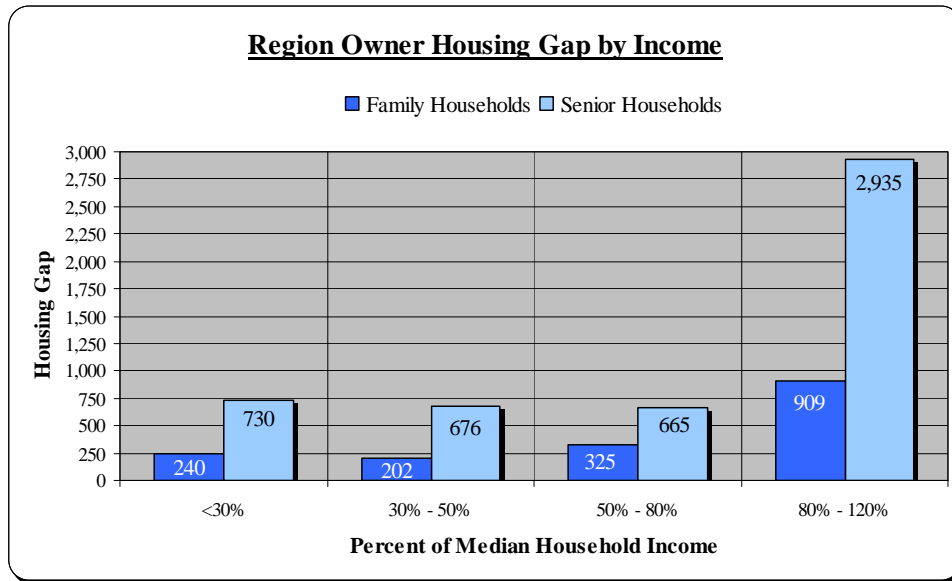
The tables below illustrate the owner for-sale housing gap estimates, assuming the housing gaps originate exclusively from *new household growth*, *units required for a balanced market*, and *replacement of substandard housing only*.

Demand Component	Owner Housing Gap Estimates – Family Households				
	Percent Of Median Household Income				Total
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	
New Households (2015-2020)	75	36	138	266	515
Balanced Market	98	98	111	381	688
Substandard Housing	67	68	76	262	473
Development Pipeline	0	0	0	0	0
Total Housing Gap	240	202	325	909	1,676

Demand Component	Owner Housing Gap Estimates – Senior Households				
	Percent Of Median Household Income				Total
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	
New Households (2015-2020)	513	454	415	2,096	3,478
Balanced Market	128	130	147	488	893
Substandard Housing	89	92	103	351	635
Development Pipeline	0	0	0	0	0
Total Housing Gap	730	676	665	2,935	5,006

Based on the preceding analysis, the housing gaps by income level range from 202 to 909 for the family units and from 665 to 2,935 for the senior units. The relatively large household growth projected for the 80% to 120% AMHI income band between 2015 and 2020 is the primary driver behind this income band's housing gap. It is important to note that while there are likely seniors (e.g. empty nesters, retirees, etc.) relocating to the region due to its desirability, it is likely that a large portion of the projected senior growth

is attributed to seniors aging in place. The Asheville region, like most parts of the country, has a large base of baby boomers that have been and will continue to age in place, essentially staying in the area as they age. This will result in a shift of households from one age segment to an older age segment. As such, this trend is likely contributing to the large growth numbers for senior homeowners. While many of these households are already in the market, the large housing gaps for senior housing indicate that these older households will likely want or require different housing to meet their changing housing needs as they age. This should be considered in future housing planning strategies for the region.



Senior Care Housing Need Estimates

Senior care housing encompasses a variety of alternatives including multi-unit assisted housing, adult care homes, and nursing homes. Such housing typically serves the needs of seniors requiring some level of care to meet their personal needs, often due to medical or other physical issues. The following attempts to quantify the estimated senior care housing need in the overall study region.

Senior Care Housing Need Estimates	
Senior Care Housing Demand Component	Demand Estimates
Elderly Population Age 62 and Older by 2020	121,707
Times Share* of Elderly Population Requiring ADL Assistance	7.40%
Equals Elderly Population Requiring ADL Assistance	9,006
Plus External Region Support (20%)	1,801
Equals Total Senior Care Support Base	10,808
Less Existing Supply	-6,611
Less Development Pipeline	-203
Potential Senior Care Beds Needed by 2020	3,994

ADL – Activities of Daily Living

*Share of ADL was based on data provided by the U.S. Centers for Disease Control and Prevention's *Summary Health Statistics for U.S. Population National Health Interview Survey 2011*

Based upon age 62 and older population characteristics and trends, and applying the ratio of persons requiring ADL assistance and taking into account the existing and planned supply, we estimate that there will be 3,994 households with a senior (age 62+) requiring assisted services that will not have their needs met by existing or planned senior care facilities by the year 2020.

It is important to understand that not all of these estimated households with persons age 62 and older requiring ADL assistance will want to move to a senior care facility, as many may choose home health care services or have their needs taken care of by a family member. Typically, institutionalization rates (the share of seniors seeking senior care housing) is around 50%. Applying this share to the 3,994 seniors requiring ADL assistance yields **an estimated 1,997 senior care housing beds that will likely be needed in the region by the year 2020**. Such housing will likely need to be in the form of a variety of housing options ranging from independent living with optional services to nursing home facilities.

Conclusions

Housing markets are dynamic and there are many factors that contribute to the housing challenges and needs of a community or region. While individual issues should be addressed, successful housing planning strategies should be broad to meet the diverse needs of a community and flexible to meet the often changing dynamics of a market. The following is a summary of findings for the local public and private entities to consider, as they relate to meeting the housing needs of the Asheville region.

1) Insufficient Rental Housing Supply: As shown in the housing supply portion of this report, there are very few *available* rental alternatives within the region, with the surveyed multifamily housing supply reporting an overall 1.0% *physical* vacancy rate (with an estimated 3.0% *economic* vacancy rate). However, with all surveyed affordable rental properties (e.g. government-subsidized and Tax Credit) fully occupied and over 90% of these properties maintaining wait lists, very few multifamily options are available for low-income households. Although not as pronounced, vacancies are also low among market-rate rentals, indicating that even market-rate renters have relatively limited multifamily options in the region. As a result, additional multifamily housing is needed to meet both current housing needs and to respond to the future renter household growth projected for the region. While a variety of product types are needed, due to the projected growth of senior households and one- and two-person households, the development of smaller bedroom types (one- and two-bedroom units) should be an area of emphasis.

2) Emerging Need for Senior Housing and/or Efforts to Enable Seniors to Age in Place: With the region's greatest household growth projected to occur among seniors age 65 to 74 (4,996 households projected to be added between 2015 and 2020), and significant growth projected to occur among those between the ages of 55 and 64 and among those age 75 and older during this same time, the region's base of senior households will increase significantly. Due to the lack of available housing, particularly multifamily rental housing alternatives, the region will need to expand its supply of senior-oriented housing to meet this growth. This will include independent living alternatives as well as senior care housing product. Efforts should also be made to promote pre-emptive actions that lead to the removal of physical barriers and encourages property modifications that would enable seniors to age in place longer. This includes supporting home repair and home maintenance efforts to extend the usefulness of existing housing.

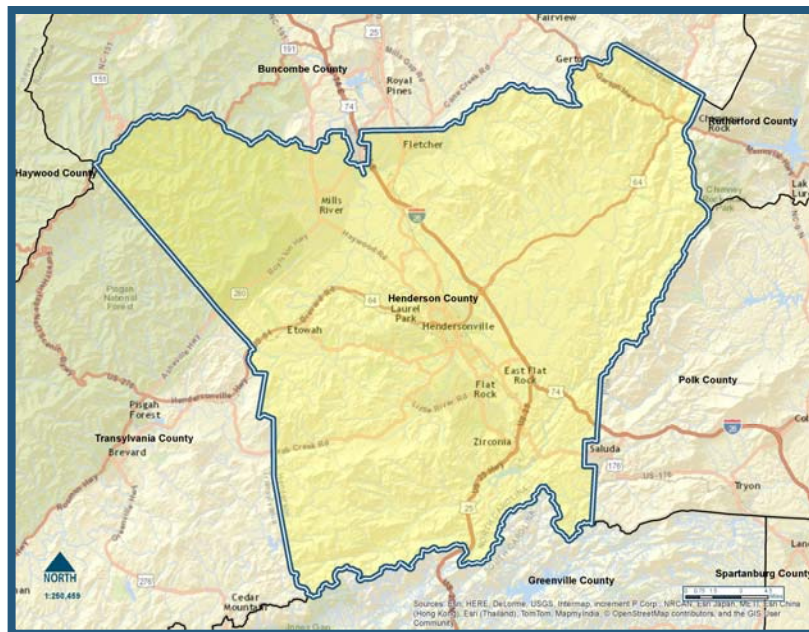
3) Insufficient Supply of Homes For Sale for Moderate-Income Households: Based on the Housing Gap Estimates provided in this report, the largest gap among the owner for-sale housing supply appears to be among units affordable to households with incomes between 80% and 120% of Area Median Household Income (AMHI). This household income segment is projected to increase significantly between 2015 and 2020. Efforts should be made to increase the supply of for-sale homes that are affordable to moderate income households, including land zoned for efficient densities, and promoting townhouse and other lower-cost for-sale housing development options.

4) Utilization of Affordable Rental Housing Programs – With a region wide rental housing gap estimate of nearly 4,000 units affordable to households with incomes below 80% of Area Median Household Income (AMHI), combined with the fact that there are no vacancies but long wait lists for affordable housing in the region, there is clear and pent-up demand for affordable housing in the subject region. Continued and possibly expanded support for various state and federal programs used to develop or maintain affordable housing in the region, particularly programs focused on low income renter households, will be critical to meeting current and future housing needs of the region. As such, the region is in need of additional affordable multifamily housing, with the greatest need for units affordable to households with incomes below 80% of Area Median Household Income (AMHI).

5) Need for Home Repair/Maintenance Programs (with Emphasis on Senior Housing): As shown in the housing supply analysis, a majority of region's existing rental and owner housing supply is more than 30 years old, much of the region's housing stock is considered old. Based on Bowen National Research's on-site exterior evaluations of much of the region's housing stock, it was determined that a notable portion of the housing stock is in need of repairs and modernization. The aging population's housing needs may be mitigated if seniors are able to stay in their homes longer and age in place.

Henderson County

Housing Needs Assessment



HENDERSON COUNTY

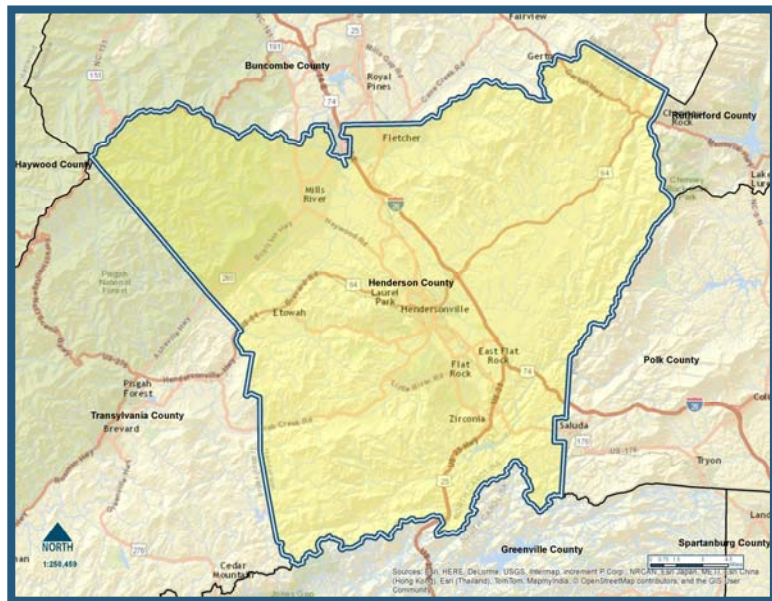
A. INTRODUCTION

The focus of this analysis is to assess the market characteristics of, and to determine the housing needs for, Henderson County. To accomplish this task, Bowen National Research evaluated various socio-economic characteristics, inventoried and analyzed the housing supply (rental and owner/for-sale product), conducted stakeholder interviews, evaluated special needs populations and provided housing gap estimates to help identify the housing needs of the county.

To provide a base of comparison, various metrics of Henderson County were compared with overall region. A comparison of the subject county in relation with other counties in the region is provided in the regional analysis portion of the overall Housing Needs Assessment.

B. COUNTY OVERVIEW

Henderson County is located within the southeast portion of the study region. It encompasses a total of 375 square miles. Primary thoroughfares within the county include Interstate Highway 26 and U.S. Routes 25, 64, 74, 74A, and 76. Notable natural landmarks and public attractions include Historic Downtown Hendersonville, Flat Rock Playhouse, Dupont State Forest, The Western North Carolina Air Museum, Pisgah National Forest, Historic Johnson Farm, and Bullington Gardens. The county had a 2010 total population of 106,740 and 45,180 total households. Hendersonville, with a 2010 population of 13,132, is the largest community in the county. The primary employment sectors and their corresponding shares of the county's total employment are Retail Trade (11.3%), Manufacturing (8.3%), and Health Care & Social Assistance (8.3%). Additional details regarding demographics, economics, housing, and other pertinent research and findings are included on the following pages.



C. DEMOGRAPHICS

This section of the report evaluates key demographic characteristics for Henderson County. Through this analysis, unfolding trends and unique conditions are revealed regarding populations and households residing in the county. Demographic comparisons provide insights into the human composition of housing markets.

This section is comprised of three major parts: population characteristics, household characteristics, and income data. Population characteristics describe the qualities of individual people, while household characteristics describe the qualities of people living together in one residence.

It is important to note that 2000 and 2010 demographics are based on U.S. Census data (actual count), while 2015 and 2020 data are based on calculated projections provided by ESRI, a nationally recognized demography firm, and the American Community Survey. The accuracy of these projections depends on the realization of certain assumptions:

- Economic projections made by secondary sources materialize;
- Governmental policies with respect to residential development remain consistent;
- Availability of financing for residential development (i.e. mortgages, commercial loans, subsidies, Tax Credits, etc.) remains consistent;
- Sufficient housing and infrastructure is provided to support projected population and household growth.

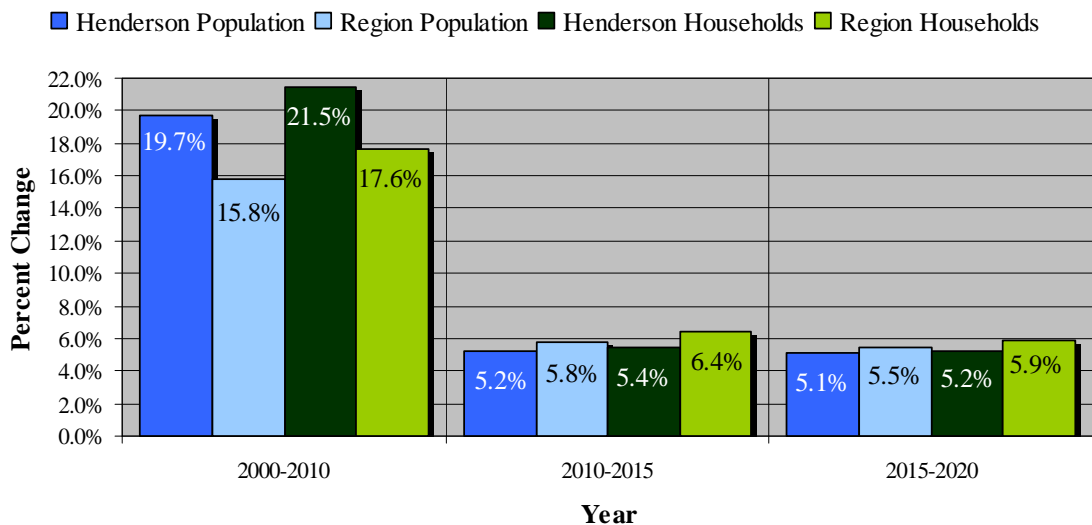
Significant unforeseen changes or fluctuations among any of the preceding assumptions could have an impact on demographic projections.

Population and household numbers for selected years within Henderson County and the region are shown in the following table:

	Total Population		Total Households	
	Henderson County	Region	Henderson County	Region
2000 Census	89,173	344,472	37,414	143,510
2010 Census	106,740	398,912	45,448	168,748
Change 2000-2010	17,567	54,440	8,034	25,238
Percent Change 2000-2010	19.7%	15.8%	21.5%	17.6%
2015 Projected	112,242	421,899	47,918	179,521
Change 2010-2015	5,502	22,987	2,470	10,773
Percent Change 2010-2015	5.2%	5.8%	5.4%	6.4%
2020 Projected	117,928	445,283	50,413	190,027
Change 2015-2020	5,686	23,384	2,495	10,506
Percent Change 2015-2020	5.1%	5.5%	5.2%	5.9%

Source: 2000, 2010 Census; ESRI; Urban Decision Group; Bowen National Research

Henderson County/Region Population & Household Trends



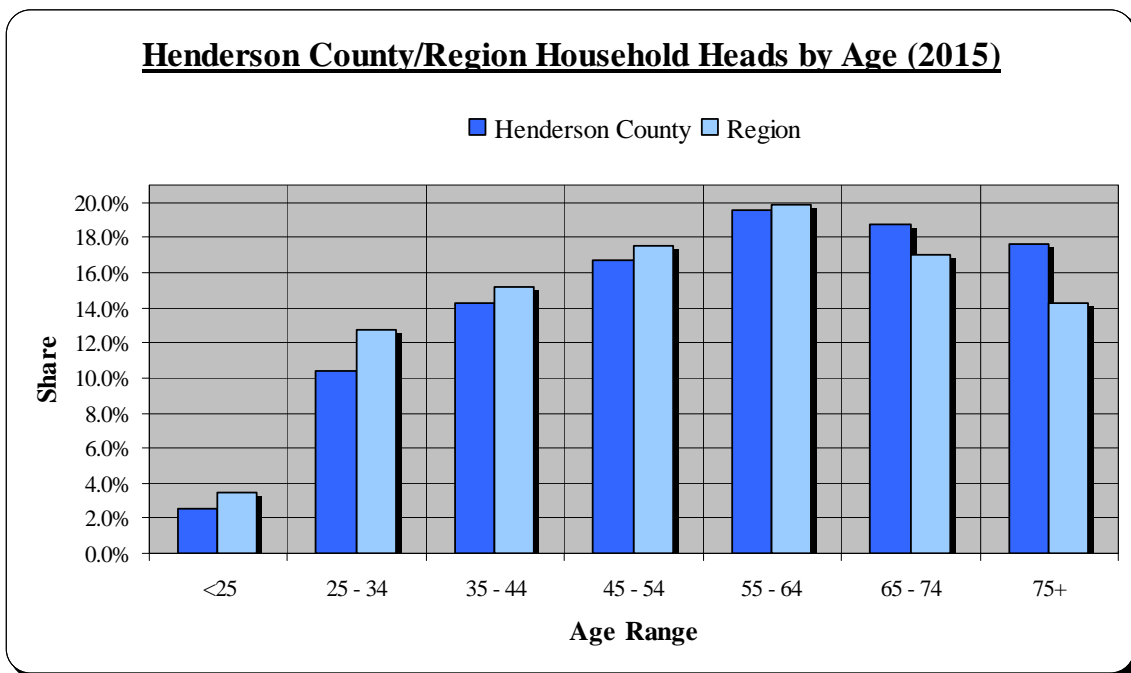
Henderson County experienced an increase in both population and households between 2000 and 2010. They are projected to increase by 5,502 (5.2%) and 2,470 (5.4%), respectively, between 2010 and 2015. Between 2015 and 2020, it is projected that they will increase by 5,686 (5.1%) and 2,495 (5.2%), respectively. These positive projected demographic trends are generally similar to the projected trends within the region.

The distribution of households by age for Henderson County is compared with the overall region in the table below.

		Household Heads by Age						
		<25	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75+
Henderson County	2010	1,175 (2.6%)	4,999 (11.0%)	6,913 (15.2%)	8,208 (18.1%)	8,805 (19.4%)	7,661 (16.9%)	7,687 (16.9%)
	2015	1,187 (2.5%)	4,989 (10.4%)	6,837 (14.3%)	8,012 (16.7%)	9,408 (19.6%)	9,031 (18.8%)	8,453 (17.6%)
	2020	1,193 (2.4%)	4,910 (9.7%)	6,790 (13.5%)	7,973 (15.8%)	9,984 (19.8%)	10,137 (20.1%)	9,425 (18.7%)
	Change 2015-2020	6 (0.5%)	-79 (-1.6%)	-47 (-0.7%)	-39 (-0.5%)	576 (6.1%)	1,106 (12.2%)	972 (11.5%)
Region	2010	6,352 (3.8%)	22,274 (13.2%)	27,174 (16.1%)	31,960 (18.9%)	33,116 (19.6%)	24,596 (14.6%)	23,276 (13.8%)
	2015	6,281 (3.5%)	22,772 (12.7%)	27,357 (15.2%)	31,366 (17.5%)	35,669 (19.9%)	30,438 (17.0%)	25,638 (14.3%)
	2020	6,226 (3.3%)	23,091 (12.2%)	27,543 (14.5%)	31,080 (16.4%)	37,629 (19.8%)	35,434 (18.6%)	29,024 (15.3%)
	Change 2015-2020	-55 (-0.9%)	319 (1.4%)	186 (0.7%)	-286 (-0.9%)	1,960 (5.5%)	4,996 (16.4%)	3,386 (13.2%)

Source: 2000 Census; 2010 Census; ESRI; Urban Decision Group; Bowen National Research

It is projected that by 2015, the largest share (19.6%) of households by age in Henderson County will be within the 55 to 64 age cohort. Between 2015 and 2020, it is projected that the number of households between the ages of 65 and 74 will increase the most, adding 1,106 (12.2%) households during this time. Henderson County will also experience notable growth among householders between the ages of 55 and 64, and among those age 75 and older between 2015 and 2020.

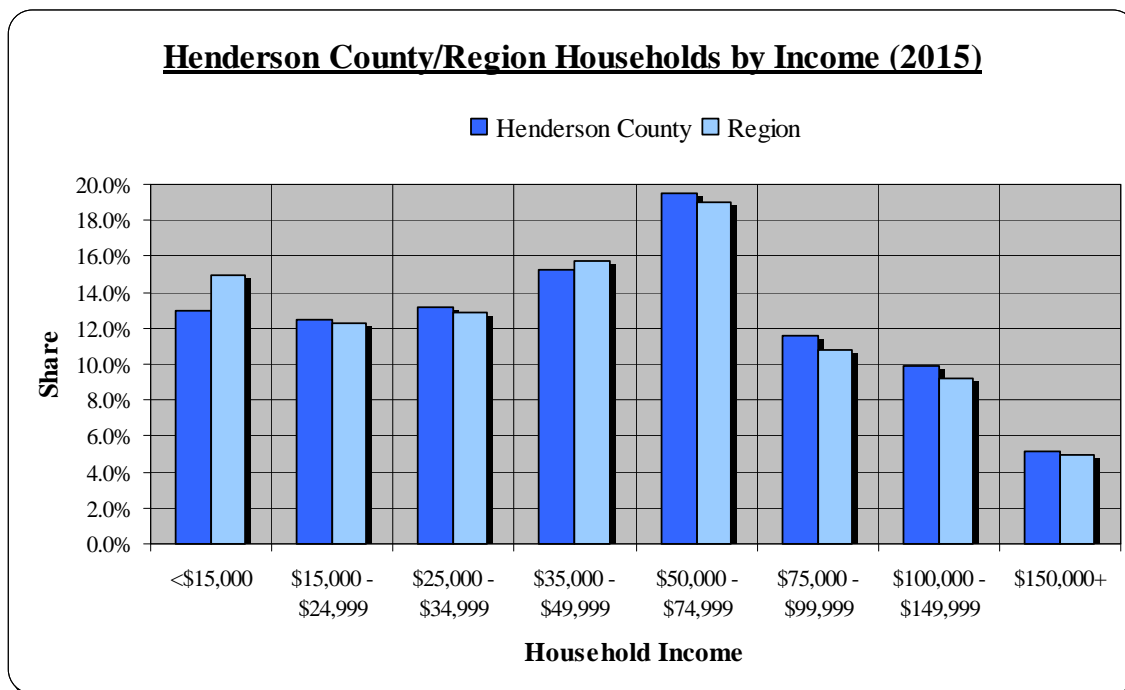


Households by income for selected years are shown in the following table:

		Households by Income								Total
		<\$15,000	\$15,000 - \$24,999	\$25,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$99,999	\$100,000 - \$149,999	\$150,000+	
Henderson County	2015	6,248 (13.0%)	5,977 (12.5%)	6,329 (13.2%)	7,274 (15.2%)	9,364 (19.5%)	5,535 (11.6%)	4,757 (9.9%)	2,434 (5.1%)	47,918 (100.0%)
	2020	6,635 (13.2%)	6,627 (13.1%)	6,392 (12.7%)	8,014 (15.9%)	9,596 (19.0%)	5,662 (11.2%)	4,990 (9.9%)	2,497 (5.0%)	50,413 (100.0%)
	Change	387 (6.2%)	649 (10.9%)	63 (1.0%)	740 (10.2%)	232 (2.5%)	127 (2.3%)	234 (4.9%)	63 (2.6%)	2,495 (5.2%)
Region	2015	26,973 (15.0%)	22,124 (12.3%)	23,236 (12.9%)	28,217 (15.7%)	34,090 (19.0%)	19,434 (10.8%)	16,434 (9.2%)	9,012 (5.0%)	179,521 (100.0%)
	2020	27,648 (14.5%)	23,576 (12.4%)	24,058 (12.7%)	30,943 (16.3%)	35,461 (18.7%)	20,226 (10.6%)	18,169 (9.6%)	9,954 (5.2%)	190,035 (100.0%)
	Change	674 (2.5%)	1,453 (6.6%)	823 (3.5%)	2,725 (9.7%)	1,371 (4.0%)	792 (4.1%)	1,734 (10.6%)	942 (10.5%)	10,514 (5.9%)

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

In 2015, it is projected that 19.5% of Henderson County households will have annual incomes between \$50,000 and \$74,999. It is projected that between 2015 and 2020, the greatest increase in households by income level in Henderson County will be among those with incomes between \$35,000 and \$49,999. Most household income segments below \$50,000 are projected to experience noticeable growth between 2015 and 2020. As such, the low-income household segment is projected to experience the greatest growth, adding to the need for affordable housing.



Households by income and tenure for selected years are shown below:

		Renter Households by Income								
		<\$15,000	\$15,000 - \$24,999	\$25,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$99,999	\$100,000- \$149,999	\$150,000+	Total
Henderson County	2015	3,059 (24.0%)	2,353 (18.4%)	2,431 (19.1%)	1,900 (14.9%)	2,012 (15.8%)	550 (4.3%)	328 (2.6%)	121 (0.9%)	12,754 (100.0%)
	2020	3,140 (23.3%)	2,899 (21.5%)	2,899 (21.5%)	2,063 (15.3%)	1,993 (14.8%)	474 (3.5%)	274 (2.0%)	152 (1.1%)	13,473 (100.0%)
	Change	81 (2.6%)	546 (23.2%)	47 (1.9%)	163 (8.6%)	-19 (-0.9%)	-76 (-13.8%)	-54 (-16.6%)	31 (25.5%)	719 (5.6%)
Region	2015	15,446 (26.5%)	10,300 (17.7%)	9,758 (16.8%)	8,525 (14.7%)	8,674 (14.9%)	2,908 (5.0%)	1,919 (3.3%)	656 (1.1%)	58,185 (100.0%)
	2020	15,532 (25.0%)	11,262 (18.2%)	11,262 (18.2%)	10,165 (16.4%)	8,767 (14.1%)	3,070 (5.0%)	2,135 (3.4%)	910 (1.5%)	62,011 (100.0%)
	Change	86 (0.6%)	962 (9.3%)	411 (4.2%)	1,641 (19.2%)	93 (1.1%)	161 (5.5%)	216 (11.2%)	255 (38.8%)	3,826 (6.6%)

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

		Owner Households by Income								
		<\$15,000	\$15,000 - \$24,999	\$25,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$99,999	\$100,000- \$149,999	\$150,000+	Total
Henderson County	2015	3,189 (9.1%)	3,625 (10.3%)	3,898 (11.1%)	5,374 (15.3%)	7,352 (20.9%)	4,985 (14.2%)	4,429 (12.6%)	2,313 (6.6%)	35,164 (100.0%)
	2020	3,495 (9.5%)	3,728 (10.1%)	3,914 (10.6%)	5,950 (16.1%)	7,603 (20.6%)	5,188 (14.0%)	4,717 (12.8%)	2,345 (6.3%)	36,940 (100.0%)
	Change	306 (9.6%)	103 (2.9%)	16 (0.4%)	576 (10.7%)	251 (3.4%)	203 (4.1%)	288 (6.5%)	32 (1.4%)	1,776 (5.1%)
Region	2015	11,528 (9.5%)	11,824 (9.7%)	13,478 (11.1%)	19,692 (16.2%)	25,417 (20.9%)	16,526 (13.6%)	14,515 (12.0%)	8,357 (6.9%)	121,336 (100.0%)
	2020	12,116 (9.5%)	12,314 (9.6%)	13,889 (10.8%)	20,777 (16.2%)	26,694 (20.9%)	17,156 (13.4%)	16,033 (12.5%)	9,044 (7.1%)	128,024 (100.0%)
	Change	588 (5.1%)	491 (4.1%)	411 (3.1%)	1,085 (5.5%)	1,278 (5.0%)	630 (3.8%)	1,519 (10.5%)	687 (8.2%)	6,688 (5.5%)

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

The largest share (24.0%) of renter households in 2015 is projected to be among households with incomes below \$15,000. In fact, the three largest shares of renter households by income are all below \$35,000. These renter households comprise nearly two-thirds of all renter households. The largest share (20.9%) of owner-occupied households at this same time will be among those with incomes between \$50,000 and \$74,999. Between 2015 and 2020, the greatest renter household growth is projected to occur among households with incomes between \$15,000 and \$24,999, while the greatest owner-occupied household growth is projected to occur among households with incomes between \$35,000 and \$49,999.

Given the large and growing base of older adult households in the region, it is important to evaluate the income trends of senior households by tenure. The senior household by income data is presented for the overall region for 2015 and 2020 in the following tables.

Ages 55 and Older Household Income	Renter Households				Owner Households			
	2015		2020		2015		2020	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
< \$15,000	904	24.0%	968	23.3%	1,886	9.1%	2,095	9.5%
\$15,000 - \$24,999	695	18.4%	894	21.5%	2,144	10.3%	2,235	10.1%
\$25,000 - \$34,999	719	19.1%	764	18.4%	2,305	11.1%	2,346	10.6%
\$35,000 - \$49,999	562	14.9%	636	15.3%	3,179	15.3%	3,567	16.1%
\$50,000 - \$74,999	595	15.8%	614	14.8%	4,349	20.9%	4,558	20.6%
\$75,000 - \$99,999	163	4.3%	146	3.5%	2,948	14.2%	3,110	14.0%
\$100,000 - \$149,999	97	2.6%	84	2.0%	2,620	12.6%	2,828	12.8%
\$150,000+	36	0.9%	47	1.1%	1,368	6.6%	1,406	6.3%
Total	3,769	100.0%	4,155	100.0%	20,798	100.0%	22,145	100.0%

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

Ages 62 and Older Household Income	Renter Households				Owner Households			
	2015		2020		2015		2020	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
< \$15,000	650	24.0%	692	23.3%	1,427	9.1%	1,589	9.5%
\$15,000 - \$24,999	500	18.4%	639	21.5%	1,622	10.3%	1,695	10.1%
\$25,000 - \$34,999	517	19.1%	546	18.4%	1,744	11.1%	1,779	10.6%
\$35,000 - \$49,999	404	14.9%	455	15.3%	2,405	15.3%	2,705	16.1%
\$50,000 - \$74,999	427	15.8%	439	14.8%	3,290	20.9%	3,457	20.6%
\$75,000 - \$99,999	117	4.3%	105	3.5%	2,230	14.2%	2,359	14.0%
\$100,000 - \$149,999	70	2.6%	60	2.0%	1,982	12.6%	2,145	12.8%
\$150,000+	26	0.9%	33	1.1%	1,035	6.6%	1,066	6.3%
Total	2,710	100.0%	2,968	100.0%	15,734	100.0%	16,796	100.0%

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

Ages 75 and Older Household Income	Renter Households				Owner Households			
	2015		2020		2015		2020	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
< \$15,000	335	24.0%	343	23.3%	573	9.1%	628	9.5%
\$15,000 - \$24,999	257	18.4%	317	21.5%	651	10.3%	670	10.1%
\$25,000 - \$34,999	266	19.1%	271	18.4%	700	11.1%	704	10.6%
\$35,000 - \$49,999	208	14.9%	226	15.3%	965	15.3%	1,070	16.1%
\$50,000 - \$74,999	220	15.8%	218	14.8%	1,321	20.9%	1,367	20.6%
\$75,000 - \$99,999	60	4.3%	52	3.5%	896	14.2%	933	14.0%
\$100,000 - \$149,999	36	2.6%	30	2.0%	796	12.6%	848	12.8%
\$150,000+	13	0.9%	17	1.1%	415	6.6%	422	6.3%
Total	1,396	100.0%	1,473	100.0%	6,317	100.0%	6,642	100.0%

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

Based on the data from the preceding page, the primary older adult household growth between 2015 and 2020 is projected to occur among most household *income* segments. As a result, there will likely be a growing need through at least 2020 for additional renter and owner housing at a variety of price points that meets the needs of the county's senior population.

Population by race for 2010 (latest race data available) is shown below:

		Population by Race					
		White Alone	Black or African American Alone	Asian Alone	Some Other Race Alone	Two or More Races	Total
Henderson County	Number	94,914	3,224	1,022	5,561	2,019	106,740
	Percent	88.9%	3.0%	1.0%	5.2%	1.9%	100.0%
Region	Number	353,718	19,967	3,653	13,732	7,842	398,912
	Percent	88.7%	5.0%	0.9%	3.4%	2.0%	100.0%

Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

The largest share of population by race within the county is among the “White Alone” segment, which represents 88.9% of the county’s population, which is near the overall region’s share.

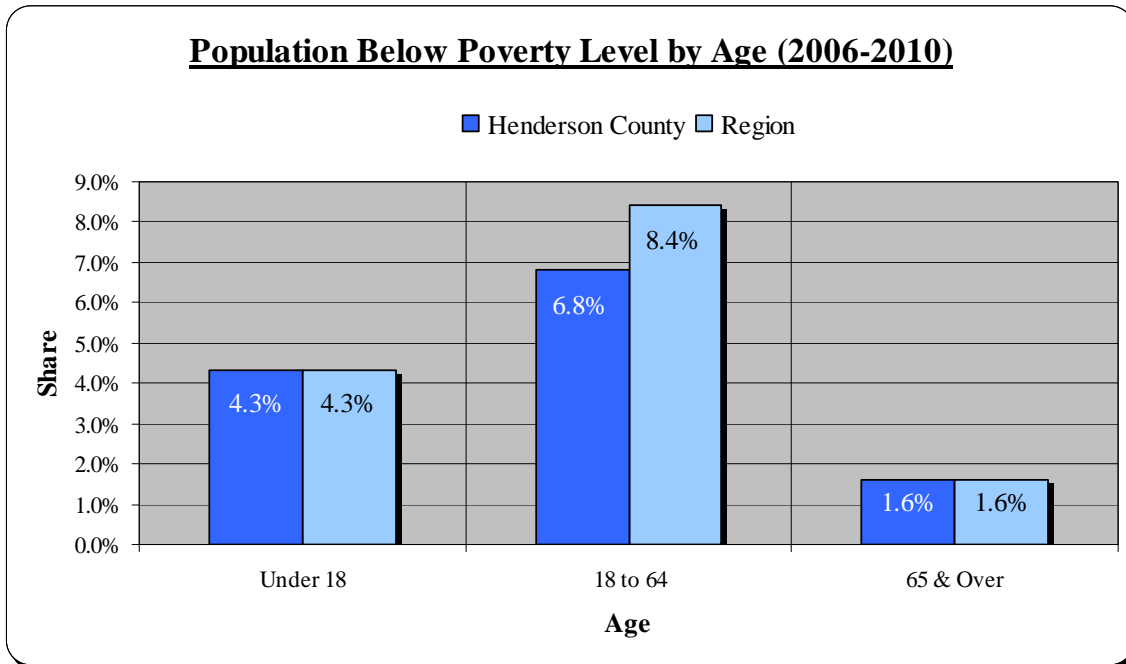
Population by poverty status for years 2006-2010 is shown in the following table:

		Population by Poverty Status					
		Income below poverty level:			Income at or above poverty level:		
		<18	18 to 64	65+	<18	18 to 64	65+
Henderson County	Number	4,588	7,290	1,718	17,653	54,877	20,614
	Percent	4.3%	6.8%	1.6%	16.5%	51.4%	19.3%
Region	Number	17,106	33,329	6,304	65,171	212,420	64,583
	Percent	4.3%	8.4%	1.6%	16.3%	53.2%	16.2%

Source: U.S. Census Bureau, 2006-2010 American Community Survey; Urban Decision Group; Bowen National Research

A total of 13,596 of the county’s population lives in poverty. One in five children (under the age of 18) within the county live in poverty. A total of 7,290 of the county’s population between the ages of 18 and 64 lives in poverty, while 1,718 of seniors age 65 and older live in poverty. Given the more than 13,000 people living in poverty within the county, affordable housing remains an important issue.

The following graph compares the share of population by age group with incomes below the poverty level for the county and state:



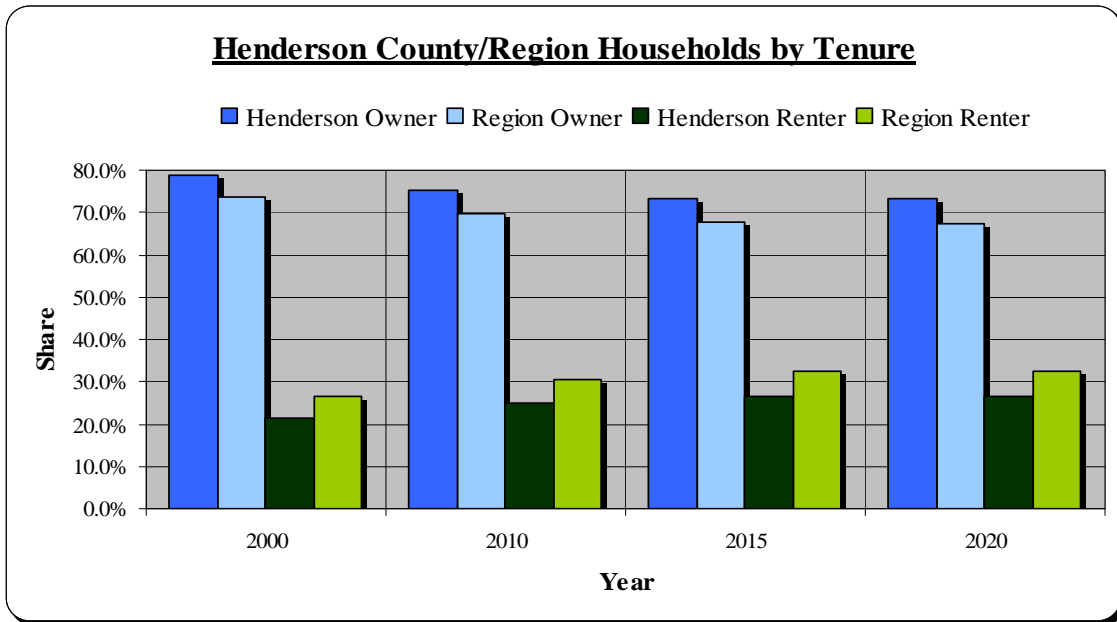
Households by tenure for selected years for the county and state are shown in the following table:

Households by Tenure									
	Household Type	2000		2010		2015		2020	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Henderson County	Owner-Occupied	29,487	78.8%	34,143	75.1%	35,164	73.4%	36,940	73.3%
	Renter-Occupied	7,927	21.2%	11,305	24.9%	12,754	26.6%	13,473	26.7%
	Total	37,414	100.0%	45,448	100.0%	47,918	100.0%	50,413	100.0%
Region	Owner-Occupied	105,693	73.6%	117,511	69.6%	121,336	67.6%	128,018	67.4%
	Renter-Occupied	37,817	26.4%	51,237	30.4%	58,185	32.4%	62,009	32.6%
	Total	143,510	100.0%	168,748	100.0%	179,521	100.0%	190,027	100.0%

Source: 2000 Census; 2010 Census; ESRI; Urban Decision Group; Bowen National Research

Within the county, the share of owner-occupied households was over 75% in 2000 and 2010, while the share of renter-occupied households has been under 25%. It is projected that between 2015 and 2020, the number of owner-occupied households will increase by 1,776, while renter households will increase by 719.

The following graph compares household tenure shares for 2000, 2010, 2015 and 2020:



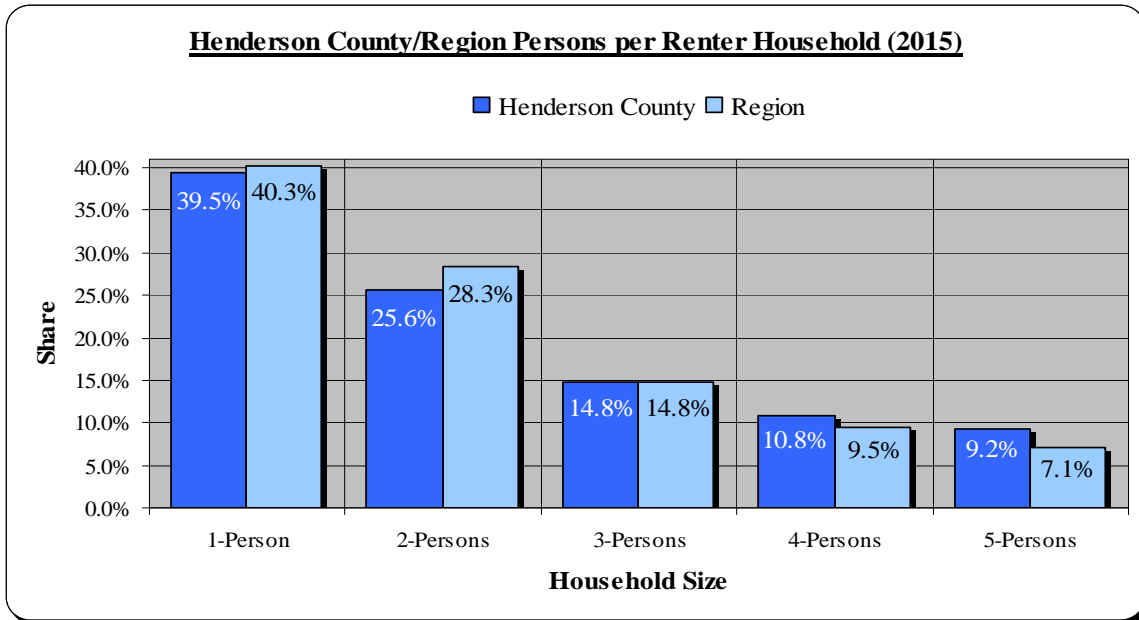
Renter households by size for selected years are shown in the following table:

		Persons Per Renter Household						Median Household Size
		1-Person	2-Person	3-Person	4-Person	5-Person	Total	
Henderson County	2010	4,426 (39.1%)	2,933 (25.9%)	1,670 (14.8%)	1,235 (10.9%)	1,041 (9.2%)	11,305 (100.0%)	1.84
	2015	5,041 (39.5%)	3,270 (25.6%)	1,892 (14.8%)	1,378 (10.8%)	1,172 (9.2%)	12,754 (100.0%)	1.82
	2020	5,375 (39.9%)	3,419 (25.4%)	2,012 (14.9%)	1,430 (10.6%)	1,236 (9.2%)	13,473 (100.0%)	1.80
	2015-2020 Change	334 (6.6%)	149 (4.6%)	120 (6.3%)	52 (3.8%)	64 (5.5%)	719 (5.6%)	-
Region	2010	20,359 (39.7%)	14,680 (28.7%)	7,554 (14.7%)	4,965 (9.7%)	3,679 (7.2%)	51,237 (100.0%)	1.72
	2015	23,427 (40.3%)	16,488 (28.3%)	8,593 (14.8%)	5,537 (9.5%)	4,140 (7.1%)	58,185 (100.0%)	1.69
	2020	25,224 (40.7%)	17,416 (28.1%)	9,175 (14.8%)	5,806 (9.4%)	4,387 (7.1%)	62,009 (100.0%)	1.66
	2015-2020 Change	1,817 (7.8%)	928 (5.6%)	582 (6.8%)	269 (4.9%)	247 (6.0%)	3,824 (6.6%)	-

Source: 2000, 2010 Census; ESRI; Urban Decision Group; Bowen National Research

In 2015, the combined share of county renter households with one- and two-persons is projected to be nearly two-thirds of all renter households. Note that one-person households are projected to experience the greatest growth between 2015 and 2020, increasing by 334, or 6.6%. This coincides with the slight projected decrease in the median household size from 1.82 in 2015 to 1.80 in 2020.

The following graph compares renter household size shares for the county and region in 2015:



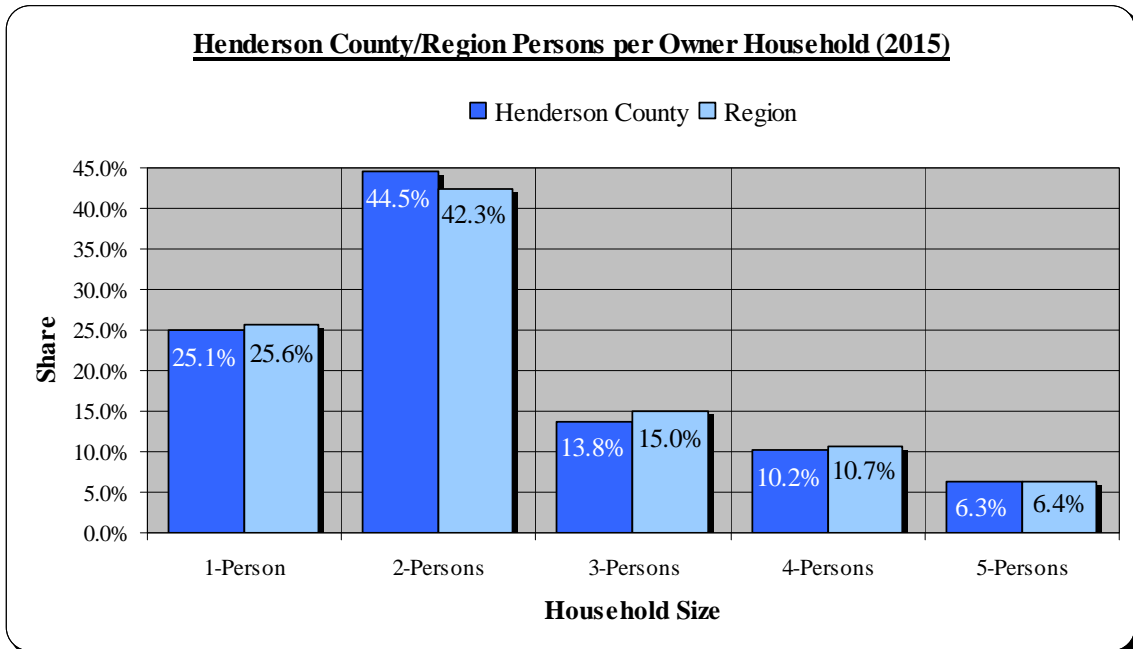
Owner households by size for selected years are shown on the following table:

		Persons Per Owner Household						Median Household Size
		1-Person	2-Person	3-Person	4-Person	5-Person	Total	
Henderson County	2010	8,532 (25.0%)	15,407 (45.1%)	4,589 (13.4%)	3,490 (10.2%)	2,125 (6.2%)	34,143 (100.0%)	2.11
	2015	8,838 (25.1%)	15,657 (44.5%)	4,858 (13.8%)	3,584 (10.2%)	2,227 (6.3%)	35,164 (100.0%)	2.12
	2020	9,369 (25.4%)	16,322 (44.2%)	5,155 (14.0%)	3,734 (10.1%)	2,360 (6.4%)	36,940 (100.0%)	2.12
	2015-2020 Change	531 (6.0%)	665 (4.2%)	297 (6.1%)	150 (4.2%)	133 (6.0%)	1,776 (5.1%)	-
Region	2010	29,657 (25.2%)	50,304 (42.8%)	17,419 (14.8%)	12,690 (10.8%)	7,441 (6.3%)	117,511 (100.0%)	2.16
	2015	31,101 (25.6%)	51,336 (42.3%)	18,195 (15.0%)	12,962 (10.7%)	7,742 (6.4%)	121,336 (100.0%)	2.15
	2020	33,231 (26.0%)	53,736 (42.0%)	19,298 (15.1%)	13,538 (10.6%)	8,216 (6.4%)	128,018 (100.0%)	2.15
	2015-2020 Change	2,130 (6.8%)	2,400 (4.7%)	1,103 (6.1%)	576 (4.4%)	474 (6.1%)	6,682 (5.5%)	-

Source: 2000, 2010 Census; ESRI; Urban Decision Group; Bowen National Research

In 2015, one- and two-person owner-occupied households combined are projected to represent more than two-thirds of the owner-occupied household base within the county. At the same time, approximately 14% of the county's owner-occupied households will be three-persons, over 10% will be four-persons, and over 6% will be five-person or larger. These shares are not expected to change much through 2020.

The following graph compares owner household size shares for the county and region in 2015:



Residents of the county face a variety of housing issues that include such things as lacking complete kitchen and/or indoor plumbing, overcrowding (1.01 or more persons per room), severe overcrowding (1.51 or more persons per room), cost burdened (paying over 30% of their income towards housing costs), severe cost burdened (paying over 50% of their income towards housing costs), and potentially containing lead paint (units typically built prior to 1980).

The following table summarizes the housing issues by tenure for Henderson County. It is important to note that some occupied housing units have more than one housing issue.

Housing Issues by Tenure				
Housing Issue	Renter-Occupied		Owner-Occupied	
	Number	Percent	Number	Percent
Incomplete Plumbing	67	0.6%	28	0.1%
Overcrowded	422	3.6%	471	1.4%
Severe Overcrowded	74	0.6%	80	0.2%
Cost Burdened	5,429	46.7%	7,824	23.3%
Severe Cost Burdened	2,327	20.0%	3,178	9.4%

Sources: 2000, 2010 Census; ESRI; Urban Decision Group; Bowen National Research

Notes: Some housing issues overlap with other issues

The greatest housing issue facing residents appears to be associated with cost burden. The high share of cost burdened households indicates that many area residents are paying a disproportionately high share of their income towards housing costs, which is likely due to a lack of affordable housing.

D. ECONOMICS

As economic conditions and trends can influence the need for housing within a particular market, the following is an overview of various economic characteristics and trends within Henderson County.

The distribution of employment by industry sector in Henderson County is compared with the region in the following table.

NAICS Group	Employment by Industry (Employees)			
	Henderson County		Region	
	Number	Percent	Number	Percent
Agriculture, Forestry, Fishing & Hunting	656	1.3%	2,090	1.0%
Mining	50	0.1%	145	0.1%
Utilities	34	0.1%	549	0.3%
Construction	3,019	6.2%	11,460	5.2%
Manufacturing	4,081	8.3%	18,891	8.6%
Wholesale Trade	2,527	5.2%	7,349	3.4%
Retail Trade	5,509	11.3%	24,464	11.2%
Transportation & Warehousing	1,415	2.9%	4,359	2.0%
Information	485	1.0%	2,671	1.2%
Finance & Insurance	1,124	2.3%	5,054	2.3%
Real Estate & Rental & Leasing	1,201	2.5%	5,922	2.7%
Professional, Scientific & Technical Services	1,789	3.7%	10,754	4.9%
Management of Companies & Enterprises	32	0.1%	218	0.1%
Administrative, Support, Waste Management & Remediation Services	2,939	6.0%	16,789	7.7%
Educational Services	2,051	4.2%	10,852	5.0%
Health Care & Social Assistance	4,069	8.3%	17,371	7.9%
Arts, Entertainment & Recreation	533	1.1%	2,526	1.2%
Accommodation & Food Services	3,519	7.2%	14,188	6.5%
Other Services (Except Public Administration)	3,008	6.2%	11,453	5.2%
Public Administration	2,627	5.4%	13,768	6.3%
Nonclassifiable	8,239	16.8%	37,742	17.3%
Total	48,907	100.0%	218,615	100.0%

*Source: 2010 Census; ESRI; Urban Decision Group; Bowen National Research

E.P.E. - Average Employees Per Establishment

Note: Since this survey is conducted of establishments and not of residents, some employees may not live within the County. These employees, however, are included in our labor force calculations because their places of employment are located within the County.

The labor force within the county is very diversified and balanced with no industry sector representing more than 11.3% of the overall county's employment base. The largest employment sectors in the county are within Retail Trade (11.3%), Manufacturing (8.3%), and Health Care & Social Assistance (8.3%). Overall, Henderson County has a distribution of employment by job sector that is similar to the region.

The following illustrates the mean hourly wages by occupation for Henderson County:

Occupation	2014 Estimates	
	Employment	Hourly Wage (Mean)
Office and Administrative Support Occupations	4,690	\$15.61
Production Occupations	3,610	\$17.73
Food Preparation and Serving Related Occupations	3,530	\$9.54
Sales and Related Occupations	3,210	\$16.62
Healthcare Practitioners and Technical Occupations	2,450	\$36.10
Transportation and Material Moving Occupations	2,120	\$14.09
Education, Training, and Library Occupations	1,850	\$19.73
Healthcare Support Occupations	1,610	\$12.37
Installation, Maintenance, and Repair Occupations	1,540	\$18.27
Building & Grounds Cleaning & Maintenance Occup.	1,330	\$10.57
Construction and Extraction Occupations	1,240	\$16.76
Management Occupations	1,040	\$43.96
Combined Food Preparation and Serving Workers, Inc	1,000	\$8.56
Retail Salespersons	1,000	\$12.68
Team Assemblers	1,000	\$17.79
Business and Financial Operations Occupations	950	\$27.88
Registered Nurses	870	\$28.21
Personal Care and Service Occupations	840	\$10.57
Waiters and Waitresses	830	\$8.90
Cashiers	810	\$9.48

Source: LEAD (Labor & Economic Analysis Division) of the North Carolina Dept. of Commerce (2014)

The largest number of persons employed by occupation was within job sectors that have mean hourly wages generally between \$9 and \$18. Assuming full-time employment, these wages yield annual wages of around \$18,000 to \$36,000. As a result, there is likely a great need for housing priced at \$900 per month or lower.

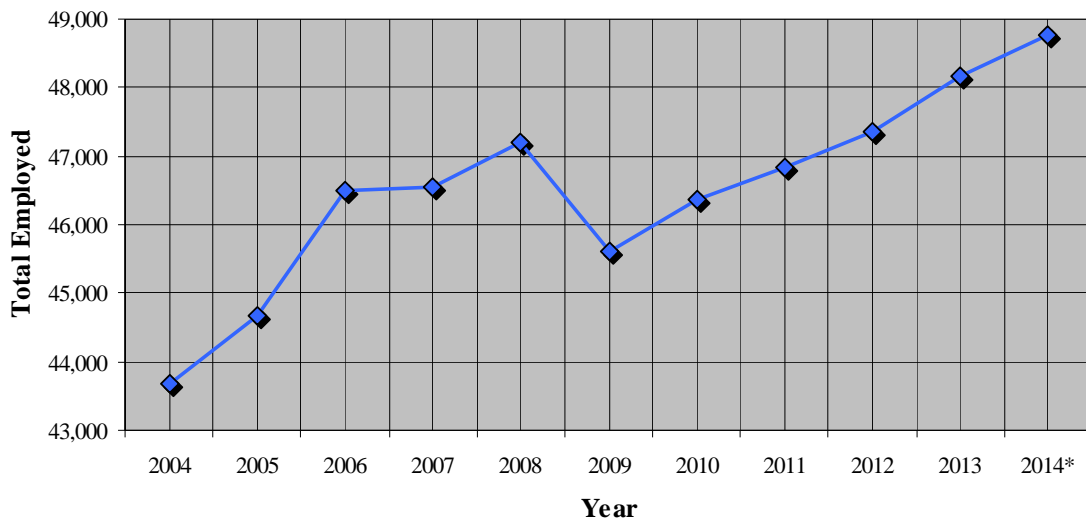
The following illustrates the total employment base for Henderson County, the region, North Carolina, and the United States.

Year	Total Employment							
	Henderson County		Region		North Carolina		United States	
	Total Number	Percent Change	Total Number	Percent Change	Total Number	Percent Change	Total Number	Percent Change
2004	43,676	-	173,140	-	4,031,081	-	139,967,126	-
2005	44,682	2.3%	176,817	2.1%	4,123,857	2.3%	142,299,506	1.7%
2006	46,489	4.0%	183,324	3.7%	4,261,325	3.3%	145,000,043	1.9%
2007	46,545	0.1%	184,292	0.5%	4,283,826	0.5%	146,388,369	1.0%
2008	47,206	1.4%	185,863	0.9%	4,280,355	-0.1%	146,047,748	-0.2%
2009	45,612	-3.4%	179,061	-3.7%	4,107,955	-4.0%	140,696,560	-3.7%
2010	46,358	1.6%	181,324	1.3%	4,138,113	0.7%	140,457,589	-0.2%
2011	46,831	1.0%	182,849	0.8%	4,183,094	1.1%	141,727,933	0.9%
2012	47,368	1.1%	186,023	1.7%	4,271,315	2.1%	143,566,680	1.3%
2013	48,160	1.7%	188,921	1.6%	4,318,319	1.1%	144,950,662	1.0%
2014*	48,776	1.3%	191,285	1.3%	4,368,455	1.2%	146,735,092	1.2%

Source: Department of Labor; Bureau of Labor Statistics

*Through August

Henderson County Total Employment



Henderson County lost approximately 3.4% of its employment base in 2009, which is slightly less than the decrease experienced in the overall region. The county's employment base has increased in each of the past five years. There are more people employed in the county than there were prior to the recession. The positive job growth over the past few years is an indication of a healthy and expanding economy.

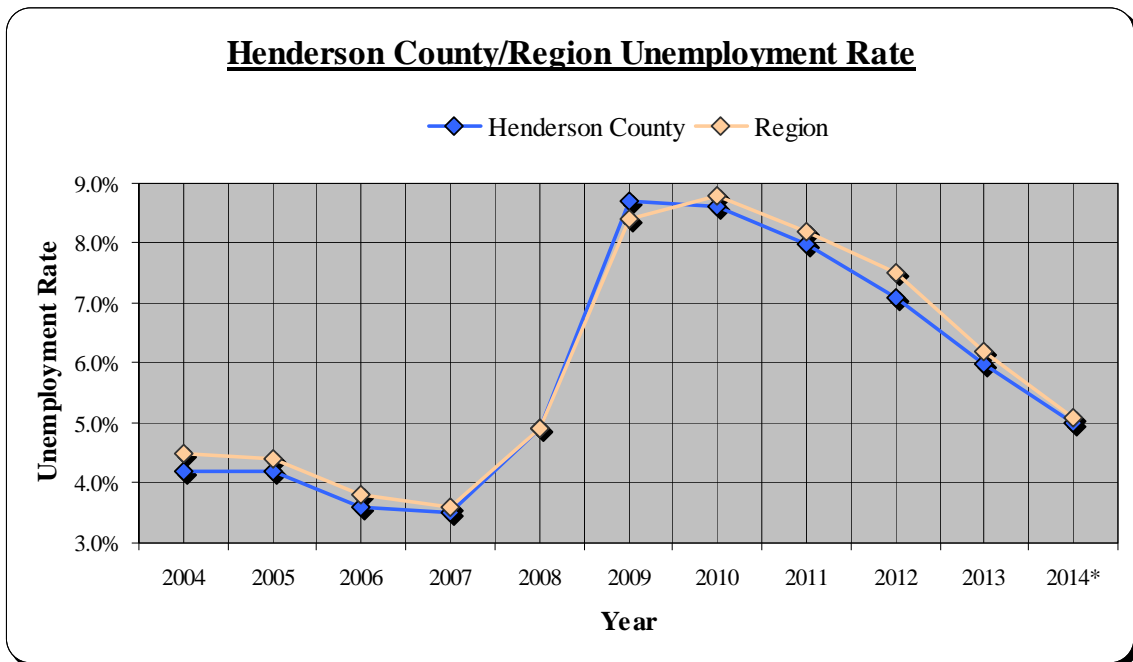
Unemployment rates for Henderson County, the region, North Carolina and the United States are illustrated as follows:

Year	Unemployment Rate			
	Henderson County	Region	North Carolina	United States
2004	4.2%	4.5%	5.5%	5.6%
2005	4.2%	4.4%	5.3%	5.2%
2006	3.6%	3.8%	4.8%	4.7%
2007	3.5%	3.6%	4.8%	4.7%
2008	4.9%	4.9%	6.3%	5.8%
2009	8.7%	8.4%	10.4%	9.3%
2010	8.6%	8.8%	10.8%	9.7%
2011	8.0%	8.2%	10.2%	9.0%
2012	7.1%	7.5%	9.2%	8.1%
2013	6.0%	6.2%	8.0%	7.4%
2014*	5.0%	5.1%	6.5%	6.5%

Source: Department of Labor, Bureau of Labor Statistics

*Through August

The county's unemployment rate has generally mirrored regional trends. After reaching a decade high unemployment rate of 8.7% in 2009, the county's unemployment rate has declined in the county in each of the past five years.



The ten largest employers within Henderson County are summarized as follows:

Employer Name	Business Type
Henderson County Board of Public Education	Education
Park Ridge Health	Health Care
Margaret R. Pardee Memorial Hospital	Health Care
Ingles Markets, Inc.	Supermarkets
County of Henderson	Government
Wilsonart, LLC	Countertop Manufacturers
Continental Automotive Systems, Inc.	Automotive Supplier
Walmart	Retail/Grocery
Meritor Heavy Vehicle Systems, LLC	Global Supplier of Axle, Brakes and Suspension Parts
Blue Ridge Community College	Education

Source: ACCESSNC, North Carolina Economic Data and Site Information, 2014 1st quarter

According to a representative with the Henderson County Partnership for Economic Development, the Henderson County economy is growing and improving. According to economic development representatives, there has been a 12% increase in the labor force and 8.5% increase in business growth since 2013, while the unemployment rate has decreased.

The town of Fletcher, located in northern Henderson County, and 13 miles south of Asheville, is the home to numerous manufacturers and successful businesses. Hendersonville is in the center of the county and is the county seat. The city is famous for the Historic Downtown Hendersonville with dining, shopping, parks and a business district. Laurel Park is west of Hendersonville and has established itself as a small residential community. Laurel Park is known for Jump Off Rock, a panoramic view of the Blue Ridge Mountains. Mills River was incorporated in 2003 and is just minutes from the Pisgah National Forest, the Asheville Airport and I-26

Empire Distributors of North Carolina announced that they planned to invest approximately \$20 million in a new building and equipment in Mills River and add approximately 15 jobs. Empire is a distributor of beer, wine and liquor and has over 700 employees in eight cities in the South including Asheville, Charlotte, Raleigh, Winston-Salem and Atlanta. It also has a plant in Arden near U.S. Highway 25.

In January of 2014, ASG (AGI Shorewood) announced that it will expand its manufacturing operations in Henderson County. The company plans to create 50 new jobs and invest more than \$8.5 million in East Flat Rock. ASG is a global packaging company that specializes in the development of innovative solutions for the consumer products segment. The company plans to invest \$8.55 million over 2 years. The existing 136,000 square-foot manufacturing building will be expanded. ASG anticipates that the expansion will help the East Flat Rock facility achieve heightened production efficiencies and increase manufacturing volume.

In March of 2014, Continental AG celebrated the opening of a \$35 million expansion at its production plant in Henderson County which will result in 40 new jobs over the next five years. Continental is based in Germany and the Fletcher plant currently employs approximately 626 people. The company manufactures vehicle brakes, chassis and brake calipers.

In April of 2014, Elkamet Incorporated announced that they would be expanding their manufacturing operations in Henderson County. The company plans to create 20 new jobs and invest more than \$2.5 million over the next three years in East Flat Rock. Elkamet currently employs 54 full-time employees at this current facility.

Sierra Nevada's new Mills River brewery opened in April of 2014. The brewery was to add a tasting room that was to open this past summer. Future plans call for a restaurant, taproom and indoor and outdoor music areas. Sierra Nevada plans to make 350,000 barrels of beer a year at the Mills River location and bottles and cases of the brewery's popular Pale Ale and Torpedo IPA are already being filled and shipped. There are about 70 full-time employees working at the brewery and that number is expected to increase to 125 to 150 full- and part-time employees.

Mona Lisa Foods, located in Edneyville in Henderson County, is planning to invest \$2.2 million in a new building and \$2 million in new equipment at its current plant on St. Pauls Road. The move could add 12 to 29 employees in the next three years.

In May of 2014, a group of Hendersonville businessmen opened a 4,500 square-foot cidery in the South Crossing Business Park in Flat Rock. Flat Rock Cider Works is the first Henderson County company to move into the fast growing hard-cider market with the introduction of their Naked Apple Hard Cider brand. Empire Distributors will distribute Naked Apple initially in Western North Carolina with a planned roll out across the rest of the state by late 2015.

In July of 2014, Kyocera celebrated the creation of a new, wholly-owned subsidiary, Kyocera Precision Tools Incorporated (KPTI). The creation of the new company follows a consolidation of Kyocera's North American cutting tool operations. The recently formed company will be headquartered in Hendersonville. The Kyocera campus currently employs 187 persons in Henderson County, of which 75 employees are affiliated with the newly formed KPTI.

Tourism:

Hendersonville and Henderson County have many attractions in the area to interest visitors coming to North Carolina. The area has historic attractions as well as State and National Forest beauty to attract tourists to the area. Historic Downtown Hendersonville was entered into the National Register of Historic Places in 1988. It has become a vital part of the community's economic and cultural growth and offers a wide array of shopping, antique stores, galleries, museums and restaurants. The Downtown hosts many activities including the North Carolina Apple Festival held during Labor Day weekend, as well as art shows, an antique show, car shows and parades throughout the year.

The Henderson County Heritage Museum is housed in the Historic Henderson County Courthouse on Main Street. It offers public displays, artifacts, lectures, collections, archives, libraries, demonstrations, and other similar exhibitions relating to the history, culture, and heritage of the founding settlement and development of Henderson County. The museum celebrates veterans of all wars and has a notable Civil War Display.

Historic Hendersonville Train Depot has been restored and now houses the Apple Valley Model Railroad Club.

The DuPont State Recreational Forest encompasses 10,268 acres in Henderson and Transylvania counties. It is situated in the Little River Valley and includes waterfalls and 80 miles of roads and trails wandering through the mountainous terrain. The forested land was purchased by the state of North Carolina after DuPont sold its industrial operation in 1996 and 1997. The surrounding land became the DuPont State Forest.

The Pisgah National Forest has 501,691 acres stretching across the eastern edge of Western North Carolina's mountains. The forest offers hiking trails, fishing, camping, picnic sites and spectacular waterfalls. Some of the Pisgah National Forest attractions include Looking Glass Falls, Sliding Rock, Pisgah Forest State Fish Hatchery, and the North Mills River Recreational Area. The North Mills River Recreational Area is located just 13 miles from Downtown Hendersonville. Jump Off Rock is a scenic overlook which provides a panoramic view of rolling pastures and the Blue Ridge and Pisgah mountain ranges and is a popular attraction.

The Flat Rock Playhouse, which is officially designated The State Theatre of North Carolina, and is a notable area attraction, is committed to teaching the performing arts to children and adults. Flat Rock Playhouse opened a satellite theater in Historic Hendersonville in 2011.

Also located in Flat Rock is the Carl Sandburg Home National Historic Site. Carl Sandburg was an American poet, historian, author and lecturer and spent the final 22 years of his life at his estate named Connemara. The home, originally built in 1838, displays the Sandburg's furnishings as well as Sandburg's collection of 12,000 books.

According to the North Carolina Tourism Department of Commerce, domestic tourism in Henderson County generated an economic impact of \$233.25 million in 2013. This was a 6.78% change from 2012. Also in 2013, Henderson County ranked 15th in travel impact among North Carolina's 100 counties. More than 2,050 jobs in Henderson County were directly attributable to travel and tourism. Travel generated a \$40.52 million payroll in 2013.

WARN (layoff notices):

According to the North Carolina Workforce Development website (www.nccommerce.com), there have been no WARN notices of large-scale layoffs or closures reported for the Henderson County area since January 2013. However, in September of 2014, Wilsonart announced that it would be laying off 57 people from its manufacturing facility in Henderson County. The reason given for the layoffs is that some positions were eliminated after some older skills are no longer needed. Wilsonart is a laminate manufacturer and will have 900 employees after this current layoff. The layoffs are nation wide.

E. HOUSING SUPPLY

This housing supply analysis considers both rental and owner for-sale housing. Understanding the historical trends, market performance, characteristics, composition, and current housing choices provide critical information as to current market conditions and future housing potential. The housing data presented and analyzed in this section includes primary data collected directly by Bowen National Research and from secondary data sources including American Community Survey (ACS), U.S. Census housing information and data provided by various government entities and real estate professionals.

While there are a variety of housing alternatives offered in Henderson County, we focused our analysis on the most common alternatives. The housing structures included in this analysis are:

- **Rental Housing** – Multifamily rentals, typically with three or more units were inventoried and surveyed. Additionally, rentals with two or fewer units, which were classified as non-conventional rentals, were identified and surveyed. Other rentals such as vacation rentals, mobile homes, and home stays (a single bedroom or portion of a larger unit) were also considered in this analysis.
- **Owner For-Sale Housing** – We identified attached and detached for-sale housing, which may be part of a planned development or community, as well as attached multifamily housing such as condominiums.
- **Senior Care Housing** – Facilities providing housing for seniors requiring some level of care, such as adult care facilities, multi-unit assisted facilities and nursing homes were surveyed and analyzed.

For the purposes of this analysis, the housing supply information is presented for Henderson County and compared with the region. This analysis includes secondary Census housing data, Bowen National Research's survey of area rental alternatives and senior care facilities, and owner for-sale housing data (both historical sales and available housing alternatives) obtained from secondary data sources (Multiple Listing Service, REALTOR.com, and other on-line sources). Finally, we contacted local building and planning departments to determine if any residential units of notable scale were currently planned or under review by local government. Any such units were considered in the housing gap estimates included later in this section.

The following table summarizes the surveyed/inventoried housing stock in the county. This is a sample survey/inventory and does not represent all housing in the county. However, we believe this housing survey/inventory is representative of a majority of the most common housing categories offered in the county.

Surveyed Housing Supply Overview				
Housing Type	Units	Vacant Units	Vacancy	Price Range
Multifamily Apartments	1,444	34	2.4%	\$270-\$1,625
Non-Conventional Rentals	N/A	34	N/A	\$380-\$3,800
Home Stays	N/A	16	N/A	\$275-\$550
Vacation Rentals	N/A	50	N/A	\$2,250-\$34,995
Mobile Home Rentals	2,741*	N/A	N/A	\$475-\$550
Owner For-Sale Housing	6,438**	1,005	3.6%*	\$5,500-\$5.0 Mil.
Senior Care Housing	1,616	56	3.5%	\$1,371-\$6,174
<i>Independent Living</i>	325	4	1.2%	\$1,371*
<i>Multi-Unit Assisted Housing</i>	444	5	1.1%	\$1,525*
<i>Adult Care Homes</i>	376	38	10.1%	\$1,600*
<i>Nursing Homes</i>	471	9	1.9%	\$6,174*

*Based on 2011-2013 American Community Survey

**Units sold between 2010 and 2014

N/A – Not Available

With the exception of the adult care homes, all surveyed housing segments appear to have vacancy rates of 3.6% or lower. This indicates that these housing segments are in high demand. While the adult care homes have a vacancy rate of 10.1%, this is not considered an unusually high vacancy rate for this type of senior care housing. Overall, the county's housing market is performing well, as demand is strong for virtually all housing alternatives. The 2.4% vacancy rate of surveyed multifamily rental housing likely indicates that there is a shortage of such housing within the county.

a. Rental Housing

Multifamily Rental Housing

We identified and personally surveyed 30 conventional housing projects containing a total of 1,444 units within the Site PMA. This survey was conducted to establish the overall strength of the rental market and to identify trends in the multifamily rental market. These rentals have a combined occupancy rate of 97.6%, a high rate for rental housing. Among these projects, 23 are non-subsidized (market-rate and Tax Credit) projects containing 1,203 units. These non-subsidized units are 97.2% occupied. There are four additional units under construction in the Site PMA. The remaining seven projects contain 241 government-subsidized units, which are 100.0% occupied.

Managers and leasing agents for each project were surveyed to collect a variety of property information including vacancies, rental rates, design characteristics, amenities, utility responsibility, and other features. Projects were also rated based on quality and upkeep, and each was mapped as part of this survey.

The inventory of 30 *surveyed* multifamily rental housing projects contains a total of 1,444 units within Henderson County. Of these units, 1,010 of the units are market-rate, 193 are Tax Credit and 205 are government-subsidized. The remaining units are within a mixed-income project. The distribution of surveyed rental housing supply by product type is illustrated in the following table:

Surveyed Multifamily Apartments				
Project Type	Projects Surveyed	Total Units	Vacant Units	Occupancy Rate
Market-rate	18	1,010	34	96.6%
Tax Credit	5	193	0	100.0%
Tax Credit/Government-Subsidized	1	36	0	100.0%
Government-Subsidized	6	205	0	100.0%
Total	30	1,444	34	97.6%

As the preceding table illustrates, these rentals have a combined occupancy rate of 97.6%. This is an extremely high occupancy rate and an indication that there is very limited availability among larger multifamily apartments in Henderson County. In fact, these projects have wait lists of up to 30 households, which provides evidence that there is pent up demand for multifamily rental housing in the Henderson County area.

The following tables summarize the breakdown of non-subsidized *units* surveyed by program within the county.

Market-rate						
Bedroom	Baths	Units	Distribution	Vacancy	% Vacant	Median Collected Rent
Studio	1.0	9	0.9%	0	0.0%	\$330
One-Bedroom	1.0	418	41.2%	18	4.3%	\$745
Two-Bedroom	1.0	51	5.0%	0	0.0%	\$508
Two-Bedroom	1.5	18	1.8%	0	0.0%	\$895
Two-Bedroom	2.0	380	37.5%	14	3.7%	\$900
Two-Bedroom	2.5	14	1.4%	0	0.0%	\$785
Three-Bedroom	1.0	2	0.2%	0	0.0%	\$650
Three-Bedroom	2.0	112	11.0%	2	1.8%	\$1,155
Three-Bedroom	2.5	10	1.0%	0	0.0%	\$1,625
Total Market-rate		1,014	100.0%	34	3.4%	-
Tax Credit, Non-Subsidized						
Bedroom	Baths	Units	Distribution	Vacancy	% Vacant	Median Collected Rent
One-Bedroom	1.0	79	41.8%	0	0.0%	\$399
Two-Bedroom	1.0	66	34.9%	0	0.0%	\$485
Two-Bedroom	2.0	4	2.1%	0	0.0%	\$610
Three-Bedroom	2.0	40	21.2%	0	0.0%	\$577
Total Tax Credit		189	100.0%	0	0.0%	-

The market-rate units are 96.6% occupied and the Tax Credit units are 100.0% occupied. While both occupancies are high, the Tax Credit occupancy rate of 100.0% and the wait lists maintained at the Tax Credit projects indicate that there is pent-up demand for this product type.

Median collected rents by bedroom type range from \$330 to \$1,625 for the market-rate units and from \$399 to \$610 for Tax Credit units. It is important to note that none of the surveyed non-subsidized multifamily projects offer four-bedroom or larger units. As such, there appear to be no multifamily rental options for most family households, particularly larger families, seeking housing within Henderson County. As a result, family households seeking four-bedroom rental alternatives in Henderson County choose from non-conventional rentals, which typically have higher rents, fewer amenities and are of lower quality than multifamily options.

There are seven multifamily projects that were surveyed in Henderson County that operate with a government-subsidy. The distribution of units and vacancies by bedroom type among government-subsidized projects (both with and without Tax Credits) in Henderson County is summarized as follows.

Subsidized Tax Credit					
Bedroom	Baths	Units	Distribution	Vacancy	% Vacant
One-Bedroom	1.0	32	88.9%	0	0.0%
Two-Bedroom	1.0	4	11.1%	0	0.0%
Total Subsidized Tax Credit		36	100.0%	0	0.0%
Government-Subsidized					
Bedroom	Baths	Units	Distribution	Vacancy	% Vacant
One-Bedroom	1.0	93	45.4%	0	0.0%
Two-Bedroom	1.0	50	24.4%	0	0.0%
Two-Bedroom	1.5	28	13.7%	0	0.0%
Three-Bedroom	1.0	26	12.7%	0	0.0%
Three-Bedroom	1.5	4	2.0%	0	0.0%
Four-Bedroom	1.0	4	2.0%	0	0.0%
Total Subsidized		205	100.0%	0	0.0%

The subsidized Tax Credit units and the government-subsidized units are 100.0% occupied. The seven surveyed government-subsidized projects in Henderson County operate under a variety of programs including the HUD Section 8, 202 and 811 programs and the Rural Development Section 515 program. All seven subsidized projects surveyed in the market maintain waiting lists ranging from approximately 2 to 10 households, or as long as five years in duration. As such, there is clear pent-up demand for housing for very low-income households in Henderson County.

The following is a distribution of multifamily rental projects and units surveyed by year built for Henderson County:

Year Built	Projects	Units	Vacancy Rate
Before 1970	6	78	12.8%
1970 to 1979	3	129	0.0%
1980 to 1989	7	206	0.0%
1990 to 1999	4	66	0.0%
2000 to 2005	5	455	1.5%
2006	0	0	-
2007	1	40	0.0%
2008	1	30	3.3%
2009	0	0	-
2010	0	0	-
2011	0	0	-
2012	2	416	3.8%
2013	0	0	-
2014*	1	24	0.0%

*As of December

The largest share of apartments surveyed was built between 1980 and 1989. These older apartments have a vacancy rate of 0.0%. A total of 510 conventional apartment units have been added in the county since 2005. As such, the existing multifamily rental housing stock is considered to be well balanced.

Representatives of Bowen National Research personally visited each of the surveyed properties within Henderson County and rated the exterior quality of each property. We rated each surveyed property on a scale of “A” (highest) through “F” (lowest). All properties were rated based on quality and overall appearance (i.e. aesthetic appeal, building appearance, landscaping and grounds appearance). The following is a distribution by quality rating, units, and vacancies for all surveyed rental housing product in Henderson County.

Market-rate			
Quality Rating	Projects	Total Units	Vacancy Rate
A	2	390	4.4%
A-	3	355	2.0%
B+	1	6	0.0%
B-	2	126	0.0%
C+	1	2	0.0%
C	6	102	1.0%
C-	2	20	10.0%
D	1	13	53.8%
Non-Subsidized Tax Credit			
Quality Rating	Projects	Total Units	Vacancy Rate
A	1	56	0.0%
A-	1	64	0.0%
B+	1	40	0.0%
B-	1	4	0.0%
C-	1	25	0.0%

Government-Subsidized			
Quality Rating	Projects	Total Units	Vacancy Rate
A	1	24	0.0%
B	1	36	0.0%
B-	1	42	0.0%
C+	2	85	0.0%
C	2	54	0.0%

Vacancies are generally low among all program types and quality levels. The double digit vacancy rates among the C- and D rated properties indicate that these lower quality units are the least marketable. All affordable (Tax Credit and subsidized) rental units are occupied regardless of quality.

Non-Conventional Rental Housing

Henderson County has a large number of non-conventional rentals which can come in the form of detached single-family homes, duplexes, units over storefronts, etc. As a result, we have conducted a sample survey of non-conventional rentals within the county. Overall, a total of 34 vacant individual units were identified and surveyed. While this does not include all non-conventional rentals in the market, we believe these properties are representative of the typical non-conventional rental housing alternatives in the market. Information regarding the bedroom/bathroom configuration, year built, amenities, collected rent and total square footage was collected and evaluated when available.

The following table aggregates the 34 vacant non-conventional rental units surveyed in Henderson County by bedroom type.

Surveyed Non-Conventional Rental Supply				
Bedroom	Vacant Units	Rent Range	Median Rent	Median Rent Per Square Foot
One-Bedroom	1	\$625	\$625	\$0.66
Two-Bedroom	6	\$775 - \$965	\$850	\$0.75
Three-Bedroom	22	\$380 - \$3,800	\$1,250	\$0.71
Four-Bedroom+	5	\$1,300 - \$1,750	\$1,500	\$0.71
Total	34			

As the preceding table illustrates, the rents for non-conventional rentals identified range from \$380 to \$3,800. The median rents are \$625 for a one-bedroom unit, \$850 for a two-bedroom unit, \$1,250 for a three-bedroom unit and \$1,500 for a four-bedroom unit. The median rent per square foot by bedroom type ranges from \$0.66 to \$0.75.

The rental rates of non-conventional rentals are generally comparable to most market-rate multifamily apartments surveyed in the county. However, when utilities are considered, as most non-conventional rentals require tenants to pay all utilities, the rental housing costs of non-conventional rentals are generally higher than multifamily apartments. When also considering the facts that a much larger share of the non-conventional product was built prior to 1980 and their amenity packages are relatively limited, it would appear the non-conventional rentals represent less of a value than most multifamily apartments in the market. However, given the relatively limited number of vacant units among the more affordable multifamily apartments, many low-income households are likely forced to choose from the non-conventional housing alternatives.

Vacation Rental Housing

Henderson County has a large number of vacation rentals which can come in the form of cabins, detached single-family homes, condominiums, etc. As a result, we have conducted a sample survey of vacation rentals within the county. Overall, a total of 50 vacant individual units were identified and surveyed. While this does not include all vacation rentals in the market, we believe these properties are representative of the typical vacation rental housing alternatives in the market.

The following table aggregates the 50 vacant/available vacation rental units surveyed in the county by bedroom type. It is important to note that while most vacation rentals charge daily or weekly rents, we have converted all rents to monthly rents to more easily compare with other rental alternatives in the market.

Vacation Rental Supply			
Bedroom	Vacant Units	Rent Range	Median Rent
One-Bedroom	7	\$2,250 - \$4,500	\$3,075
Two-Bedroom	20	\$2,460 - \$14,235	\$4,163
Three-Bedroom	19	\$3,000 - \$31,710	\$4,500
Four-Bedroom+	4	\$3,900 - \$34,995	\$8,625
Total	50		

As the preceding table illustrates, the rents for vacation rentals identified range from \$2,250 to \$34,995. The median monthly rents are \$3,075 for a one-bedroom unit, \$4,163 for a two-bedroom unit, \$4,500 for a three-bedroom unit, and \$8,625 for a four-bedroom or larger unit.

The rental rates of vacation rentals are significantly higher than most conventional multifamily apartments and non-conventional rentals surveyed in the county. Generally, such rentals are at least four times higher than conventional rentals, essentially eliminating this type of housing as a viable long-term housing alternative to most area renters. However, due to this rent differential, such housing may appeal to owners of traditional, long-term conventional rentals who may want to convert their housing to vacation rentals. This is addressed in the case study portion of the *Asheville, North Carolina Region Housing Needs Assessment*.

Home Stay Rentals

A home stay rental is generally considered a bedroom or a few rooms that are rented to tenants on a short-term basis and typically represents a portion of a full rental unit. Such rentals are generally short-term (usually less than 30 days) housing options. Tenants in the home stay rental often have shared access to common areas such as bathrooms and kitchens. Home stay rentals typically come in the form of apartments, detached single-family homes, duplexes, condominiums, etc. We have conducted a sample survey of home stay rentals within the county.

The following table aggregates the 16 vacant home stay rental units surveyed in the county by bedroom type.

Surveyed Home Stay Rental Supply		
Vacant Units	Rent Range	Median Rent
16	\$275 - \$550	\$400

As the preceding table illustrates, the monthly rents for home stay rentals identified range from \$275 to \$550. The median rent is \$400.

The rental rates of home stay rentals are generally lower than most multifamily apartments surveyed in the county, which is not surprising since such rentals are limited to a single room with shared access to common areas (e.g. bathrooms, kitchens, etc.). Most home stay rentals are roommate situations where residents have their own bedroom but must share kitchen, living and bathroom areas. Most rentals include all basic utilities in the rent, with many rentals also offering cable television and Internet as part of the rent. A large number of the rentals are fully furnished, but offer few project amenities such as swimming pools or other recreational features. Most rentals allow residents access to laundry facilities. Leases are often flexible, typically month to month in duration. Unlike most conventional apartment or private non-conventional rentals, home stays have the unique element of matching personal preferences with roommates. For example, many properties advertise that they are looking for smoke-free/smokers, pet friendly/no pet, male/female or other types of tenants. Such preferences or restrictions likely limit the type of residents that can be accommodated at such rentals. Given these preferences and restrictions, along with the fact that the home stay rentals can typically only accommodate one- or two-person households, home stays likely have a limited ability to meet the needs of most area renters.

Mobile Home Rentals

Bowen National Research identified 41 mobile home parks in Henderson County through secondary resources, such as www.mhvillage.com, the county tax department/assessor, and Craigslist. Upon identification of these parks, which is not a comprehensive list, we conducted a sample windshield survey to evaluate the quality of select parks and their neighborhoods, and we attempted to conduct telephone interviews with park operators.

Surveyed park operators indicated that lot rents range from \$110 to \$325 per month. In terms of lot rents and vacancy trends, responses varied between “stayed the same” and “increased” for both lot rents and vacancies. Respondents reported typical occupancy rates of 90% to 95%, with two parks reporting 100% occupancy. Mobile home park operators commented that the quality varies based on the ownership/management of the park, but that typically the parks are in good to fair condition. A windshield survey of select mobile home parks in the county yielded a range of “B” to “C-” quality and neighborhood ratings, indicating that these mobile home parks and their neighborhoods are in good to fair condition.

Bowen National Research asked respondents if there are any issues or problems associated with operating or maintaining a mobile home park in the area, or what recommendations the respondents may have that the local government could do to aid in mobile home park living. Mobile home park operators reported that there is a lack of collaboration between park owners and the local government, as well as NIMBYism from public and private entities.

b. Owner For-Sale Housing

Bowen National Research, through a review of the Multiple Listing Service information for Henderson County, identified both historical (sold since 2010) for-sale residential data and currently available for-sale housing stock.

There were 6,438 homes sold and 1,005 homes currently available in Henderson County. Approximately, an average of 1,218 homes are sold each year within Henderson County. The 1,005 available homes in Henderson County represent 27.4% of all identified available for-sale homes in the region. The following table summarizes the available and recently sold (since January 2010) housing stock for Henderson County.

Owner For-Sale/Sold Housing Supply		
Type	Homes	Median Price
Available	1,005	\$273,000
Sold	6,438	\$178,000

Source: Multiple Listing Service and Bowen National Research

The historical data includes any home sales that occurred within the county from January 2010 to November 2014. It is our opinion that an evaluation of sales activity after 2009 is representative of true market conditions following the recession.

The following table includes a summary of annual for-sale residential transactions that occurred within Henderson County since 2010. It should be noted that the 2014 full year sales projection is based on actual sales through November of that year.

Owner For-Sale Housing by Year Sold				
Year	Units Sold		Median Price Sold	
	Number	Change	Price	Change
2010	989	-	\$185,000	-
2011	962	-2.7%	\$169,000	-8.6%
2012	1,332	38.5%	\$169,000	0.0%
2013	1,587	19.1%	\$180,000	6.5%
2014	1,772*	11.7%	\$185,550	3.1%

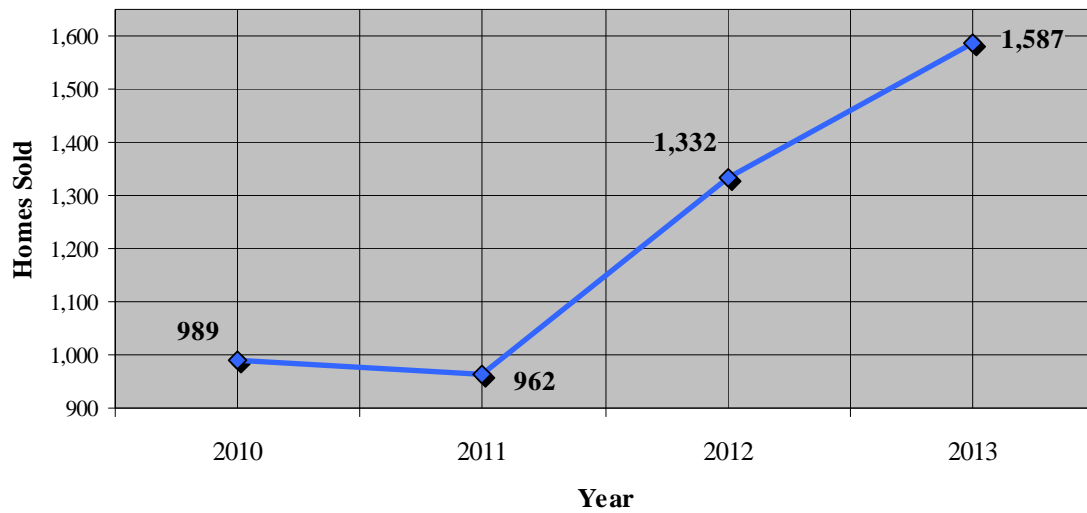
Source: Multiple Listing Service and Bowen National Research

*Full year projections based on actual sales through Nov. 21, 2014

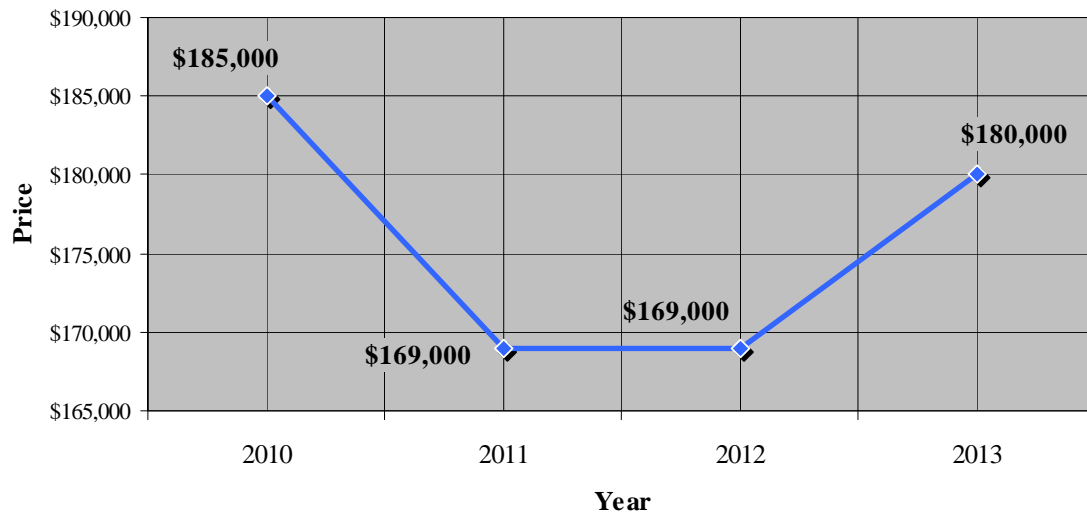
Excluding the partial year of 2014, annual residential for-sales activity within the county has ranged between 962 in 2011 and 1,587 in 2013. The annual sales activity has grown each of the past two full years. The county is currently on pace to sell approximately 1,772 residential units for all of 2014, which would be a five-year high. The county has experienced fluctuations in median sales prices over the past three years, but has trended upward over the past two years with annual growth rates above 3.0% during this time. The positive trends among sales volume and sales prices are good indications of a healthy and stable for-sale housing market in Henderson County.

The following graphs illustrate the overall annual number of homes sold and median sales prices over the past four years for Henderson County from 2010 to 2013 (2014 was excluded due to the fact that only partial year data is available).

Henderson County Annual Home Sales (2010-2013)



Henderson County Annual Median Sales Price (2010-2013)



The following table summarizes the inventory of *available* for-sale housing in Henderson County and the region.

	Available Owner For-Sale Housing						Average Days On Market
	Total Units	% Share of Region	Low List Price	High List Price	Average List Price	Median List Price	
Henderson County	1,005	27.4%	\$19,900	\$5,000,000	\$382,273	\$273,000	216
Region	3,669	100.0%	\$19,900	\$10,750,000	\$451,391	\$290,418	244

Source: Multiple Listing Service and Bowen National Research

Within Henderson County, the available homes have a median list price of \$273,000, which is less than the region median list price of \$290,418. The average number of days on market for available product in Henderson County is 216, which is less than the region average of 244.

The table below summarizes the distribution of available for-sale residential units by price point for Henderson County.

List Price	Available Owner For-Sale Housing by Price Point					
	Henderson County			Region		
	Median Price	Units	Share	Median Price	Units	Share
<\$100,000	\$72,000	57	5.7%	\$79,700	190	5.2%
\$100,000 - \$199,999	\$158,000	235	23.4%	\$159,900	821	22.4%
\$200,000 - \$299,999	\$249,900	300	29.8%	\$249,900	934	25.4%
\$300,000 - \$399,999	\$349,900	146	14.5%	\$350,000	543	14.8%
\$400,000 - \$499,999	\$454,000	74	7.4%	\$450,000	319	8.7%
\$500,000+	\$725,000	193	19.2%	\$797,200	862	23.5%

Source: Multiple Listing Service and Bowen National Research

Henderson County Available For-Sale Housing by Price



Nearly one-third of the available for-sale supply in Henderson County is priced between \$200,000 and \$299,999. These homes would generally be available to households with incomes between \$60,000 and \$100,000. Nearly a quarter of the available product is priced between \$100,000 and \$199,999, indicating that there is a good base of homes generally affordable to households with incomes between \$30,000 and \$60,000. Only 5.7% of all available homes are priced below \$100,000, which would be generally affordable to households with incomes under \$30,000. Based on our on-site evaluation of the county's housing stock and an analysis of secondary data on such housing, it appears that much of the housing inventory was built prior to 1970 and is of fair quality. As a result, while it may be deemed that there is some for-sale product available to lower-income households, such product likely requires additional costs for repairs, modernization and maintenance, which may be difficult for many low-income households to afford.

c. Senior Care Facilities

The subject county, like areas throughout the country, has a large senior population that requires a variety of senior housing alternatives to meet its diverse needs. Among seniors, generally age 62 or older, some individuals are either seeking a more leisurely lifestyle or need assistance with Activities of Daily Living (ADLs). As part of this analysis, we evaluated four levels of care that typically respond to older adults seeking, or who need, alternatives to their current living environment. They include independent living, multi-unit assisted housing, adult care homes, and nursing care. These housing types, from least assisted to most assisted, are summarized below.

Independent Living is a housing alternative that includes a residential unit, typically an apartment or cottage that offers an individual living area, kitchen, and sleeping room. The fees generally include the cost of the rental unit, some utilities, and services such as laundry, housekeeping, transportation, meals, etc. This housing type is also often referred to as congregate care. Physical assistance and medical treatment are not offered at such facilities.

Multi-unit Assisted Housing With Services (referred to as *multi-unit assisted* throughout this report) is a housing alternative that provides unlicensed care services along with the housing. Such housing offers residents the ability to obtain personal care services and nursing services through a home care or hospice agency that visit the subject site to perform such services. Management at the subject project arrange services that correspond to an individualized written care plan.

Adult Care Homes are state licensed residences for aged and disabled adults who may require 24-hour supervision and assistance with personal care needs. People in adult care homes typically need a place to live, with some help with personal care (such as dressing, grooming and keeping up with medications), and some limited supervision. Medical care may be provided on occasion but is not routinely needed. Medication may be given by designated, trained staff. This type of facility is very similar to what is commonly referred to as “assisted living.” These facilities generally offer limited care that is designed for seniors who need some assistance with daily activities but do not require nursing care.

Nursing Homes provide nursing care and related services for people who need nursing, medical, rehabilitation or other special services. These facilities are licensed by the state and may be certified to participate in the Medicaid and/or Medicare programs. Certain nursing homes may also meet specific standards for sub-acute care or dementia care.

We referenced the Medicare.com and North Carolina Division of Health Service Regulation websites for all licensed senior care facilities and cross referenced this list with other senior care facility resources. As such, we believe that we identified most, if not all, licensed facilities in the county.

Within the county, a total of 19 senior care facilities were surveyed containing a total of 1,616 beds. These facilities are representative of the typical housing choices available to seniors requiring special care housing. It should be noted that family adult care homes of six units or less were not included in this inventory. The following table summarizes the surveyed facilities by property type.

Surveyed Senior Care Facilities				
Project Type	Projects	Beds	Vacant	Vacancy Rate
Independent Living	1	325	4	1.2%
Multi-Unit Assisted Housing	4	444	5	1.1%
Adult Care Homes	7	376	38	10.1%
Nursing Homes	7	471	9	1.9%
Total	19	1,616	56	3.5%

The Henderson County senior care market is reporting overall vacancy rates between 1.1% (multi-unit assisted housing) to 10.1% (assisted living). With the exception of adult care homes, the vacancy rates among housing are relatively low and indicate that there is a good level of demand for such housing in the county. While the adult care homes have a 10.1% vacancy rate, this is not considered unusual for these types of facilities. Overall, demand for senior care housing in the county appears to be strong and indicates that there may be an opportunity to develop additional senior care housing in this county, particularly when considering the projected senior household growth for the next few years.

Base monthly fees for independent living units start at \$1,371, multi-unit assisted housing start at \$1,525 a month, adult care homes start at \$1,600, and nursing care facilities have a base monthly fee starting near \$6,174. These fees are slightly lower than most senior care housing fees in the region.

d. *Planned & Proposed Residential Development*

In order to access housing development potential, we evaluated recent residential building permit activity and identified residential projects in the development pipeline for Henderson County. Understanding the number of residential units and the type of housing being considered for development in the county can assist in determining how these projects are expected to meet the housing needs of the area.

Based on our interviews with local building and planning representatives within Henderson County, it was determined that there are multiple housing projects planned within the county. These projects are tabulated in the following table.

Project Name & Location	City	Units/ Lots	Type	Developer	Status
The Seasons at Crane Creek	Fletcher	192	Rental, Market-Rate	Triangle Real Estate	Plans Approved
Braewood Homes West Blue Ridge Road	Flat Rock	77	For-Sale, Single-Family	N/A	Plan Approved
Wolf Chase Homes Half Moon Trail	Hendersonville	8	For-Sale, Single-Family	Windsor Aughtry Company	Plans Approved
Hickory Nut Forest Fern Grove Lane	Gerton	23	For-Sale, Single-Family	Little Bearwallow Mountain, LLC	Plans Approved
Winchester House 1744 Meadowbrook Terrace	Hendersonville	40 beds	Adult Care Home	N/A	Under Review, Replacement Housing

F. HOUSING GAP ESTIMATES

Bowen National Research conducted housing gap analyses for rental and for-sale housing for the subject county. The **housing gap** estimates include new household growth, units required for a balanced market, households living in substandard housing (replacement housing), and units in the development pipeline. This estimate is considered a representation of the housing shortage in the market and indicative of the more immediate housing requirements of the market. Our estimates consider four income stratifications. These stratifications include households with incomes of up to 30% of Area Median Household Income (AMHI), households with incomes between 31% and 50% of AMHI, between 51% and 80% of AMHI, and between 80% and 120% of AMHI. It is important to note that this analysis does not consider the potential housing gap for households with incomes above 120% of AMHI. As such, there is another segment of housing needs that is not quantified in this report. This analysis was conducted for family households and seniors (age 55+) separately. This analysis identifies the housing gap (the number of units that could potentially be supported) for the county between 2015 and 2020. Broader **housing needs** estimates, which include household growth, cost burdened households, households living in substandard housing, and units in the development pipeline, were provided for the

overall region and is included in the Asheville, North Carolina Region Housing Needs Assessment.

The demand components included in the housing gap estimates for each of the two housing types (rental and for-sale) are listed as follows:

Housing Gap Analysis Components	
Rental Housing	Owner Housing
• Renter Household Growth	• Owner Household Growth
• Units Required for Balanced Market	• Units Required for Balanced Market
• Substandard Housing	• Substandard Housing
• Pipeline Development*	• Pipeline Development*

*Includes units that lack complete indoor plumbing and overcrowded housing

**Units under construction, permitted, planned or proposed

The demand factors for each housing segment at the various income stratifications are combined. Any product confirmed to be in the development pipeline is deducted from the various demand estimates, yielding a housing gap estimate. This gap analysis is conducted for both renters and owners, as well as for seniors (age 55+) and family households. These gaps represent the number of new households that may need housing and/or the number of existing households that currently live in housing that needs replaced to relieve occupants of such things as overcrowded or substandard housing conditions. Data used for these various demand components originates from the demographic analysis portion of this study.

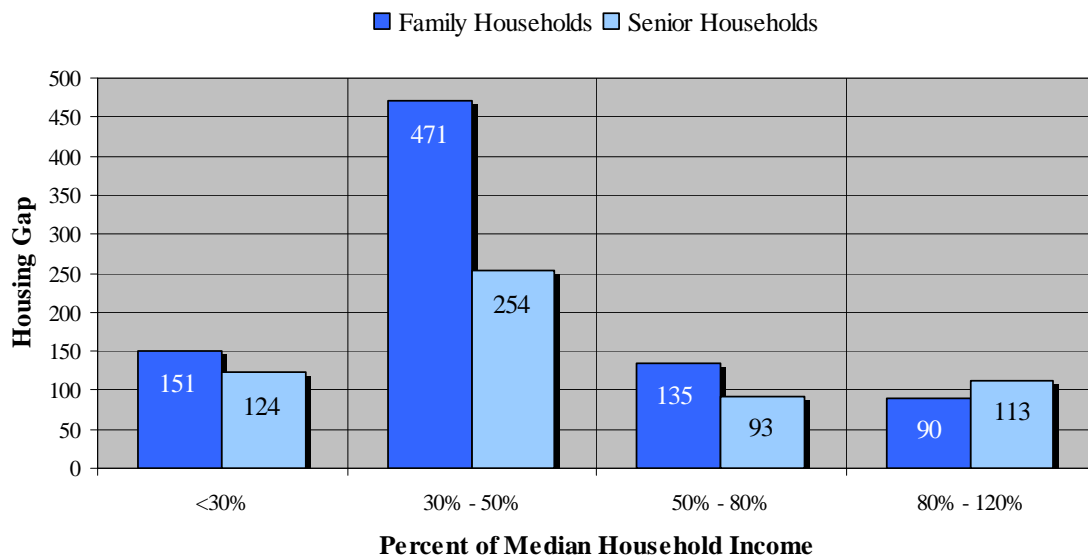
Rental Housing Gap Analysis

The tables below summarize the rental housing gap estimates by the various income segments for family and senior households.

Demand Component	Rental Housing Gap Estimates – Family Households				
	Percent Of Median Household Income				Total
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	
New Households (2015-2020)	17	347	2	51	417
Balanced Market	56	52	56	73	237
Substandard Housing	78	72	77	100	327
Development Pipeline	0	0	0	-134	-134
Total Housing Gap	151	471	135	90	847

Demand Component	Rental Housing Gap Estimates – Senior Households				
	Percent Of Median Household Income				Total
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	
New Households (2015-2020)	64	199	45	93	401
Balanced Market	25	23	20	33	101
Substandard Housing	35	32	28	45	140
Development Pipeline	0	0	0	-58	-58
Total Housing Gap	124	254	93	113	584

Henderson County Rental Housing Gap by Income



Based on the preceding table, the largest area rental housing gap by income level is within the 30% to 50% AMHI level among both families and seniors. However, notable housing gaps exist within each of the other income levels.

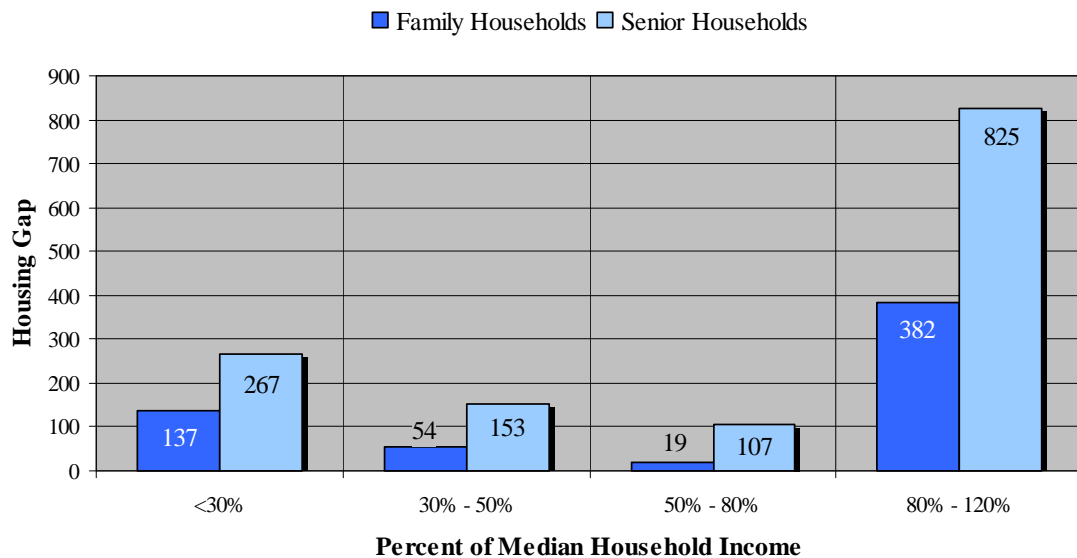
Owner Housing Gap Analysis

The tables below summarize the *owner* housing gap estimates by the various income segments for family and senior households.

Demand Component	Owner Housing Gap Estimates – Family Households				
	Percent Of Median Household Income				Total
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	
New Households (2015-2020)	97	12	-25	230	314
Balanced Market	20	21	22	76	139
Substandard Housing	20	21	22	76	139
Development Pipeline	0	0	0	0	0
Total Housing Gap	137	54	19	382	592

Demand Component	Owner Housing Gap Estimates – Senior Households				
	Percent Of Median Household Income				Total
	<30% (<\$15,000)	30%-50% (\$15,000-\$24,999)	50%-80% (\$25,000-\$34,999)	80%-120% (\$35,000-\$75,000)	
New Households (2015-2020)	209	91	41	597	938
Balanced Market	29	31	33	114	207
Substandard Housing	29	31	33	114	207
Development Pipeline	0	0	0	0	0
Total Housing Gap	267	153	107	825	1,352

Henderson County Owner Housing Gap by Income



As shown in the preceding owner housing gap analysis, the greatest housing gap for families and seniors with incomes between 80% and 120% of AMHI. While the housing gap estimates show a large gap for senior housing that is affordable to households making less than 30% of AMHI, this is likely attributed to many existing seniors aging in place. While many of these particular households are likely housed in the market, they will likely need senior-oriented housing that will enable them to downsize in the years ahead. While not shown in this analysis, there is likely a housing need for households with incomes above 120% of AMHI.

Senior Care Housing Need Estimates

Senior care housing encompasses a variety of alternatives including multi-unit assisted housing, adult care homes, and nursing homes. Such housing typically serves the needs of seniors requiring some level of care to meet their personal needs, often due to medical or other physical issues. The following attempts to quantify the estimated senior care housing need in the county.

Senior Care Housing Need Estimates	
Senior Care Housing Demand Component	Demand Estimates
Elderly Population Age 62 and Older by 2020	36,556
Times Share* of Elderly Population Requiring ADL Assistance	X 7.4%
Equals Elderly Population Requiring ADL Assistance	= 2,705
Plus External Market Support (20%)	+ 541
Equals Total Senior Care Support Base	= 3,246
Less Existing Supply	- 2,149
Less Development Pipeline	- 80
Equals Potential Senior Care Beds Needed by 2020	= 1,017

ADL – Activities of Daily Living

*Share of ADL was based on data provided by the U.S. Centers for Disease Control and Prevention's *Summary Health Statistics for U.S. Population National Health Interview Survey 2011*

Based upon age 62 and older population characteristics and trends, and applying the estimated ratio of persons requiring ADL assistance and taking into account the existing and planned senior housing supply, we estimate that there will be 1,017 households with a person requiring assisted services that will not have their needs met by existing or planned senior care facilities by the year 2020. Not all of these estimated households with persons age 62 and older requiring ADL assistance will want to move to a senior care facility, as many may choose home health care services or have their needs taken care of by a family member. Regardless, the 1,017 seniors estimated above represent the potential need for additional senior care housing in the county.

G. STAKEHOLDER SURVEY & INTERVIEWS

Associates of Bowen National Research solicited input from more than 40 stakeholders throughout the region. Their input was provided in the form of an online survey and telephone interviews. Of these respondents, 10 serve the Henderson County area. Considered leaders within their field and active in the community, they represent a wide range of industries, including government, real estate, and social assistance. The purpose of these interviews was to gather input regarding the need for the type and styles of housing, the income segments housing should target, and if there is a lack of housing or housing assistance within the region. The following is a summary of the key input gathered.

Stakeholders were asked if there is a specific area of the county where housing should be developed. Respondents indicated that housing should be developed along major transit corridors or close to transit with access to the downtown for employment, as well as in the eastern end of the county. Rental housing was overwhelmingly ranked as the *type* of housing having the greatest need, followed by for-sale housing and housing for single-person/young professionals and senior independent living. Respondents indicated that the housing *style* most needed in the area is single-family homes, followed by apartments. Respondents also believe that adaptive reuse should be prioritized over new construction and renovation/revitalization. When asked to rank the need for housing for each income level, respondents evenly ranked incomes of less

than \$25,000 and incomes between \$25,000 and \$50,000 with the greatest need. The most significant housing issue within the county, as indicated by respondents, was rent burdened/affordability, followed by limited availability and lack of public transportation.

Respondents were asked to prioritize funding types that should be utilized or explored in the county. “Other” homeowner assistance was given the highest priority, followed by homebuyer assistance. Tax Credit financing and “other” rental housing assistance (such as Vouchers) were evenly ranked in third place. When asked what common barriers or obstacles exist as it relates to housing development in the county, the cost of land and availability of land were most commonly cited, followed by financing. Respondents provided various ways to overcome these barriers, including increased collaboration between the local government and developers, improved infrastructure and transit, and government incentives for developing. One respondent noted that while the mountainous terrain of the region is a draw, it also creates challenges, and strategies for land acquisition and density should be explored.

If a respondent was knowledgeable about homelessness in the county, they were asked to rank the need for housing for various homeless groups. Each of the homeless groups were ranked almost evenly: homeless individuals, families, veteran, youth, and chronically homeless. Respondents indicated that the most needed type of housing to serve the homeless population are emergency shelters, increased Voucher assistance and Single Room Occupancy (SRO). The most commonly cited obstacle to developing homeless housing was public perception/NIMBYism. Respondents believe that public education to alleviate the perception of homeless housing and supportive housing services that promote self sufficiency should be a focus in the county.

If a respondent was knowledgeable about special needs groups in the county, they were asked to rank the need for housing for various special needs groups. The most commonly indicated groups were persons with mental illness, persons suffering from alcohol/substance abuse, persons with physical/developmental disabilities and ex-offenders. Respondents believe that transitional housing and group homes would best serve these populations. The lack of community support and funding were cited as the most common obstacles to developing special needs housing.

H. SPECIAL NEEDS HOUSING

Besides the traditional demographics and housing supply evaluated on the preceding pages of this section, we also identified special needs populations within Henderson County. This section of the report addresses demographic and housing supply information for the homeless population and the other special needs populations within the county.

Henderson County is located within HUD's designated Continuum of Care (CoC) area known as *North Carolina Balance of State (BoS)*. CoCs around the United States are required to collect data for a point-in-time during the last week of each year. The last published as *North Carolina BoS* point-in-time survey was conducted in January 2014. This includes counts of persons who are classified as homeless, as well as an inventory of the housing specifically designated for the homeless population. According to the 2014 point-in-time survey for *Henderson County* there are approximately 150 persons who are classified as homeless on any given day in Henderson County. The following table summarizes the sheltered and unsheltered homeless population, as well as the homeless housing inventory within the county.

Homeless Population & Subpopulation– Henderson County						
Population Category	Emergency Shelter	Transitional Housing	Permanent Supportive Housing	Rapid Re-Housing	Unsheltered	Total Population
Persons in Households without Children	44	1	0	2	7	54
Persons in Households with 1 Adult & 1 Child	11	8	0	35	14	68
Persons in Household with only Children	1	0	0	0	0	1
# of Persons Chronically & Formerly Chronically Homeless	16	0	0	0	0	16
Persons with Serious Mental Illness	0	0	0	2	0	2
Persons with Substance Abuse Disorder	0	0	0	1	0	1
Persons w/ AIDS/HIV	0	0	0	0	0	0
Victims of Domestic Violence	0	0	0	7	0	7
Veterans	0	0	0	1	0	1
Ex-Offenders	0	0	0	0	0	0
Persons exiting Behavioral Health/Healthcare System	0	0	0	0	0	0
Total	72	9	0	48	21	150

Source: North Carolina Coalition to End Homelessness (1-2014)
PSH and CH Beds Duplicated

Homeless Housing Inventory – Henderson County										
	Beds by Population Category							Seasonal Beds	*Overflow Beds	Total Beds
	Households with Children	Single Male & Female	Veteran	*Chronically Homeless	Domestic Violence	Youth	AIDS/HIV			
Project Type										
Emergency Shelter	22	75	0	0	11	0	0	0	0	108
Transitional Housing	2	0	0	0	11	0	0	0	0	13
*Permanent Supportive Housing	14	7	0	12	0	0	0	0	0	33
Rapid Re-housing	35	2	0	0	0	0	0	0	0	37
Safe Haven	0	0	0	0	0	0	0	0	0	0
Total Beds By Population	73	84	0	12	22	0	0	0	0	191

Source: North Carolina Coalition to End Homelessness (1-2014)
PSH and CH Beds Duplicated

Based on the 2014 North Carolina Balance of the State Housing Inventory Count Summary, the utilization (occupancy) rate for homeless housing beds in Henderson County is 56.9%. This utilization rate and the fact that 21 persons remain unsheltered on a given night indicate that there still remains a need for housing that meets the special needs of the homeless population. Homeward Bound of Asheville and other local service providers appear to be actively engaged in assisting the homeless in Henderson County through various outreach and housing programs that are targeted towards its homeless population.

Specifically within Henderson County, one area service provider noted that on average there are approximately 100 individuals living in emergency shelters or transitional housing on any given night. There may be enough emergency shelters in Henderson County to meet the demand as they are usually not at full capacity; however, there needs to be more transitional and permanent supportive housing options and resources for homeless individuals as well as families as most facilities are always full. It was also noted that the lack of public transportation options in Henderson County makes it difficult for homeless persons to seek/obtain employment. Regardless, with an estimated population of 150 and nearly a dozen homeless persons unsheltered, homelessness remains a challenge in Henderson County and is an ongoing housing need.

The following table summarizes the various special needs populations within the county that were considered in this report.

Special Needs Populations			
Special Needs Group	Persons	Special Needs Group	Persons
HIV/AIDS	85	Persons with Disabilities (PD)	15,993
Victims of Domestic Violence (VDV)	795	Elderly (Age 62+) (E62)	14,211
Persons with Substance Abuse (PSA)	50	Frail Elderly (Age 62+) (FE62)	2,705
Adults with a Mental Illness (MI)	2,559	Ex-offenders (Parole/Probation) (EOP)	150
Adults with Severe Mental Illness (SMI)	63	Unaccompanied Youth (UY)	8
Co-Occurring Disorders (COD)	1,068	Veterans	11,305
Multi-Generational Households (MH)	1,556		

Excluding the homeless population, the largest number of special needs persons is among the elderly (age 62+), those with disabilities, and veterans. According to our interviews with area stakeholders, housing alternatives that meet the distinct demands of the special needs population are limited. Special needs facilities and services are offered by Homeward Bound, Disability Partners, Western North Carolina AIDS Project, Mainstay, Black Mountain Home for Youth & Children, Youth Villages, Goodwill of Henderson, NC TASC Services-Hendersonville, Western Highlands LME, Hendersonville Rescue Mission, House of Hope Western NC, and various mental health facilities as well as various nursing and residential care homes. According to various services provides knowledgeable about housing for various homeless and special needs groups in Henderson County the most needed was transitional housing and group homes.

I. CONCLUSIONS

Recent county economic trends have been positive and overall demographic trends are projected to be positive within Henderson County over the next five years, which are expected to contribute to the continued strength of the housing market within the county for the foreseeable future. Based on our analysis, it appears that the housing gap (housing need) is broad, spanning all income and tenure (renters and owners) segments, and includes both families and seniors. Some key findings based on our research of Henderson County are summarized as follows.

- **Population & Households** – Between 2015 and 2020, the population is projected to grow by 5,686 (5.1%), which is nearly identical to the growth rate (5.5%) of the overall region. During this same time, household growth of 2,495 (5.2%) is projected to occur in the county, which is slightly slower than the region's projected growth rate of 5.9%.
- **Household Heads by Age** –The county's senior households age 65 and older will increase by 2,654 (8.4%) between 2015 and 2020, adding to its anticipated need for senior-oriented housing.
- **Households by Income and Tenure** – While the greatest projected *renter* household growth between 2015 and 2020 will be among those with incomes between \$15,000 and \$24,999, most renter household segments making less than \$50,000 will experience notable growth. The greatest *owner* household growth during this time is projected to occur among those making between \$35,000 and \$49,999. As such, the county will have diverse housing needs.
- **Rental Housing** – Henderson County has a well-balanced supply of rental alternatives. However, it is noteworthy that the multifamily rental housing supply is operating at an overall 97.6% occupancy rate, which is very high. More importantly, there are no vacancies among the 430 surveyed affordable (Tax Credit and government-subsidized) rental units in the county. This occupancy rate and the long wait lists maintained at these projects indicate that there is pent-up demand for affordable housing in the county. Based on the housing gap estimates, it appears that the greatest projected rental housing needs will be for those with incomes between 30% and 50% of AMHI, though all income segments have notable gaps.

- **Owner Housing (for-sale)** – For-sale housing prices have remained generally stable over the past four years, while the number of homes sold annually has increased in each of the past three years, including the projections for 2014. The for-sale housing market is considered to be strong. Nearly one-third of the available supply is priced between \$200,000 and \$299,999 and another quarter priced between \$100,000 and \$199,999. These shares of available supply are similar to the entire region. Based on the housing gap estimates, it appears that the greatest housing gap for owner housing will be for households with incomes between 80% and 120% of AMHI, though all income segments have notable gaps.
- **Senior Care Facilities** – Senior housing reported an overall occupancy rate of 96.5% (3.5% vacant). This is a relatively high occupancy rate. As shown in the housing needs estimates, it is believed that an additional 1,017 senior care beds will be needed to meet the future needs of area seniors.
- **Special Needs Populations:** While there are many special needs populations within the county that likely require housing assistance, it appears that the largest special needs populations in the county are the elderly (age 62+), those with disabilities, and veterans.

J. SOURCES

See the *Asheville, North Carolina Region Housing Needs Assessment* for a full listing of all sources used in this report.

<https://canons.sog.unc.edu/2016/09/conveyance-local-government-property-affordable-housing/>



Coates' Canons NC Local Government Law

Conveyance of Local Government Property for Affordable Housing

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Author Name: Tyler Mulligan

A developer of affordable housing for low and moderate income persons has approached the City and County about an affordable housing project near the City's downtown. The developer's plan is to acquire and assemble two adjacent parcels—one owned by the City and one owned by the County—and then develop 20 units of affordable housing on that site. There's a catch: The developer has asked the City and County to provide the two parcels as a gift to the project. Local governments are generally not permitted to make gifts to private individuals or entities, so the developer's request is immediately problematic. Can the local governments convey their property to the project in order to encourage the development of affordable housing? This post explains North Carolina law pertaining to the developer's request.

A prior post discussed local government authority to make appropriations in support of private construction of affordable housing. The content of that post—particularly the discussion of public purpose and statutory authority—is directly relevant to this discussion and should be read in conjunction with this post. This post expands on that earlier discussion by explaining the legal requirements for *conveying local government property* for the purpose of providing affordable housing.

General background on disposal of local government property

As explained in a prior post about property conveyance, we start with the general rule that, unless an exception is authorized by statute, North Carolina local governments *are required* to dispose of real property through competitive bidding procedures: sealed bid (G.S. 160A-268), upset bid (G.S. 160A-269), or public auction (G.S. 160A-270). In addition, case law generally prohibits local governments from placing conditions on a conveyance of property that will depress the price that a buyer would pay (*Puett v. Gaston County*). These competitive bidding procedures are always available to local governments for disposal of property.

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An exception to those general rules is available when local governments convey property for the purpose of providing affordable housing to persons of low and moderate income (LMI). So long as certain public benefits are secured—namely, the recipient uses the property to provide safe, decent, and affordable housing for LMI persons—then a local government may use “private sale” procedures to convey the property to the buyer of its choice without undergoing a public bidding process. The specific statutory authority will be described later in the post.

Conveyance for Less than Fair Market Value – Constitutional Considerations

The authority to convey property by private sale does not mean that the property can be given away for less than it is worth. Gifts of public money or property are prohibited by Article 1, Section 32 of the North Carolina Constitution (for further legal analysis of that constitutional provision, see [a blog post on the topic](#) by my colleague Frayda Bluestein). A local government must receive valuable public service in return for any subsidy it provides to a private entity. Further, the state constitution restricts local governments to expending funds “for public purposes only.” Every expenditure must therefore serve a constitutional public purpose, and the North Carolina Supreme Court is the ultimate arbiter of what does or does not serve a public purpose. If an expenditure serves a public purpose, then it satisfies the constitution’s gift clause as well.

As explained in a [prior companion post](#), a local government expenditure to support the construction of affordable housing for LMI persons serves a constitutional public purpose when it is *necessary*—that is, in the words of the North Carolina Supreme Court, “*Only* when the planning, construction, and financing of decent residential housing is not otherwise available” for LMI persons through the normal activities of private enterprise. *Martin v. N. Carolina Hous. Corp.*, 277 N.C. 29, 50 (1970). Indeed, the court suggested that the public purpose might evaporate if the private sector began to provide adequate housing on its own and the identified needs “cease to exist.” *Id.* at 56-57. Under current economic conditions, the need for safe and decent affordable housing for LMI persons in most North Carolina communities is easily demonstrated.

A conveyance of property for less than fair market value is equivalent to an expenditure for the benefit of the recipient entity, so the same constitutional considerations apply to reduced-price conveyances as apply to appropriations. Accordingly, the public purpose rationale must be articulated in the approvals for the conveyance—that is, documentation should demonstrate the lack of available housing for LMI persons and should include a budget and pricing to show how the public’s financial support will assist LMI persons. Any subsidy in excess of what is necessary to make housing affordable for LMI persons would be inconsistent with the allowable public purpose and would amount to an unconstitutional gift to the housing developer.

The recipient must agree to perform services in furtherance of the constitutional public purpose (provision of affordable housing for LMI persons) and the conveyance must be conditioned on the promised performance. Affordable housing services connected to a conveyance of property are typically described in the following terms.

<https://canons.sog.unc.edu/2016/09/conveyance-local-government-property-affordable-housing/>

- **Number of affordable housing units to be provided**
- **Eligibility of households to reside in affordable housing units based on household income**
- **Affordability level of housing units as a percentage of household income**
- **Timing and phasing of construction of affordable units**
- **Process for certification of eligible households and process for transfer from one eligible tenant or owner to another eligible tenant or owner**
- **Control period in number of years during which units will remain affordable for LMI persons and whether property will be returned to local government at end of period**

More information about these typical terms are found in the [companion post about affordable housing expenditures](#), and a more in-depth treatment is available in the [affordable housing and inclusionary zoning guide](#). A common method of securing public services related to a conveyance is through restrictions on the deed with a reverter clause; that is, a clause placed in the deed that requires ownership to revert back to the local government in the event that the recipient entity fails to perform the required activities. A deed of trust or lien is another method, but liens can be wiped out in the event of foreclosure. Sample affordability language for deed restrictions and liens is provided at pages 110-12 of the [affordable housing and inclusionary zoning guide](#).

Securing the constitutional conditions as described above is necessary but not sufficient to convey property for affordable housing. A local government must also identify enabling statutes that provide authority for the conveyance. The applicable statutory authority is different depending on the type of local government (municipality or county) and the recipient of the property (nonprofit or for-profit).

Statutory Authority for Conveyance by Municipalities

Conveyance to nonprofit entity carrying out public purpose

Whenever a local government is authorized to appropriate funds to a not-for-profit entity carrying out a public purpose, the local government is also permitted to convey property “by private sale” to that entity “in lieu of or in addition to the appropriation of funds” pursuant to [G.S. 160A-279](#). As noted earlier, private sale means that the local government may choose its buyer rather than undergoing a competitive bidding process. The procedures for private sale of property are provided in [G.S. 160A-267](#). The local government must attach “covenants or conditions” to the conveyance to ensure that the property will be “put to a public use by the recipient entity.” A municipality may contract with and appropriate funds to a private entity to carry out a public purpose in which the municipality is authorized to engage. [G.S. 160A-20.1](#). In the affordable housing context, municipalities derive their authority to make appropriations for affordable housing from the Housing Authorities Law, [G.S. Chapter 157](#), through the operation of [G.S. 160A-456\(b\)](#), which states: “Any city council may exercise directly those powers granted by law to ... municipal housing authorities, and may do so whether or not a ... housing authority is in existence in such city.” See designation procedure at [G.S. 157-4.1](#).

<https://canons.sog.unc.edu/2016/09/conveyance-local-government-property-affordable-housing/>

Accordingly, because a city is authorized to exercise the powers of a housing authority and make appropriations for affordable housing pursuant to that authority, G.S. 160A-279 permits a municipality to convey property by private sale to a not-for-profit housing organization that promises to use the property and any associated subsidy for affordable housing for LMI persons. As discussed in the prior companion post, housing authority powers are extensive provided the requirements of the Housing Authorities Law are met, to include:

- Multi-family rental projects must include mandatory set-asides for low-income persons (G.S.157-9.4) and note that a “housing project” can include housing for “persons other than low or moderate income, as long as at least twenty percent (20%) of the units in the project are set aside for the exclusive use of persons of low income.” (G.S. 157-3(12))
- Housing authorities (and local governments exercising the powers of an authority) must “fix the cost of dwelling accommodations for persons of low income at the lowest possible rates consistent with ... providing decent, safe, and sanitary dwelling accommodations.” (G.S. 157-29) A municipality should therefore have oversight of the rental rate or sale price of affordable housing constructed with its property or appropriations.
- “No housing authority may construct or operate its housing projects so as to provide revenues for other activities of the city [or, by extension, other entities].” (G.S. 157-29) When property is conveyed to a third party, a municipality must exercise oversight of the budgets for construction and operation of the housing project to ensure that the municipality’s subsidy is going to LMI persons and not toward other activities of the third party.

Of course, these requirements of the Housing Authorities Law are merely reflective and redundant of the constitutional imperatives prohibiting gifts to private entities and requiring all appropriations to serve a public purpose.

Conveyance to for-profit entities

One limitation of G.S. 160A-279 is that it authorizes conveyances to not-for-profit entities only. For-profit entities are explicitly excluded. However, the extensive powers of a housing authority described in G.S. 157-9 include a blanket exemption from property disposition procedures: “No provisions with respect to the acquisition, operation or disposition of property by other public bodies shall be applicable to an authority unless the legislature shall specifically so state.”

Accordingly, conveyance procedures may be ignored by a housing authority or by a properly designated municipality exercising the powers of a housing authority. (In practice, local governments don’t ignore procedures, but rather follow the minimal procedures for private sale enumerated in G.S. 160A-267.) A housing authority may therefore convey property to any entity, whether nonprofit or for-profit, for less than fair market value, provided the subsidy goes toward the constitutional public purpose of making the housing affordable to LMI persons and does not amount to an unconstitutional gift to the recipient. Other provisions of the Housing

<https://canons.sog.unc.edu/2016/09/conveyance-local-government-property-affordable-housing/>

Authorities Law must be followed, such as the requirement to ensure that housing projects are priced as low as possible and that revenues from housing projects don't fund other activities. Conditions on the conveyance should be imposed to secure the public benefits.

Statutory Authority for Conveyance by Counties

Like municipalities, counties are permitted to exercise the powers of a housing authority directly. Specifically, G.S. 153A-376(b) states that “[a]ny board of county commissioners may exercise directly those powers granted by law to ... county housing authorities.” See G.S. 157-33 for designation procedures. G.S. 157-34 makes the powers of a county housing authority essentially identical to those of a city housing authority. A county may contract with and appropriate funds to a private entity to carry out a public purpose in which the municipality is authorized to engage. G.S. 153A-449. Accordingly, all of the powers of conveyance available to municipalities described in the preceding section also pertain to counties.

However, unlike municipalities, counties possess an additional source of statutory authority for engaging in affordable housing activities. G.S. 153A-378(3) establishes the following independent authority: “Under procedures and standards established by the county, to convey property by private sale to any public or private entity that provides affordable housing to persons of low or moderate income. The county shall include as part of any such conveyance covenants or conditions that assure the property will be developed by the entity for sale or lease to persons of low or moderate income.” [Counties may also convey property by private sale directly to LMI persons under subsection (4).]

Recall that statutory authority to convey property by private sale does not mean that property may be given away for less than it is worth. However, G.S. 153A-378 authorizes the county to impose conditions and restrictions on the conveyance, and those conditions may be considered in determining the fair market value of the property. Presumably, a requirement to use property for affordable housing for LMI persons at lower rent or sale price will reduce the fair market value of the property, and that adjusted fair market value may be used to price the conveyance to any buyer, whether for-profit or nonprofit.

Should the county wish to convey the property for *less than the adjusted value*, then that would involve an additional subsidy and the county must utilize G.S. 160A-279 for the conveyance. Recall that under G.S. 160A-279, a conveyance for less than fair market value is permitted “in lieu of” an appropriation, but only when the buyer is a not-for-profit entity carrying out a public purpose. For-profit entities are explicitly excluded under G.S. 160A-279. There is only one way for a county to convey property in furtherance of affordable housing to a for-profit entity for less than fair market value: the county must exercise the powers of a housing authority and comply with the Housing Authorities Law as outlined in the preceding section on conveyances by municipalities.

Statutory Authority to Lease Local Government Property for Affordable Housing

<https://canons.sog.unc.edu/2016/09/conveyance-local-government-property-affordable-housing/>

There is separate statutory authority for leasing local government property for affordable housing. G.S. 160A-278 authorizes municipalities (and counties through the operation of G.S. 153A-176) to lease property by private negotiation to any entity that will use the property to construct affordable housing for LMI persons. This statutory authority may be employed without requiring the county or municipality to exercise the powers of a housing authority.

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Coates' Canons NC Local Government Law

Local Government Support for Privately Constructed Affordable Housing

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County officials from Tarheel County as well as City officials from the county seat were approached by two residential developers who are seeking to construct housing that is affordable to low and moderate income (LMI) persons. One developer, DoGooder Inc., is a private, for-profit developer who intends to construct multi-family housing in which half of the twenty apartment units will be rented at a rate that is affordable to LMI persons. DoGooder is financing the project through conventional private financing but has asked the City and County for a cash subsidy to “make the project feasible.” The other developer, Good Habits for Humans, is a nonprofit corporation whose staff and volunteers plan to construct one single family home and sell it to a family headed by a LMI person. Good Habits has asked the City and County to provide a cash grant to help them pay for staff supervision and construction materials for the project.

This post describes the legal authority for the City and County to provide the requested subsidies and explains some important differences between City and County authority in this area.

Background: Constitutional Considerations

As with all grant or subsidy questions, it is necessary to start with the North Carolina Constitution, because local governments are not permitted to give property or money away. Article 1, Section 32 of the North Carolina Constitution prohibits governments from making gifts “but in consideration of [in exchange for] public services” (see Frayda Bluestein’s [blog post discussing this provision](#)). In other words, a local government must receive valuable public service in return for any cash it pays to an entity. Further, the state constitution permits local

<https://canons.sog.unc.edu/2016/06/local-government-support-privately-constructed-affordable-housing/>

governments to expend funds “for public purposes only.” Every expenditure must therefore serve a constitutional public purpose, and the North Carolina Supreme Court is the ultimate arbiter of what does or does not serve a public purpose. If an expenditure serves a public purpose, then it satisfies the constitution’s gift clause as well. With respect to affordable housing, the North Carolina Supreme Court long ago determined that providing affordable housing to persons of low or moderate income serves a constitutional public purpose. Most of the cases pertain to the expansive Housing Authorities Law found at North Carolina General Statutes Chapter 157. See, for example, *Wells v. Hous. Auth. of City of Wilmington*, 213 N.C. 744, 197 S.E. 693, 696 (1938) (holding that the Housing Authorities Law serves a constitutional public purpose); *Mallard v. E. Carolina Reg’l Hous. Auth.*, 221 N.C. 334, 20 S.E.2d 281, 285 (1942) (holding that the Housing Authorities Law serves a public purpose in rural as well as urban areas); and *In re Denial of Approval to Issue \$30,000,000.00 of Single Family Hous. Bonds & \$30,000,000.00 of Multi-Family Hous. Bonds for Persons of Moderate Income*, 307 N.C. 52, 296 S.E.2d 281 (1982) (finding that housing financing (loans) to persons of “moderate incomes” as well as low income persons serves a public purpose because legislature was “acting with the same public purpose in mind” as when assisting persons of low income in attempting “to make available decent, safe and sanitary housing” to another group “who cannot otherwise obtain such housing accommodations”). Note, however, the constitutionality is conditioned on the *necessity* of the activities—that is, the activities serve a public purpose “*only* when the planning, construction, and financing of decent residential housing is not otherwise available” because “private enterprise is unable to meet the need.” *Id* at 59-61; *Martin v. North Carolina Housing Corp.*, 277 N.C. 29, 50, 175 S.E.2d 665, 677 (1970). [Necessity is a recurring theme in case law when private entities seek subsidy—compare to the necessity requirement described in this [prior post about economic development incentives](#).]

With the public purpose question largely settled, the only remaining matter is statutory authority. The North Carolina Constitution, Article VII, Section 1, states that the General Assembly “may give such powers and duties to counties, cities, and towns ... as it may deem advisable,” essentially making local governments creatures of the state. Accordingly, statutory authority must be identified for every activity undertaken by a North Carolina local government. In the affordable housing realm, counties and cities do not necessarily rely on the same statutory authority. The remainder of this post highlights some of the important differences between cities and counties in terms of statutory authority.

Statutory Authority for Municipalities

There is no statutory authority for affordable housing activities enacted solely for cities. Rather, cities rely on the same statutory authority as housing authorities through the operation of G.S. 160A-456(b), which states that “[a]ny city council may exercise directly those powers granted by law to ... municipal housing authorities, and

<https://canons.sog.unc.edu/2016/06/local-government-support-privately-constructed-affordable-housing/>

may do so whether or not a ... housing authority is in existence in such city.” (See designation procedure at G.S. 157-4.1.) These powers are more than adequate for the task. In what may set the record for the longest single paragraph in the statute books, G.S. 157-9(a) sets forth the extensive powers of a housing authority, to include:

- to prepare, carry out and operate *housing projects*
- to provide for the construction, reconstruction, improvement, alteration or repair of any *housing project* or any part thereof

A housing project is broadly defined in G.S. 157-3(12) to include direct provision of housing, payment of rent subsidies, provision of grants and loans to LMI persons to enable them to own a home, and provision of grants and loans and other financial assistance to public or private developers of affordable housing for LMI persons. When a project includes housing for persons *other than* LMI persons, then the project is only a “housing project” (enabling the use of housing authority powers) if 20% of the units are set aside for the “exclusive use of persons of low income” (G.S. 157-3(12)). A municipality may contract with and appropriate funds to a private entity to carry out a public purpose in which the municipality is authorized to engage. G.S. 160A-20.1.

Note that G.S. 157-9.4 requires a housing authority (and by extension, a city exercising the powers of a housing authority) to impose the following requirements related to set asides for low income persons for any multi-family rental housing project assisted by a housing authority:

- At least twenty percent (20%) of the units in the project shall be set aside for the exclusive use of persons of low income, and
- Units set aside for low-income persons shall continue to be set aside for 15 years.
- Low income persons are defined in G.S. 157-3(15a) as persons in households earning not more than sixty percent (60%) of the local area median family income. See the exception for jurisdictions meeting the requirements of G.S. 157-9.1.

Accordingly, DoGooder’s multi-family rental development would be subject to the set-aside requirement of G.S. 157-9.4, but Good Habits’ for-sale single family home would not. What if DoGooders sought funding to create rental units in the form of *five* single-family units? Arguably the statute contemplates this situation by allowing for the City to “group projects being developed concurrently in order to meet the requirement of this subsection.” Thus, a conservative approach would ensure that at least one out of every five single-family rental units (or 20%) was set aside for low income persons.

In addition, the City should exercise oversight of the rental or sale prices and the budgets for construction and operation of any housing project subsidized by its appropriations to ensure compliance with G.S. 157-29: the cost of housing units should be “at the lowest possible rates consistent with ... providing decent, safe, and sanitary dwelling accommodations” and the housing project cannot be constructed or operated to “provide revenues for other activities of the city [or, by extension, the contracted entities].” These latter requirements of the Housing Authorities Law are merely reflective and redundant of the constitutional imperatives prohibiting gifts to private entities and requiring all appropriations to serve a public purpose.

<https://canons.sog.unc.edu/2016/06/local-government-support-privately-constructed-affordable-housing/>

Statutory Authority for Counties

Counties may also exercise the powers of a housing authority. Specifically, G.S. 153A-376(b) states that “[a]ny board of county commissioners may exercise directly those powers granted by law to county redevelopment commissions and those powers granted by law to county housing authorities.” G.S. 157-34 makes the powers of a county housing authority essentially identical to those of a city housing authority. A county may contract with and appropriate funds to a private entity to carry out a public purpose in which the municipality is authorized to engage. G.S. 153A-449. All of the powers pertaining to city housing authorities described in the preceding section also pertain to county housing authorities.

Counties possess another source of statutory authority for engaging in affordable housing activities. G.S. 153A-378 establishes independent authority for counties to “appropriate and expend funds for residential housing construction, new or rehabilitated, for sale or rental to persons and families of low and moderate income,” and to contract with any person or firm for that purpose. Accordingly, the county can contract with DoGooder and Good Habits for the construction of affordable housing in just about any desired configuration. However, this statutory authority, which exists separate and apart from the Housing Authorities Law, does not avoid the more specific requirements imposed by G.S. 157-3(12) and G.S. 157-9.4 pertaining to set asides for low income persons. “When two statutes apparently overlap, it is well established that the statute special and particular shall control over the statute general in nature, even if the general statute is more recent, unless it clearly appears that the legislature intended the general statute to control.” *Trustees of Rowan Tech. Coll. v. J. Hyatt Hammond Associates, Inc.*, 313 N.C. 230, 238 (1985) (citations omitted). Further, G.S. 153A-378 relies upon public purpose case law established for housing authorities—which includes set-asides for low-income persons—so elements of the housing authority law that are designed to secure benefits for low-income persons should not be disregarded.

Similarly, the specific G.S. 157-29 requirements—to ensure subsidies lower housing costs for LMI persons and are not used for other activities—don’t appear in G.S. 153A-378 but should be read together as overlapping. In addition, as already noted, these requirements are essentially redundant of constitutional requirements to ensure funds are used for a public purpose and do not amount to an unconstitutional gift to DoGooder and Good Habits, so they cannot be ignored by counties. Thus, the contractual arrangements between the County and the affordable housing developer should include oversight of budgets and unit prices, as much for constitutional reasons as statutory reasons. Other conditions to include in the contract with the developer are described in the next section.

Securing Public Benefits: Conditions to Impose on Affordable Housing Projects

<https://canons.sog.unc.edu/2016/06/local-government-support-privately-constructed-affordable-housing/>

With statutory authority established, it is necessary to return to the constitutional issues regarding gifts and public purpose. Although the City and County possess statutory authority to make grant payments to DoGooder and Good Habits, the local governments must secure public services in return for any payments. This final section explains in broad terms how to secure the public interests.

First, the public interests must be adequately described in any legal instruments. In the area of affordable housing, these interests fall into two broad categories: affordable housing *development* and affordable housing *services*.

Affordable Housing Development

Affordable housing *development* typically involves the construction and operation of housing units for the benefit of LMI persons. The key elements to define for any affordable housing development include the following:

<https://canons.sog.unc.edu/2016/06/local-government-support-privately-constructed-affordable-housing/>

- **Set-aside of affordable units:** How many units will be set aside for LMI persons? This can be expressed as a percentage (“20% of the units in the project”) or as a fixed number of units. More creative set-asides can be designed to require fewer units to be set aside if very low-income persons are served. Examples can be found starting on page 40 of my [affordable housing and inclusionary zoning guide](#).
- **Qualifying households:** Who is eligible to rent or purchase the set-aside units? Qualifying households are usually expressed in terms of a percentage of area median income, and the upper limit is defined by statute. G.S. 157-3(15a) defines “Persons of low income” as persons in households earning annual income, adjusted for family size, that does not exceed 60% of Area Median Income as defined by the U.S. Department of Housing and Urban Development. “Persons of moderate income” is defined at G.S. 157-3(15b). See page 43 of the [affordable housing and inclusionary zoning guide](#) for examples.
- **Affordability level:** How much will be charged to LMI persons for each unit sold or rented? Typically the unit cost is expressed as a percentage of the household’s median income. The generally accepted level of affordability for a unit is no greater than 30% of the household’s annual income.
- **Timing and phasing:** When will the affordable units be constructed and made available for purchase or rent? Local governments typically seek to ensure that affordable units are developed and made available to LMI persons as soon as possible, and that local government resources are recaptured if construction is not accomplished on time as agreed. Furthermore, if affordable units are developed concurrently with market-rate units, then it is advisable to impose phasing requirements so that affordable units are constructed and made available concurrently with market-rate units. See pages 81 to 88 of the [affordable housing and inclusionary zoning guide](#) for examples and additional detail.
- **Eligibility and transfer controls:** When a LMI household moves out of an affordable unit, will the unit be made available to another LMI household? What entity is responsible for marketing the units and determining whether a household is eligible to purchase or rent an affordable unit? How will those processes be managed? See pages 97 to 108 and page 121 of the [affordable housing and inclusionary zoning guide](#) for examples and additional detail.
- **Control period:** For how long must the units remain affordable to eligible households? To be consistent with the statutes (G.S. 157-9.4), fifteen years appears to be an appropriate minimum, but research indicates that perpetual affordability is achievable with the right management and is desirable to protect the public’s investment in the housing project. For control periods extending decades or longer, when must the owner/manager reinvest in rehabilitation, and should the restrictions create a mechanism for negotiating the terms of investment, affordability, and monitoring at certain points in the future, so the local government and any outside entity can reevaluate their arrangement? Examples are provided on page 109 of the [affordable housing and inclusionary zoning guide](#).

Once agreement has been reached on the affordability terms for the housing project, those terms should be memorialized in appropriate legal instruments to secure the public interests. The most common mechanisms for protecting the public’s investment include deed restrictions (or covenants running with the land), deeds of trust, and ground leases. See pages 110 through 112 of the [affordable housing and inclusionary zoning guide](#) for sample language.

<https://canons.sog.unc.edu/2016/06/local-government-support-privately-constructed-affordable-housing/>

Affordable Housing Services

There is an array of services associated with providing affordable housing. Some of those services are closely associated with housing development and were already mentioned above, such as marketing available units, determining eligibility of households, and monitoring units over time. Other services may include housing and credit counseling for eligible households, and setting aside already-constructed units for rent to eligible households on an ongoing basis. Both cities and counties possess statutory authority to engage in these services directly or to contract with private entities for their provision. Any payments made in exchange for these services should be in amounts that are appropriate for the public services to be received. Any payment in excess of the fair value of the service provided would amount to an unconstitutional gift. It bears repeating that the state constitution does not allow local governments to make gifts to private entities—not even to charitable nonprofit organizations (as explained in [Frayda Bluestein's post](#)). Public services are typically secured through a binding written contract.

Topics Discussed Elsewhere

Property Conveyance for Affordable Housing

The topic of property conveyances for affordable housing is a separate matter that is discussed in a blog post, [Conveyance of Local Government Property for Affordable Housing](#), and on pages 138-39 of the book [Local Government Property Transactions in North Carolina](#).

Public Bidding

When a private party uses public funds for *construction* of affordable housing, as opposed to providing *services*, public bidding rules under Article 8 of G.S. Chapter 143 apply unless an exception is available. Reimbursement agreements may provide an exemption in some cases, as described in Adam Lovelady's blog post, [Reimbursement Agreements](#).

Inclusionary Zoning

The topic of inclusionary zoning is covered exhaustively in the [affordable housing and inclusionary zoning guide](#). A basic primer on inclusionary zoning is provided in a [previous blog post](#).

Rent Control

Affordable housing projects are exempt from North Carolina's rent control provisions found in [G.S. 42-14.1](#). This topic is explored in detail on pages 151-53 of the [affordable housing and inclusionary zoning guide](#).

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Coates' Canons NC Local Government Law

Occupancy Taxes and AirBnB

Published: 04/01/19

Author Name: Chris McLaughlin

North Carolina's booming short-term rental ("STR") industry presents both opportunities and challenges for local governments. The opportunities include more tourist spending and more tax revenue. The challenges include a loss of affordable housing and noise, trash, and traffic complaints as more residential properties are turned into "mini-hotels." Also worrisome is the adversarial approach some STR websites have adopted towards cities and counties. WIRED magazine describes AirBnB's strategy as "a city-by-city, block-by-block guerilla war against local governments" that involves secrecy, lawsuits, and heavy lobbying of state legislatures.

To help, my School of Government colleague Rebecca Badgett has blogged about STRs here and here, and she and I will soon publish a book on both the regulation and taxation of these rentals.

One important topic I cover in that forthcoming book is how local governments can best collect occupancy taxes on rentals made through third-parties such as AirBnB or traditional rental agents. The good news is that many STR websites and rental agents are sending monthly occupancy tax checks to North Carolina local governments. The bad news is that those checks are often lump-sum payments with no way to identify the rental properties to which they relate. This lack of detail makes it almost impossible to know if these third parties are satisfying their occupancy tax obligations. What's more, North Carolina law lets most property owners off the hook for unpaid occupancy taxes on rentals made through STR websites or rental agents.

I first addressed this troublesome issue here. I'll offer a detailed analysis in our STR book, but in the meantime here are a few observations.

1. STRs booked through websites and rental agents are subject to local occupancy taxes.

<https://canons.sog.unc.edu/2019/04/occupancy-taxes-and-airbnb/>

I cover the basics about occupancy taxes and exemptions [here](#) and [here](#). Essentially all STRs are taxable unless they extend longer than 90 consecutive days, are at a private residence rented for fewer than 15 days per year, or are part of a school, college or camp program. This is true regardless of whether the rental is a hotel room, an oceanfront mansion, or simply a spare bedroom and regardless of whether the rental is booked through a third-party such as a STR website or rental agent or directly with the property owner.

2. If a STR is booked through a third party, that third party is likely responsible for unpaid occupancy taxes instead of the property owner.

G.S. 105-164.4F, the statute that creates the rules for taxing STRs, shifts tax liability away from the property owners for most rentals made through third-parties.

One liability provision in G.S. 105-364.4F focuses on “facilitators” such as AirBnB and similar STR websites. A facilitator and not the property owner bears liability for unpaid occupancy taxes if that facilitator fails to collect all applicable taxes and remit those tax collections to the property owner.

This is not ideal from the perspective of North Carolina tax collectors, because it is obviously much easier to collect delinquent taxes from a local property owner than it is from San Francisco-based AirBnB or Seattle-based Expedia. Local property owners have local bank accounts to attach and local personal property to levy upon and sell. AirBnB and Expedia do not.

It's unclear why the General Assembly chose to make on-line facilitators rather than individual property owners responsible for sales and occupancy taxes. The legislature likely assumed that the large companies running those STR websites have deeper pockets than do the property owners. It also may have also assumed that it is easier to deal with one taxpayer that is responsible for many tax payments rather than many individual taxpayers. While both of those assumptions sound reasonable, the end result is a bad one for local tax collectors who have almost zero leverage over well-financed companies located outside of North Carolina.

A property owner remains responsible for occupancy taxes if the facilitator collects occupancy taxes on a rental and remits them to that owner. This approach seems to be the exception and not the rule for the major travel websites. As a result, most property owners who use STR websites to rent their properties can escape liability for unpaid occupancy taxes.

G.S. 105-164.4F also shifts liability from property owners to rental agents for all properties listed with rental agents. This liability shift occurs regardless of whether the rental agent collects and remits taxes to the property owner. If, as is often the case, a rental agent advertises a property with a facilitator such as AirBnB, that rental agent remains liable for any unpaid occupancy taxes on that rental. Happily for tax collectors, rental agents are almost always local and are therefore much easier targets for enforced collections than AirBnB and Expedia.

3. AirBnB and a few other major STR websites are making monthly lump sum occupancy tax payments to North Carolina local governments.

<https://canons.sog.unc.edu/2019/04/occupancy-taxes-and-airbnb/>

In 2015, AirBnB signed an agreement with the North Carolina Department of Revenue to begin collecting state sales taxes on rentals in this state. As part of that agreement, AirBnB also promised to collect and pay local occupancy taxes in four large counties (Buncombe, Durham, Mecklenburg, and Wake).

It's unclear whether local officials were parties to that agreement or exactly what AirBnB promised to do with regard with local occupancy tax reporting, in large part because the Department of Revenue refuses (inappropriately, in my view) to release that agreement to the public. It does not appear that AirBnB has signed tax agreements with any other local governments in North Carolina.

Regardless, as of 2019 AirBnB claims that it collects local occupancy taxes on rentals in all 100 North Carolina Counties. Local tax collectors confirm that AirBnB is sending monthly tax payments but, as mentioned above, those payments do not identify the properties to which they relate. Some North Carolina tax collectors told me that AirBnB provides a single address for all of their hosts's properties in their towns, 888 Brannan Street. That's the address of AirBnB's corporate headquarters in San Francisco.

This mirrors AirBnB's approach across the country. The company has signed hundreds of "voluntary collection agreements" with states and local governments, almost all of which prevent those governments from learning the names or addresses of AirBnB's hosts. The company fights tooth and nail protect this "shield of secrecy," suing local governments that attempt to require host properties to be identified and altering the latitude and longitude of each property's geocode so it can't be accurately located on a map. It has spent millions of dollars lobbying state legislatures to pass laws limiting the ability of local governments to regulate and tax STRs.

Expedia and its many related STR websites (Orbitz, Hotels.com, and Travelocity, to name just a few) have adopted the same AirBnB modus operandi of lump sum payments without any supporting detail. The only difference is that none of these companies appear to have signed formal agreements with the state or any of our local governments.

Officials in a few towns report that Expedia recently began providing details about the properties covered by each monthly payment. Blowing Rock officials told me that this occurred soon after they were able to get an Expedia employee on the telephone and plea for additional detail to be provided along with Expedia's tax payments. If your local government has had similar success in convincing any of the STR websites to provide details behind their monthly payments, please share how you accomplished that in the comment section below. Other STR websites including Homeaway, VRBO, and Priceline do not appear to be making monthly occupancy tax payments (If I'm wrong, let me know in the comment section.) The absence of tax payments from these companies may be explained by their varying approaches described below.

Homeaway and VRBO allow property owners the option of adding charges for occupancy taxes to the cost of their rentals. If the property owner does add taxes, then Homeaway/VRBO collects and remits those taxes to the property owner rather than to the local government. The property owner remains liable for those occupancy

<https://canons.sog.unc.edu/2019/04/occupancy-taxes-and-airbnb/>

taxes. But if no occupancy taxes are collected and remitted back to the property owner, then the STR website is liable for those taxes.

With respect to Priceline, it seems that many of its hotel reservations require the customer to pay directly at the hotel rather than on-line. If so, then the hotel and not Priceline remains responsible for any unpaid occupancy taxes. Priceline would be responsible for occupancy taxes on all bookings completed and paid for through its website.

4. Deciding whether the property owner, a STR website, or a rental agent is liable for unpaid property taxes.

Here's my best effort to simplify these convoluted liability rules:

a. The STR website is responsible for any unpaid occupancy taxes on a rental paid for on its website UNLESS that STR website collects the taxes and remits them to the property owner.

b. The rental agent is responsible for any unpaid occupancy taxes on properties he/she is under contract to list and rent. The rental agent remains responsible for the taxes even if the property is listed and/or rented through a STR website.

c. The property owner is responsible for any unpaid occupancy taxes on all other rentals (i.e., no rental agent involved, payment for a rental is made directly from the customer to the property owner, and/or a STR website collects occupancy taxes from the customer and remits them to the property owner).

5. Tips for STR tax enforcement.

Local occupancy tax collectors should put the burden on property owners to prove that they are either satisfying their occupancy tax obligations on their rentals or that they are not personally responsible for those taxes under the rules described above.

If the tax collector knows of properties being rented on-line but not paying occupancy taxes and polite requests for payment have failed, the tax collector could send estimated occupancy tax bills to the owners based on the rates listed for those properties on-line. The bills could explain that the local government will proceed with enforced collection efforts unless the taxpayers provide documentation to disprove the local government's estimates of liability. The best evidence that the taxpayer could produce would likely be the monthly reports that a property owner receives from their STR website. That report should detail the payments made by renters and any tax remittances to local governments (which shifts tax liability to the facilitator) or the property owner (in which case the owner is responsible for the taxes).

The task is easier for properties listed with rental agents, because those (usually local) third-parties are personally responsible for all occupancy taxes on all properties they list. Tax collectors not being paid the proper occupancy taxes could check the websites of these rental agents and send estimated occupancy tax bills to them based on the advertised rates for their properties.

<https://canons.sog.unc.edu/2019/04/occupancy-taxes-and-airbnb/>

Finally, a property tax note. Don't forget that any personal property made available with a rental property (furniture, appliances, grills, bikes, etc.) is taxable business personal property and should be listed and taxed as such.

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Coates' Canons NC Local Government Law

Residential Zoning Ordinances and Short-Term Rentals: Square Peg, Round Hole?

Published: 08/24/18

Author Name: Rebecca Badgett

Attempting to ban short-term rentals (STRs) by shoehorning them into existing single-family residential zoning ordinances may cause significant roadblocks for jurisdictions looking for answers on how to regulate these properties.

Relying on preexisting residential zoning ordinances to ban STRs

The question of whether a single-family residential zoning ordinance necessarily excludes or bans STRs in residential neighborhoods is one that I've been asked with increased frequency. As in most legal questions related to AirBnB, the answer is not yet clear. It is my thinking, however, that if a local government wishes to exclude STRs from specific zoning districts, the best practice is to amend the local code of ordinances to accomplish this—instead of relying on a preexisting ordinance. A recent line of cases in Pennsylvania helps explain why a residential zoning ordinance, as written, may prove ineffective to ban STRs.

Before diving into the Pennsylvania case law, it is important to understand the difference between commercial zoning and residential zoning. Commercial zoning laws are used to place restrictions on businesses from operating in areas where people live. Local governments have authority to classify a certain land use as commercial, and this holds true in the STR context as well. Because STR hosts are renting their dwellings to transients for compensation, and because this land use may arguably change the nature and character of a neighborhood, it would be reasonable to zone STRs as a commercial use. To do so, the ordinance should distinguish a transient use from a residential use, clarifying that renting to transients is considered a commercial use which is prohibited in residential areas.

<https://canons.sog.unc.edu/2018/08/residential-zoning-ordinances-and-short-term-rentals-square-peg-round-hole/>

A STR can also be classified as a residential use if that is the preference of the local government. A traditional single-family residential zoning ordinance in North Carolina generally requires that a single-family dwelling be occupied by a family. The term “family” is usually defined as something like this: “two or more persons related by blood, marriage or adoption living together in a dwelling unit,” or “a group of not more than X number of persons, who need not be related by blood marriage or adoption, living together in a dwelling unit.”

Most STRs are governed by residential zoning ordinances. This is because many local ordinances do not define STRs as a separate use—either because there is no perceived need to modify the ordinances or because the local government has simply not yet done so. One angle of the STR debate focuses on whether the use of a dwelling as a STR is squarely irreconcilable with the requirement that a dwelling be occupied by a family. The Pennsylvania courts have held in three cases now that the transient rentals do not violate residential zoning codes.

Pennsylvania case law

In 2016, the Pennsylvania Commonwealth Court heard *Marchenko v. Zoning Hearing Bd. of Pocono Twp.*, 147 A.3d 947 (Pa. Commw. Ct. 2016), which is now pending review before the state supreme court. Here, the township ordered the owner of a single-family dwelling located in the low-density residential zoning district to cease using the property for “commercial purposes.” The homeowner admitted that she used the property as an STR on most weekends but claimed that this was a residential use permitted under the residential zoning code, particularly because the dwelling was her primary residence.

The zoning ordinance at issue defined the term “single-family dwelling” as a “detached building designed for and occupied exclusively by one family.” It defined “family” as: “One or more persons, related by blood, adoption or marriage, living and cooking together in a dwelling unit as a single housekeeping unit” or “a number of persons living and cooking together in a dwelling unit as a single housekeeping unit though not related by blood, adoption or marriage, provided that they live together in a manner similar to a traditional nuclear family.”

The PA courts had previously clarified that for a group of people to constitute a family, “the composition of the group must be sufficiently stable and permanent so as not to be fairly characterized as *purely* transient.” *Albert v. Zoning Hearing Bd. of N. Abington Twp.*, 578 Pa. 439, 453, 854 A.2d 401, 410 (2004). The Commonwealth decided that the STR was in fact a permitted use in the residential zoning district. The court placed great weight on the fact that the homeowner used the property as her primary residence and was the only “family” occupying the property when she was there. Thus, the weekend rentals did not change the fact that “the composition of the family living at the Property [was] not purely transient.” Although the fact the dwelling was the homeowner’s primary residence weighed in the homeowner’s favor, the deciding factor in the case was the fact that the zoning ordinance neither prohibited the owner of a single-family dwelling from renting it out, nor did it define or mention

<https://canons.sog.unc.edu/2018/08/residential-zoning-ordinances-and-short-term-rentals-square-peg-round-hole/>

short-term rentals elsewhere in the municipal code. Because the ordinance was silent as to short-term rentals, the court was compelled to construe the ordinance broadly and give the owner the benefit of the least restrictive use of the land.

The dissent in the case argued that the definition of “family” could never be stretched to include renting to multiple parties because, for a group of people to be a family in a residential area, “some level of permanence is required.” The dissenting judge argued that whenever a homeowner offers a property for rent to transients, the homeowner “is not occupying the home as a single-family dwelling, but instead is operating a business of renting out the property.” Stay tuned for the Pennsylvania Supreme Court’s decision in this case.

Shortly after issuing the *Marchenko* decision, the Commonwealth heard *Shvekh v. Zoning Hearing Board of Stroud Township*, 154 A.3d 408 (2017). In this case, property located in the recreational zoning district was used as an STR three-weeks per month. The township alleged that the homeowner was operating a “tourist home,” which was not a permitted use in the recreational zone. The zoning ordinance defined a tourist home as a “dwelling in which one but no more than six rooms are offered for overnight accommodations for transient guests for compensation.” The court concluded that a STR differed from the room-by-room rental associated with a tourist home and cautioned the township against advancing a “new and strained interpretation of its zoning ordinance to effect what it would like the ordinance to say without an amendment.”

The homeowner argued that the use fell squarely within the residential zoning ordinance, which defined single-family dwelling as “a detached building *designed for* or occupied exclusively by one family.” The court applied the ordinance as written and held that because the structure itself was “designed for” use as single-family dwelling, the fact that it was mostly rented to transients did not violate the ordinance. The Commonwealth noted:

“Enterprises such as AirBnB have expanded the possible uses of single-family dwellings and a township can address such uses in the zoning ordinance.” Thus, the court reaffirmed that it was bound apply the ordinance as written and must resolve any ambiguities in favor of the least restrictive use of the land.

In *Slice of Life, LLC v. Hamilton Township Zoning and Hearing Board*, 164 A.3d 633 (2017), a property owner purchased a single-family residence to use *exclusively* as a STR. The township cited the owner for violating the single-family residential zoning ordinance because the property was being used as a “Hotel and/or other types of transient lodging [or for] transient tenancies” The problem was that the residential zoning ordinance did not define “transient lodging” or “transient tenancies” and a “hotel” was required to have an outside common area. The Commonwealth concluded that the township had cited the homeowner for offenses that were either non-existent in the code (i.e. operating transient lodging) or not applicable to the current situation (i.e. operating a hotel). Once again, the court held that township was required to apply to the terms of the ordinance as written, rather than deviating “based on unexpressed policies of the Township regarding permitted uses.”

Relevance to our local governments

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As evidenced in the Pennsylvania cases, the courts are required to interpret zoning ordinances as written and to resolve any ambiguities in favor of the landowner. The same is true in North Carolina. *See Byrd v. Franklin Cty.*, 368 N.C. 409, 778 S.E.2d 268 (2015) (holding that a land use is allowed unless an ordinance clearly prohibits it). The takeaway here is that if a municipality wants to restrict or ban STRs in a specific zoning district, the local ordinances should be amended to effect the change. As the townships in the Pennsylvania cases learned the hard way, relying on preexisting ordinances to restrict STRs to certain zoning districts may not pass judicial muster.

The City of Asheville is one jurisdiction that has amended their ordinances to define and regulate STRs.

Specifically, the City has classified whole-house STRs as a commercial lodging use and has defined them as: “a dwelling unit with up to six guest rooms that is used and/or advertised through online platform, or other media, for transient occupancy for a period of less than one month.” STRs are permitted as a use by right only in the Resort District. Property owners must apply for a conditional zoning permit to operate an STR in other the zoning districts; however, whole-house STRs in residential districts are prohibited.

Across the country many local governments have placed restrictions on STRs, but these vary greatly from place to place. For example, New York City has banned STRs entirely (although enforcement have been problematic). Savannah has placed a 20% per-ward cap on the number of whole-house STRs located in the Historic, Conservation, and Residential zoning districts. For now, it is up to the local government to decide whether there is a need to amend the local ordinances account for short-term rentals. The short-term rental of vacation homes is the backbone of the thriving tourist economies in many local communities and restricting the location of these rental properties or otherwise regulating them may be unnecessary. For those municipalities that are interested in regulating short-term rentals, more information can be found in this webinar: [What To Do About Short-Term Rentals? Local Regulation and Occupancy Taxes.](#)

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Coates' Canons NC Local Government Law

Short-Term Rentals: Dwelling Units or Transient Accommodations?

Published: 01/02/20

Author Name: Rebecca Badgett

A town's zoning ordinance requires that all structures within a residential zoning district meet the definition of "dwelling unit." The town ordinance defines "dwelling unit" to mean, "a building, or portion thereof, designed and arranged and used for living quarters for one or more persons with cooking facilities, *but not including structures used for transient occupancy, such as hotels, motels or boarding houses.*" The town believes short-term rentals (STRs) are a type of transient accommodation that are prohibited as a land use within the residential zones. A property owner who operates a short-term rental in the R-1 district disagrees. The owner contends that STRs are "dwelling units" under the code. Who's right?

STRs as "dwelling units" or transient accommodations?

Most zoning ordinances have residential zoning districts where the primary permitted land use is single-family detached housing. The single-family structures allowed in residential zones are commonly defined as "dwelling units." Each jurisdiction is free to draft its own definition of this term, and, in doing so, a few municipalities have expressly excluded structures used for transient occupancy from being classified as dwelling units.

When it comes to short-term rentals, it can be tough to determine whether they meet the definition of "dwelling unit" or if the use is akin to the type transient occupancy that may be prohibited in residential zones. Structurally speaking, short-term rentals are the same as other residences located in a residential district. Also, short-term renters generally behave in a manner that is consistent with the residential use of property—eating, sleeping, cooking, socializing, etc. On the flip side, in exchange for compensation, short-term rentals can be booked by transient guests for nightly rentals. Sometimes the renters stay as few as one to two nights. The transaction is

<https://canons.sog.unc.edu/2020/01/short-term-rentals-dwelling-units-or-transient-accommodations/>

therefore the same as booking and staying overnight at a hotel. Short-term renters are even required to pay the same taxes charged by hotels, motels, and B&B's. So, are short-term rentals "dwelling units" or a transient use of property?

In North Carolina we do not have case law that answers this question, and it is hard to say how our courts would rule. However, the New Hampshire supreme court recently tackled this issue in *Working Stiff Partners, LLC v. City of Portsmouth*, 2019 WL 4725178 (N.H. Sept. 27, 2019). Although the court's holding is not controlling in our state, it is nevertheless helpful to understand the New Hampshire court's analysis of this issue.

New Hampshire case law

In *Working Stiff*, the zoning ordinance at issue required that properties located in residential districts be designated as either single-family or two-family dwelling units. The code defined "dwelling unit" as a "building or portion thereof providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. This use shall not be deemed to include such transient occupancies as hotels, motels, rooming or boarding houses."

The property owner argued that short-term rentals were not among the type of transient occupancies the zoning ordinance intended to prohibit in residential zones and were therefore a lawful use of property in residential districts.

The court was not convinced. The court noted the common usage of the term "transient" as meaning "passing through or by a place with only a brief stay or sojourn." And it reviewed the ordinance's definitions of hotel, motel, and boarding house, finding that each "contemplated the provision of lodging to paying guests on a daily basis." As such, it suggested that short-term rentals "fit the mold" of the type of transient lodging contemplated in the zoning ordinance. The fact that the property was advertised on Airbnb as an accommodation for up to nine guests and could be booked at a nightly rate was key to the determination. In short, when a property is available for lodging at a daily rate on a very short-term basis, the court concluded the use is a transient occupancy and not that of a dwelling unit.

Texas case law

A Texas court recently struck down the portion of the City of Austin's municipal STR zoning ordinance that eliminated property owners' authority to operate Type-2 STRs (i.e., the rental of an entire dwelling unit that is not owner-occupied). See *Zaatari v. City of Austin*, No. 03-17-00812-CV, 2019 WL 6336186 (Tex. App. Nov. 27, 2019). I plan to discuss the court's decision in my next blog post. However, it's worth noting that the Texas court refused to sanction the idea that short-term rentals should be treated differently than owner-occupied homes for zoning purposes because "both short-term rentals and owner-occupied homes are residential in nature." Thus, if asked to interpret a zoning ordinance like the one in the example, it is likely that a Texas court would conclude that STRs are "dwelling units" rather than transient accommodations.

<https://canons.sog.unc.edu/2020/01/short-term-rentals-dwelling-units-or-transient-accommodations/>

Interpreting North Carolina zoning ordinances

Our courts are required to interpret zoning ordinances as written and to resolve any ambiguities in favor of the landowner. And, unless an ordinance prohibits a land use, that land use is allowed. *Land v. Vill. of Wesley Chapel*, 206 N.C. App. 123, 130 (2010). The takeaway here is that if a local government wants to regulate short-term rentals, the local zoning ordinances should be amended to clearly define STRs as a separate use of property and specify where this use is allowed to operate within the jurisdiction.

In our example, had the town had amended the ordinance to include STRs as a prohibited type of transient occupancy, the ambiguity would be resolved. If challenged, the court would interpret the town's ordinance as written, likely finding that STRs are prohibited in residential zones. This will hold true unless the legislature passes a law to preempt the local regulation of STRs or our courts hold otherwise. In fact, a bill was introduced to the NC legislature last summer that would have limited or blocked local authority to regulate STRs. The bill was dropped, but a similar proposal could resurface in the future.

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Coates' Canons NC Local Government Law

The Airbnb Gold Rush: What's a City to Do?

Published: 02/15/18

Author Name: Rebecca Badgett

Most of us know that Airbnb is popular, but how big is it really? Well, the statistics are mind-boggling. Airbnb is currently valued at \$31 billion. By mid-2017, it had 4 million listings in 191 countries worldwide, which surpassed the number of available rooms in the top five hotel brands combined, with a mere 3.3 million global listings. According to the News & Observer, Asheville residents earned nearly \$20 million in 2017 by renting their homes to nearly 160,000 guests. Charlotte, Raleigh and Durham also profited—residents in these cities made 8.7 million, 3.8 million and 3.1 million respectively. And approximately 25% of leisure travelers are expected to book a stay on Airbnb at least once. The answer: it's HUGE.

It is not just Airbnb that is exploding. As the sharing economy continues to grow, web-based booking sites like VRBO, Homeaway and FlipKey are also gaining momentum. These booking platforms are here to stay. Local governments have begun to ask what, if any, steps they should take to regulate the short term rental market? To be clear, a short term rental ("STR" for short) is usually for a term of 30 days or less. Both nationwide and locally, the regulation of these properties has become a hot topic as some cities have opted to ban these rentals while others have chosen to let sleeping dogs (or houses) lie.

This is my first of two blogs on STR regulation. It discusses the key issues surrounding regulation and highlights how a few North Carolina municipalities are responding to this changing market. The second blog goes into more detail on how to regulate STRs and discusses the tax implications. You can find it here.

What is a STR?

Generally, there are two types of short-term rental accommodations available through web-based platforms like Airbnb. The first type of STR involves a home-sharing situation often called a "homestay." A homestay allows the homeowner or permanent resident (a.k.a. the host) to rent individual rooms within his/her residence for overnight

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lodging. The second type involves the rental of an entire dwelling unit, often called a “whole-house” STR. Some whole-house properties are primarily used as vacation rentals, while other are the host’s primary residence and rented only during temporary absences. It is common for municipalities to regulate the two types of STRs differently. For example, Asheville permits homestays but not whole-house STRs in residential neighborhoods.

Why regulate?

There are four chief policy justifications for bringing STRs into the regulatory fold: (1) the desire to provide for the safety of renters, (2) the generation of transient occupancy tax revenue, (3) the duty to ensure that permanent residents have affordable housing options, and (4) the need to preserve neighborhood character (e.g. limit parking and overcrowding). There is also an equity argument to be made— STRs are viewed as unfairly competing with hotels and B&B’s, which are required to pay local taxes and are subject to inspection for compliance with local health and safety codes.

When challenged by lawsuits, municipalities outside of our state have argued that regulating for these purposes constitutes a valid exercise of the police powers. Courts have ruled both ways. A California court upheld a municipal ordinance prohibiting transient occupancy because the city’s goals of securing affordable housing for permanent residents and of preserving neighborhood character were legitimate government interests. *Cope v. City of Cannon Beach*, 317 Or. 339, 855 P.2d 1-81 (1993). In contrast, a New Jersey court held that prohibiting the rental of residential real estate to cure perceived socio-economic problems, including the need to provide permanent residents with affordable housing options, fell outside the scope of the police powers and unlawfully infringed on property owners’ rights. *Repair Master, Inc. v. Borough of Paulsboro*, 352 N.J. Super. 1, 11 (App. Div. 2002). These cases are not binding on North Carolina courts.

Do North Carolina cities have authority to regulate STRs?

Probably, but to what extent is still unknown. We do know that municipalities have the authority to control the location and *use* of property through zoning regulations. N.C. Gen. Stat. § 160A-381. And zoning ordinances enjoy a strong presumption of validity if they serve a public purpose related to the “public health, safety, morals, or general welfare” of the communities they regulate. *City of Wilmington v. Hill*, 189 N.C. App. 173, 177, 657 S.E.2d 670, 673 (2008). It seems likely that our courts would hold that municipalities are vested with authority to regulate STRs under the police powers, just as they may regulate hotels, motels, boarding or rooming houses, and B&B’s.

What are the possible issues surrounding STR regulation?

There is some concern that municipal regulation of these rentals is not a valid exercise of the police power. The first concern is that STR regulations which, for example, control the duration of a private lease or the nature of occupancy of a private residence, go beyond regulating a property’s use and instead restrain the manner in which the property is owned, which is prohibited by North Carolina case law. *See City of Wilmington v. Hill*, 189

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N.C. App. 173 (2008) and *Graham Court Associates v. Town of Chapel Hill*, 53 N.C. App. 543 (1981).

But communities have long used zoning to regulate temporary residential uses such as hotels, inns, boarding houses, and B&Bs. However, it is possible that certain limitations placed on STRs may be found to be unlawful restrictions on ownership.

Another concern is that it is unlawful to regulate residential rental property by implementing permitting programs or by requiring homeowners to pay a special fee. Specifically, N.C. Gen. Stats. §§ 153A-364(c) and 160A-424(c) clearly provide that a county/city may not adopt or enforcing a local ordinance that requires owners of residential rental property to: (1) obtain a permit or permission to operate, (2) register a rental property, or (3) levy a special fee or tax on residential rental property that is not also levied against other commercial and residential properties. Some local governments have adopted (or are considering) registration programs and are levying fees in connection therewith. Specifically, a few jurisdictions have imposed business registration requirements on owners of short term vacation rentals. They argue that STRs are used for hospitality, not as a residence, during the vacation rental season. As such, these jurisdictions contend that the IPR statutes' prohibition on residential rental property registration would not apply to short term vacation rentals. The IPR statutes do not clarify how a STR should be characterized. The bottom line is that it is important to be aware of these statutes and know that they could render certain regulatory action unlawful. For more information, see [here](#).

The final concern is the possibility that the North Carolina Vacation Rental Act preempts the local regulation of vacation rental agreements in residential properties. The Act defines "vacation rental" as being the "[t]he rental of residential property for vacation, leisure, or recreation purposes for fewer than 90 days" The contention is that the Act covers the field and leaves no room for cities to regulate leases of shorter duration or to enact outright bans on vacation rentals in residential neighborhoods. However, there are other state rules regulating of real estate transactions that do not strip zoning authority from local laws (e.g. Planned Community Act and the Condominium Act). Thus, it seems unlikely that the Vacation Rental Act preempts local regulation, particularly because it makes no mention of municipal regulation. Its primary purpose is simply to regulate the competing interests of landlords, tenants, and real estate brokers. Our courts have yet to weigh in on these issues.

How are NC cities regulating the STR market?

For the most part, they're not. The great majority of cities and counties within our state have taken no regulatory action to date. Below, I've set out where few cities stand in the regulatory process.

Asheville: When it comes to having a model for STR regulation, the spotlight is primarily on Asheville. The city (and Buncombe County) initially began to regulate STR use to help curb its affordable housing crisis, which developed in part due to an increased demand for STRs in residential neighborhoods. Asheville decided to restrict the rental of entire dwelling units (sometimes called "whole-house" STRs) to those zones that allow

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“lodging facilities,” like hotels and motels. This means that the homeowner or permanent resident (a.k.a. the host) may not rent out his/her entire home in a residential district. This ban has been extremely controversial, but it remains in place as of now.

The city also regulates STRs that involve home-sharing situations called “homestays.” A homestay allows the host to rent individual rooms within his/her residence for overnight lodging for a term not to exceed thirty days. A homestay host must apply for a permit, pay an annual \$208 registration fee, make the property available for inspection, and agree not to rent more than two bedrooms in the dwelling unit simultaneously. Hosts must also remain on-site during the homestay (e.g. no overnight travel allowed). Hosts who violate the whole-house or homestay regulations are subject to a \$500 per night fine. The city now uses an independent company to identify violations.

Blowing Rock: The Town of Blowing Rock has also recently begun to regulate STRs, which it defines as the rental or lease of an attached or detached residential dwelling unit for a duration that is less than 28 consecutive days. Specifically, the town has limited whole-house STRs to its business districts, the town center, and office-institutional zoning districts. A short-term overlay district can be approved by Town Council within particular zoning districts. Violators are subject to a \$500 per night fine. For more information, see [here](#).

Wilmington: The city is currently hammering out how it wishes to proceed with STR regulation. In the January 29, 2018 Planning Commission meeting, the commissioners agreed it is a good idea to allow homestays in residential areas and agreed to require all STR hosts to register their properties with the city. However, the commissioners did not come to a conclusion on how to define whole-house STRs or how to limit the number of them in residential neighborhoods. The matter now rests with City Council.

Raleigh: Technically the practice of renting STRs in residential neighborhoods is prohibited in Raleigh. However, Raleigh officials are allowing hosts to operate while they consider adopting new regulations.

Beach Communities: It's worth mentioning that most (if not all) of the state's beach towns have not taken steps to regulate STR use. This is likely because either they see no need for additional regulation or because a preexisting ordinance sufficiently regulates this area. These towns generally welcome STRs given that their economies are largely based on tourism. In fact, the Town of Duck considered amending its list of permitted uses to clarify that STRs on a daily basis are a permitted use (as opposed to only allowing weekly rentals). The Town decided to hold off in case such action would unlawfully restrain the ownership of property. From what I can tell, the rest of the Outer Banks, as well as Holden Beach, Carolina Beach, and Topsail Beach, and Wrightsville Beach also currently allow unregulated STRs.

Summary:

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In North Carolina there are still many unanswered questions about the scope of a local authority to regulate STR use. For more detail on how to approach STR regulation, see [my second blog on this topic](#). I welcome comments and would like to know of other municipalities that are regulating STRs. My email is rbadgett@sog.unc.edu.

[contact-form][contact-field label="Name" type="name" required="true"]/[contact-field label="Email" type="email" required="true"]/[contact-field label="Website" type="url"]/[contact-field label="Message" type="textarea"]/[contact-form]

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TAB 6



Metropolitan Transportation Plan 2045

Our Path to the Future

FRENCH BROAD RIVER LAND & SKY
METROPOLITAN PLANNING ORGANIZATION

TABLE OF CONTENTS

INTRODUCTION3

REGIONAL TRENDS.....7

Demographics.....7

Economy10

Growth Projections.....15

PLANNING FOR MOBILITY19

Goals and objectives20

Safety & Security30

Congestion36

Freight42

The Environment & Resiliency48

Public Transit.....51

Bicycle/Pedestrian55

Rail59

Aviation62

Emerging Trends in Technology63

Tourism67

Federal Performance Measures70

PLAN DEVELOPMENT75

Public Involvement.....76

Financial Plan79

Projects84

Environmental Justice / Title VI96





CHAPTER 1: INTRODUCTION

INTRODUCTION

WHAT IS AN MTP?

Benjamin Franklin said, "By failing to prepare, you are preparing to fail." This saying encapsulates the fundamental principles involved in long-range transportation planning.

A Metropolitan Planning Organization (MPO) is a federally-required transportation planning agency that provides a forum for coordination and collaboration between local governments, state agencies, federal transportation agencies, and the public, serving urbanized areas with populations over 50,000. Urbanized areas include census tracts and/or blocks that meet minimum population density requirements strongly linked to the urban core. MPOs with over 200,000 in population receive an additional designation as a Transportation Management Area (TMA), which carries additional planning requirements. With its expansion beyond the areas immediately around Asheville, the French Broad River MPO's population is enough to designated a TMA.

The French Broad River MPO has been serving the Asheville area since the 1960s and has grown with the urbanized area to include all of Henderson County, most of Buncombe and Haywood Counties, a large part of Madison County, and a small section of Transylvania County. The MPO works with member governments, public transit agencies, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and the North Carolina Department of Transportation (NCDOT) to establish a setting for a continuous, coordinated, and collaborative regional transportation planning process.

The MPO is governed by its board, which is made up of elected officials from every member jurisdiction, appointed members from the Board of Transportation, representatives for rural and urban transit systems in the region, and non-voting members of FHWA and NCDOT. Advising the MPO Board is the Technical Coordinating Committee (TCC) which is made up of local government, NCDOT, and public transit staff. The MPO also maintains several subcommittees and working groups that advise the TCC and Board on specific matters, and engages the public as required by the MPO's Public Involvement Plan, to make sure members of the public can be heard on any matter going before the MPO Board.

The 2045 Metropolitan Transportation Plan (MTP) is the long-range transportation plan for the French Broad River MPO Planning area that focuses on the region's current and future transportation needs. As

part of the transportation planning process, MTPs are required to look to the region's future to help determine needs, establish priorities, and determine investments necessary to achieve the region's goals and objectives. The MTP is also required to be fiscally-constrained, meaning the plan is required to have reasonable financial assumptions about how much money is likely to be available for projects in the region and how those funds may be applied. The MTP is also required to have a financial plan.

The MTP serves as a comprehensive, long-range plan for transportation investments within the French Broad River MPO region through the planning horizon year of 2045. The 2045 MTP meets all federal requirements established by the USDOT and continues to advance the strategic, performance-based approach to planning and investment as outlined in the Moving Ahead for Progress in the 21st Century (MAP-21) and Fixing America's Surface Transportation (FAST) Act national transportation goal areas.¹ The MTP is the region's blueprint for creating a network of road, bicycle and pedestrian, transit, and rail connections to better meet the needs of the growing region by prioritizing resources in one fiscally constrained, long-range plan. The region must update its long-range plan to prioritize transportation projects every five years, and the plan must find a balance between identified needs and projected transportation revenues. Planning efforts give communities the opportunity to make transportation investment decisions to further the local economy and development goals and facilitate safe and efficient movement of people and goods.

This planning effort was developed under the guidance of the MPO's Prioritization Subcommittee, which was made-up of the following local government staff and elected officials:

Steering Committee Member	Jurisdiction Represented
Josh O'Conner (Chair)	Buncombe County
Elizabeth Teague (Vice-Chair)	Town of Waynesville
Autumn Radcliff	Henderson County
Brian Burgess	Town of Mills River
Jerry Vebaun	Town of Woodfin
Julie Mayfield	City of Asheville
Anthony Sutton	Town of Waynesville
John Dockendorf	Village of Flat Rock

MPO staff would also like to thank the guidance and input provided by the numerous other local government staff, elected officials, NCDOT staff, and Citizens Advisory Committee members that participated. These include, but are not limited to:

Contributing MPO Members

Steve Williams
Troy Wilson
Hannah Cook
Stephen Sparks
Daniel Sellers

Dan Baechtold
Janna Peterson
LeRoy Robertson
George Webb

Jurisdiction Represented

NCDOT Division 14
NCDOT Division 14
NCDOT Division 13
NCDOT Division 13
NCDOT Transportation
Planning Division
City of Asheville
Henderson County
Town of Waynesville
Citizens Advisory Committee

A Note on the Plan Development and the Current COVID-19 Crisis

The majority of this plan was developed prior to the COVID-19 crisis, which began in March, 2020. At the time of this writing it is unclear what will be the long-term impacts of the crisis. In the short-term, Vehicle Miles Traveled in the region have plummeted due to the shutdown of businesses and spread of the virus, resulting in a financial crisis for the North Carolina Department of Transportation (NCDOT) from decreased revenues that has caused delays and suspensions of numerous projects. Unemployment is increasing rapidly, likely hitting the Asheville Metro Area's economy especially hard. MPO staff continue to monitor the situation and its impact on the transportation network and transportation planning.

In terms of transportation, infrastructure, and the economy, it is still unknown whether this will be a short-lived crisis or a long-term paradigm shift. Streets are relatively empty of cars with most counties in the region reducing travel by up to 80% (note: every county is slowly increasing travel back towards pre-crisis baseline levels.) Some neighborhoods have seen an explosion of people walking and riding bicycles. Transit systems are having to take measures to make riders feel safe and comfortable. Thousands of still-employed workers, working remotely, may be finding that they prefer working from home to going into the office. These are dramatic shifts to individual habits that have changed our transportation system over the last two months, but it is unclear if those trends will remain post-crisis and when that will be.

In general, it is the MPO's responsibility to monitor trends and changes in the region and help determine priorities accordingly. We plan to continue to monitor how our region reacts during this crisis, how these changes impact transportation, and how we can better plan for our region's future while safely keeping our communities and the public engaged in the process.

Map 1.1: French Broad River MPO Planning Area

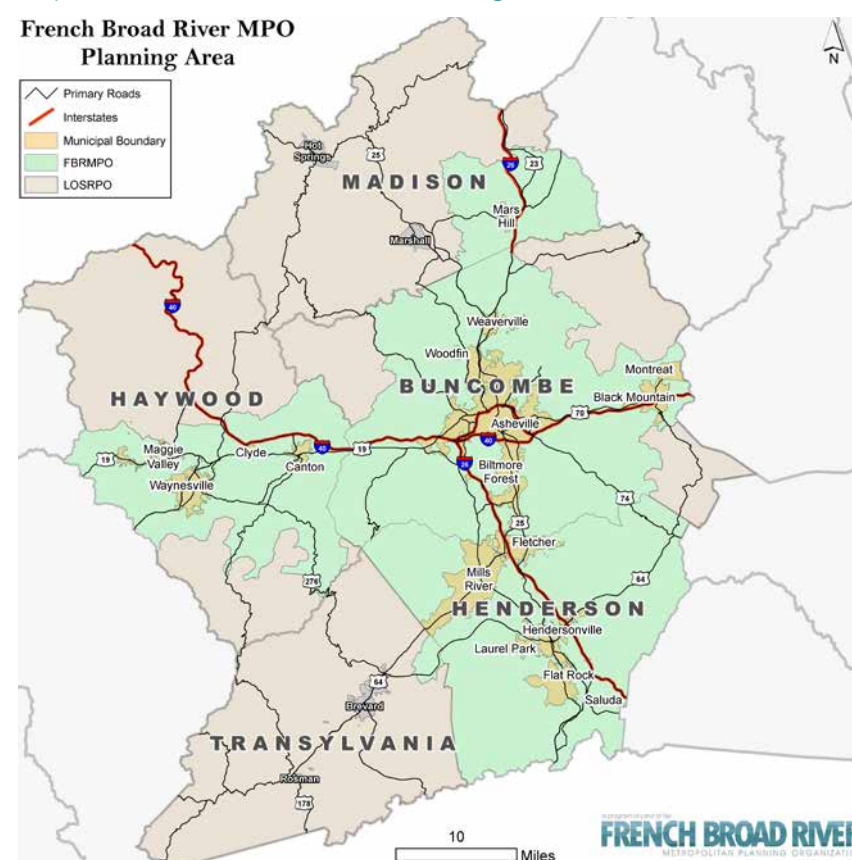
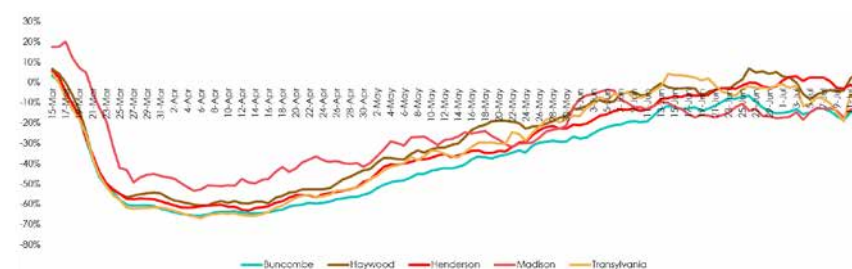


Figure 1.1: County Vehicle Miles Traveled vs. Baseline, Seven-Day Averages During COVID-19 Crisis







CHAPTER 2: REGIONAL TRENDS

REGIONAL TRENDS

About Our Region

The French Broad River MPO Planning Area is centered around the Asheville Urbanized Area in Western North Carolina. The region can be loosely defined by its mountainous and scenic terrain, its growing population, and its influx of seniors and retirees, but there is so much more. The attributes that make our region unique also help to define some of the transportation challenges that are being, or are projected to be faced by transportation providers.

DEMOGRAPHICS

In 2010, the French Broad River MPO Planning Area was made up of 396,841 residents in 167,943 households. The number of residents in the MPO Planning Area has defined it as a Transportation Management Area (TMA), a designation that gives the French Broad River MPO a broader set of responsibilities but also provides it with more resources and a larger role in the regional transportation network.

Since 2010, the region has experienced a considerable amount of growth, with the population estimated to increase to 423,111 in 2018—a growth of 26,270 residents in nine years. This growth has brought about a considerable amount of change to the region’s landscape and has impacted virtually every part of the region. Every jurisdiction with the MPO’s Planning Area has been estimated to have increased in population between 2010 and 2018, although with some areas growing more than others. The Town of Biltmore Forest in Buncombe County has only grown by an estimated 58 residents in that time period- a

growth of 4% in eight years. However, Buncombe County has been estimated to have grown by an additional 20,785 residents (9% growth) while the Town of Fletcher has grown by 15% (1,108 new residents). This growth has been, at times, politically contentious, impactful to the transportation network, and unpopular in communities, but has started discussions on how to better plan for and accommodate changes to the region.

Table 2.2 shows the demographic breakdown of the 5-county region, including race and ethnicity. The table shows the 1990, 2000, 2010, and 2018 Census data, revealing that the FBRMPO region is predominantly white with slight variations in demographic composition over time. Currently there are more Hispanic or Latino individuals in the region than there have been in the last 30 years; however the percentage of white population has remained almost unchanged. This marks our region as one that lacks racial diversity, which makes intentional equity and inclusion even more important. The Environmental Justice (EJ) and Title VI section of this document delves further into implications of demographic data for marginalized communities.

One of the most predominant demographic trends in the French Broad River MPO Planning Area is the growth of its aging population. Every county in the MPO has a percentage of seniors well above the state and national averages. Seniors made up 25.8% of Henderson County’s population in 2018, almost 10 percentage points higher than the national average (16.0%). While Buncombe County has the lowest percentage of seniors in the region (20.0%), that percentage still exceeds state and national averages and makes for the largest population of seniors in the region- an estimated 51,821 senior residents in the county.

The growth in the senior population is likely due to two phenomenon: (1) the country, as a whole, has an aging population; and (2) Western North Carolina has become an increasingly popular area for retirees. It should be noted that not only does every county in the region have a senior percentage higher than the country or state, but every county has seen that percentage increase over the last decade.

Having a larger senior population provides some distinct transportation challenges and opportunities. There are increasing discussions around the topic of “active aging” or “aging in-place” to try to build communities that accommodate and even promote healthy, active lifestyles that can keep individuals healthy and independent. For those having trouble

Table 2.1: Five Fastest Growing Jurisdictions

Five Fastest Growing Jurisdictions				
Jurisdiction	2010	2018	Change	Change %
Maggie Valley	1,027	1,220	193	19%
Montreat	722	836	114	16%
Fletcher	7,225	8,333	1,108	15%
Asheville	83,393	92,452	9,059	11%
Henderson County	106,887	117,417	10,530	10%

maintaining independence, that can mean more demand for public transit services for trips and a greater consideration of governmental services that provide assistance.

Similarly, individuals with a disability make up an estimated 13.1% of the five-county area's population, according to the 2014-2018 American Community Survey, also more than State (9.5%) and National (8.6%) averages.

The French Broad River MPO also has considerable pockets of poverty across the region. It should be noted that census data over the last several years shows low-income areas moving from urban centers into the urban fringes and more rural areas. Areas in Asheville and Hendersonville are becoming wealthier, which suggests either an influx of higher-income housing units, the displacement of lower-income residents, or both. In some areas outside of Asheville and Hendersonville, new low-income areas are cropping up in areas that were less populated before.

Other evidence from commuter data suggests that high housing prices may be causing workers to move to areas further outside the metropolitan boundary.

Figure 2.1: Persons 65 and Over, Percentage of Population

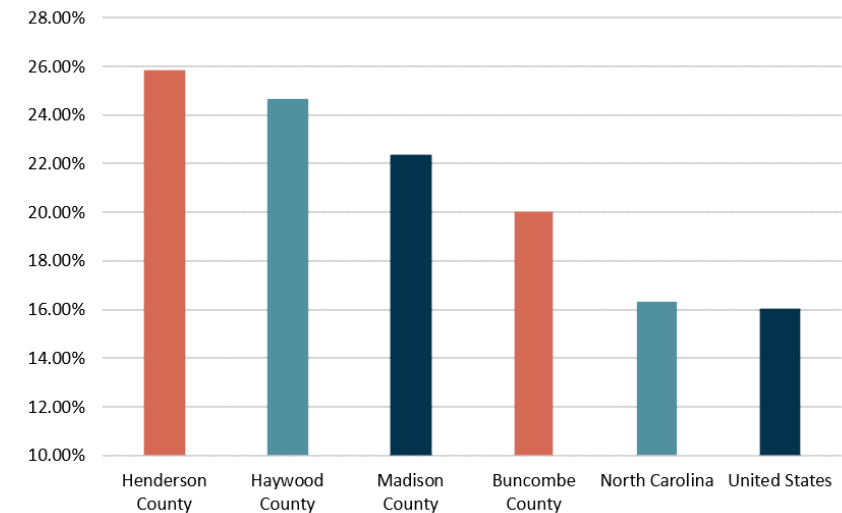
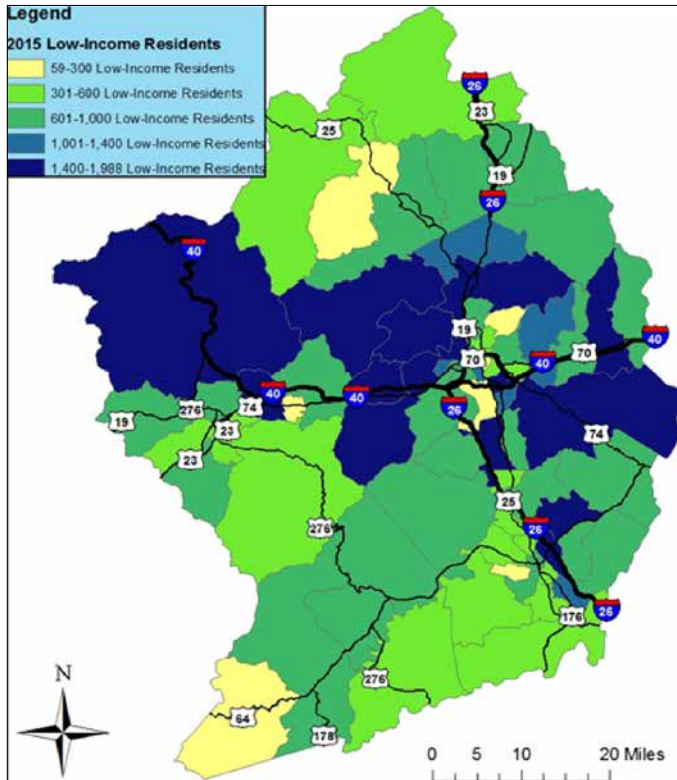


Table 2.1: Demographic Breakdown of the 5-County Region

5-County Demographic Breakdown								
	1990		2000		2010		2018	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
ALL	333,251	100%	386,999	100%	396,840	100%	412,771	100%
White	312,013	93.6%	357,331	92.3%	352,363	88.8%	371,476	90%
Black or African American	18,670	5.6%	18,640	4.8%	19,185	4.8%	20,707	5%
American Indian or Alaskan Native	961	0.3%	1,313	0.3%	1,647	0.4%	1,488	0.4%
Asian	1,246	0.4%	1,811	0.5%	3,655	0.9%	4,898	1.2%
Native Hawaiian or Other Pacific Islander	45	0.0%	85	0%	481	0.1%	482	0.1%
Some Other Race	628	0.2%	4,644	1.2%	11,925	3.0%	5,672	1.4%
Two or More Races	--	--	3,175	0.8%	7,584	1.9%	7,940	1.9%
Hispanic or Latino (of any race)	2,499	1%	10,991	3%	26,430	6.7	31,863	7.7%

Map 2.1: Low-Income Populations by Census Tract 2015



ECONOMY

The French Broad River MPO's economy is relatively unique in its makeup for a large urbanized area. The area's economy has been known for being heavily based on leisure and hospitality. There are also several sectors of the region's economy that are relatively larger than the state average. The region's economy is changing as the state of general work changes as well. Census and other data suggest that Asheville is becoming a significant hub for telecommuters- residents who do their work from home (or a café, remote working hub, etc.) for an employer in a different part of the state, country, or world. As Asheville continues to grow, the demand for more housing units with limited housing supply has increased housing prices significantly, likely playing a role in moving more workers further from urban centers.

Figure 2.2: Percentage Point Difference Between Asheville Metro vs. North Carolina Employment, by Sector

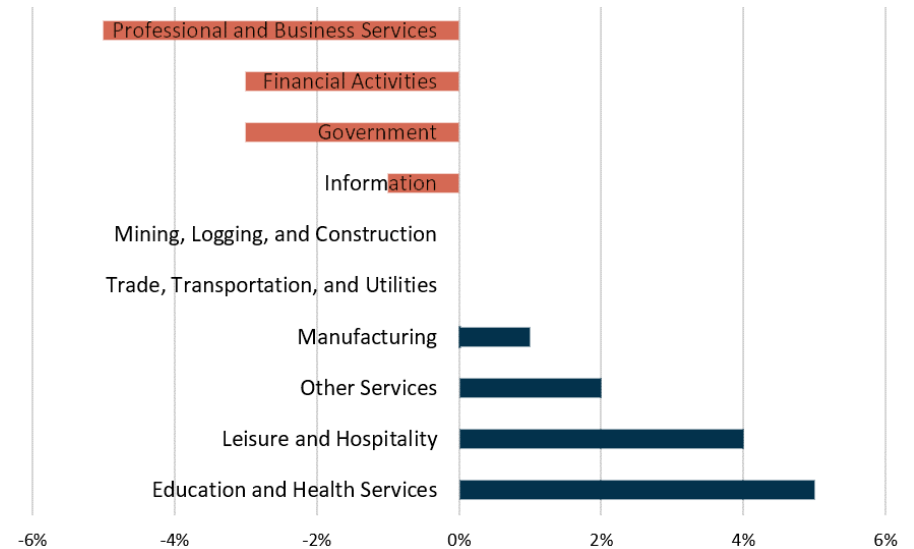
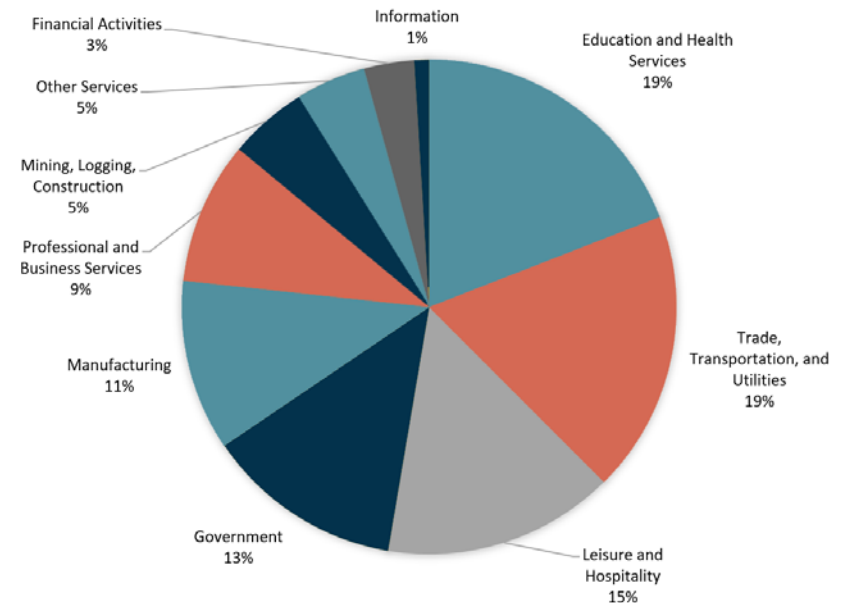


Figure 2.3: Asheville Area Non-Farm Employment, February 2020



Regional Economy Overview

Historically, Asheville has been known as a resort town—a place for wealthy people in the east to escape hot summers, air pollution, and enjoy the outdoors. Many of Asheville's attractions to this day were built as part of some of the first waves of seasonal visitors- the Biltmore Estate, the Grove Park Inn, and the Grove Arcade. The impact from visitors has continued with hotel booms, the rise of Air BnB, the growth of outdoor recreation sectors, the establishment of new attractions, and a service industry that has been recognized across the country. While leisure and hospitality make up a larger portion of the region's employment, per US Bureau of Labor Statistics, it is not the only sector that exceeds state averages. Education and Health Services makeup 19% of the metro area's employment, five percentage points higher than the state average. Leisure and Hospitality, Manufacturing, and Other Services also make up a larger portion of the metro area's employment than the state average. On the other hand, the metro area has a lower percentage of jobs in Professional and Business Services, Financial Activities, Government, and Information than the state average—sectors that often provide higher-wage positions.

To note: this data was collected in February, 2020, before data reflecting the COVID-19 crisis. Preliminary data shows the Asheville metro area being especially hard hit in the jobs market and the Leisure and Hospitality sector taking the brunt of the early job losses. It is unknown at the time of writing how long this crisis is likely to go on for, how deep the job losses will be, and how each sector of the economy will be impacted.

TELECOMMUTING

Another increasing economic phenomenon in the French Broad River MPO's planning area is the growth of telecommuting, or residents that live in the metro area but use the internet, email, telephone, etc. to work at a job in a different part of the state, country, or world. This is an increasingly important aspect of the region's economy to note as the data on employment by sector reflects data for employers based in the region, not employees. Data from the US Census suggests that a considerable amount of telecommuters exist in the Asheville metro area, up to 9.3% of area's workforce- the sixth highest percentage for any metropolitan area in the country. Currently there is little data to suggest what sectors the area's telecommuters are working in, but it remains an interesting and important shift in the region's economy.

The Asheville area, and the greater Appalachian region, has often been known for its low wages and poverty. Telecommuting allows residents to be employed in jobs located in metro areas that often have higher wages. While some of this data may reflect "cottage industry" workers, the vast majority is likely to be telecommuters with year-over-year increases since 2010.

The rise in telecommuting also points to changes in demands for the region's transportation network and economy. Telecommuters need quality internet service in order to do their jobs from home or other places they prefer to work, highlighting the pressing need for improved regional broadband access. Telecommuting is likely to decrease roadway demand, especially at peak-times, helping to reduce congestion. However, there is some evidence that telecommuters are more likely to need to fly to destinations more frequently, likely increasing demand at the Asheville Regional Airport and surrounding airports in Charlotte, Greenville, and Knoxville.

Table 2.3: Telecommuting in Metropolitan Areas

Telecommuting in Metropolitan Areas	
Metro Area	Percentage of Workforce "Working from Home"
Boulder, Colorado	12.3%
Bend-Redmond, Oregon	11.5%
Fort Collins, Colorado	10.3%
Santa Fe, New Mexico	9.8%
Kingston, New York	9.5%
<i>Asheville, North Carolina</i>	<i>9.3%</i>

HOUSING PRICES & COMMUTING PATTERNS

The third major economic phenomenon impacting the Asheville region is the increase in housing prices, across all counties. In general, evidence suggests that supply has not kept up with the demand of a growing region, leading to significant increases in home and rental prices, across all price ranges. This change has caused residents to move due to their inability to afford the rising costs and appears to be pushing low-income residents further from urban centers and into the urban fringes. Areas such as Asheville and Hendersonville have traditionally been where low-income residents have been concentrated, but census data shows low-income residents moving to areas in Fairview, Leicester, and Fruitland in Buncombe and Henderson counties—areas where land and real estate prices are lower but also further from employment centers and often out of reach of some government services.

This shift in low and middle-income residents away from urban centers places more burden on transportation, both in terms of costs for the individual and increased Vehicle Miles Traveled required to access jobs and services. Some of these shifts appear to be relatively subtle—from one part of a county to another. While the shift in miles is lower, this movement can still have a major impact on the day-to-day lives of individuals. Many of the census block groups with an increasing low-income population tend to require ownership of a vehicle for all or most trips, whereas more centralized locations may have easier access to jobs and services by other means. In sum, individuals being forced out of their neighborhoods by increasing housing prices tend to move to areas where the transportation burden is greater.

Other shifts appear to be considerably greater in geographic size, suggesting that more workers in the metro area are moving outside of the metro area. Commuter data confirms this shift with an increase in commuters from Yancey, McDowell, Rutherford, and Jackson counties—areas with significantly lower real estate prices than the Asheville metro. Commutes from these counties are significantly longer and can only be done in a personal automobile as there is no transit or bike/ped infrastructure connecting those areas. In Yancey and Rutherford counties, where raw numbers of residents being employed in Buncombe County are not increasing as significantly, the share of overall county residents being employed in Buncombe is increasing (4.8% to 6.1% of Yancey County residents and 1.6% to 2.3% of Rutherford County residents), suggesting increasingly important economic ties between the a wider area than the defined metro.

Figure 2.4: Home Price Index

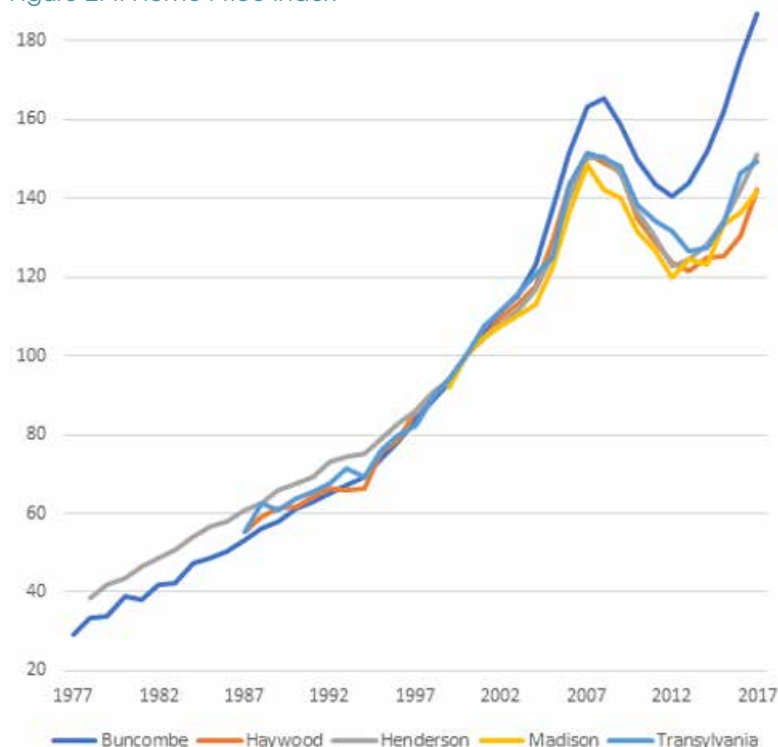
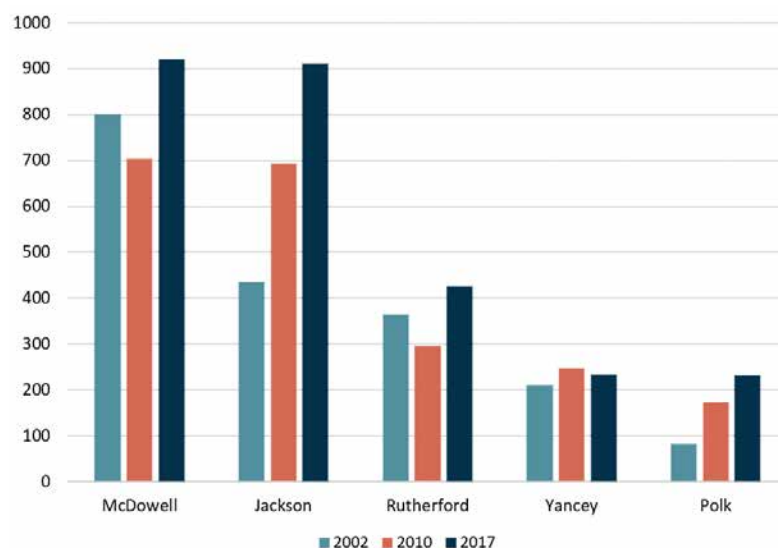


Figure 2.5: Residents Employed in Buncombe County, by County



It is also important to note that the housing market in Asheville will be affected by the COVID-19 crisis, though the manner and extent of those impacts are undetermined.

TOPOGRAPHY

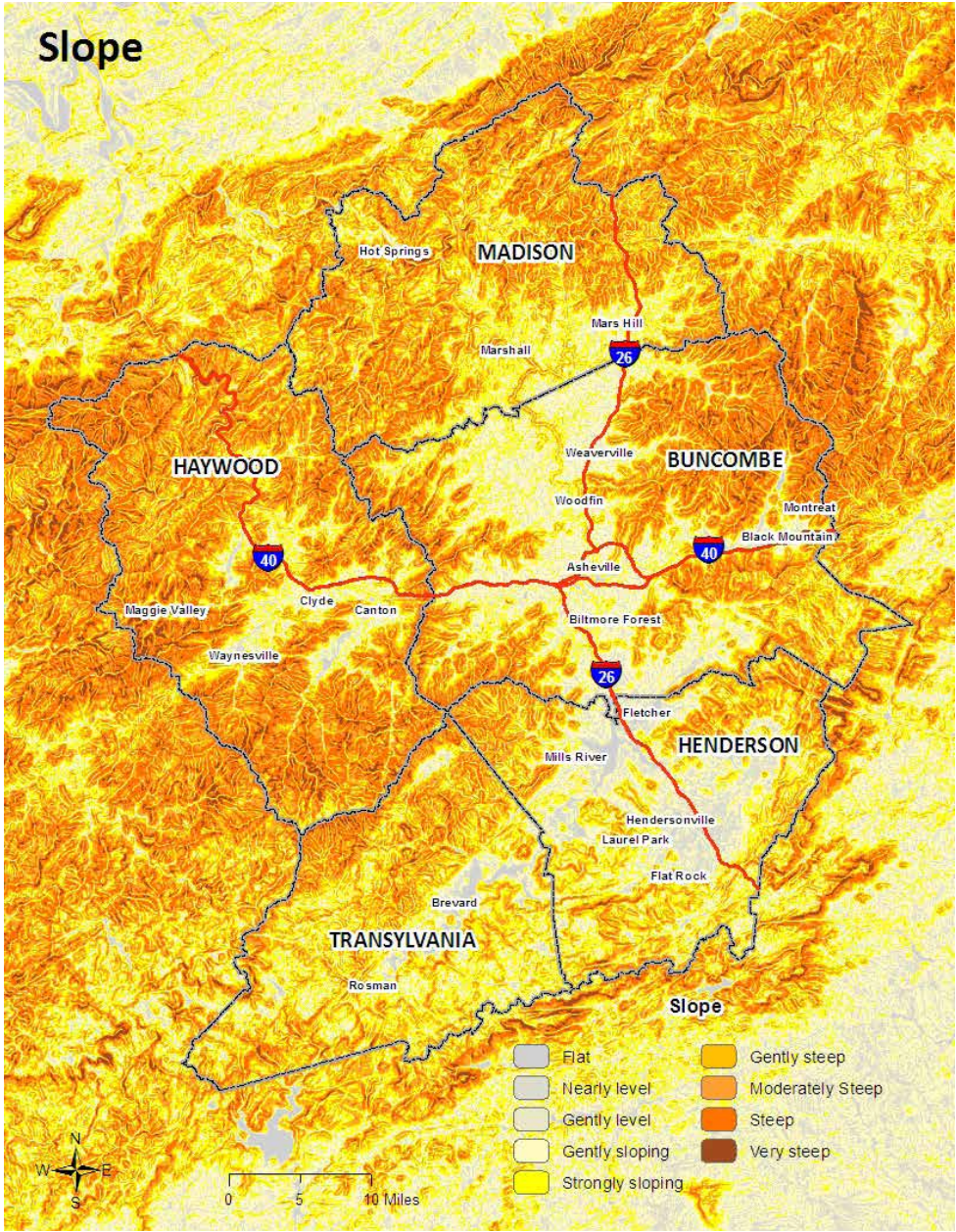
Western North Carolina's defining feature is its mountainous terrain. As part of the Southern Appalachian Mountain Range, some of the highest mountains east of the Rockies, including the tallest mountain in the Appalachian Mountain Range, Mount Mitchell, surround Asheville, Hendersonville, and Waynesville. The terrain has played a major role in dictating the terms of economic development and infrastructure.

While mountainous terrain creates challenges for development and infrastructure, this topography is the primary driver of much of the region's success. The region was first lauded for its natural beauty, clean air, and clean water—assets it still maintains. The mountains have drawn people in for over a century for their views, the abundance of flora and fauna, and the potential for adventure. The rivers of the region are known for their abundance of trout—a species that demands cold, clean water. The leisure and hospitality sector of the region, that is estimated to be accountable for 15% of the region's workforce, thrives because of these assets.

The region's population and employment centers align very closely with areas with fewer slope challenges. Development and infrastructure require buildable topography. Flat land with few constraints or environmental hazards is often hard to come by or difficult to access in the French Broad River MPO region. Thus, all of the major municipalities are based in the valleys around the mountains, even if the occasional mountain or two may sit in the middle of it.

The development of the regional transportation network has been largely constrained within these valleys as well, with only a few routes providing major connections through steeper terrain. One of the major challenges for the region's transportation network is its lack of connectivity. With a multitude of coves and cliffs, the region is pockmarked with roads that taper off where the terrain becomes too demanding. This causes the region's network to rely more heavily on the few routes that have been positioned in more favorable terrain. This terrain also results in construction and maintenance costs being considerably higher than in other parts of the state. Major roadway expansions or new location projects often demand the use of

Map 2.2: Slope



considerable earth-moving and dynamite. Some constraints are too great to be addressed through those methods.

For day-to-day operations, the slopes of the mountains also cause considerable difficulties for individuals, companies, and their vehicles. Residents who live on steep roads should expect brakes and other vehicle parts to be worn down more quickly. Many secondary roads are inaccessible to heavier vehicles and freight vehicles. Even interstate passes, especially from Old Fort, Saluda, and the Pigeon River Gorge are hazardous and challenging for trucks carrying heavier loads. More mundane challenges include increased congestion where slopes become greater. Sections of I-26 in southern Buncombe County or I-40 near the Buncombe/Haywood line can become regularly congested when slow-moving trucks struggling to deal with the incline become bottlenecks for peak-hour commuters.

Finally, the terrain causes major resiliency challenges (to be discussed further). As noted, the terrain has dictated a lack of connectivity in some places, demanding more of routes that provide connections. Some of these routes are prone to landslides, especially I-40 through the Pigeon River Gorge, and a number of crucial US, NC, and secondary routes regularly face similar challenges. Many routes are also prone to major flooding. The mountains, when faced with heavy rainfall, act as almost a funnel, accelerating stormwater into the valleys and sometimes quickly overwhelming streambeds and riverbeds, causing temporary closures and long-term issues with erosion.

The terrain of the French Broad River MPO is the reason many people are attracted to the area, to work and to visit, but this terrain comes with major challenges, especially to the transportation system.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation Demand Management (TDM) includes programs and strategies that promote the reduction and elimination of vehicular trips through a variety of methods. Some of these strategies include public transit, carpooling, vanpooling, active and multi-modal travel, teleworking, carshare and incentivizing businesses and individuals to undertake aspects of TDM. These methods, particularly when combined with one another, provide an effective way to make long-range trips more efficient.

In 2012, the French Broad River MPO and City of Asheville undertook a study to look at implementing a TDM plan for the region with a recommendation for a three to five year introductory period. This program has continued under the MPO and includes a TDM coordinator position. In order to incorporate TDM strategies such as telecommuting, commuter benefits programs, and car-pooling, collaboration between the public and private sector is important. The TDM coordinator has the opportunity to encourage businesses to develop commuting programs with their employees to reduce demand or peak-hour demand on congested roadways. As a result of the TDM study, a program called GO Mountain Commuting was developed to offer sustainable commute solutions for the region by promoting van/car pools, transit and active transportation modes. Major employers may be more likely to participate in vanpooling or flexible work hours, in order to improve employee satisfaction, while simultaneously reducing peak-time travel demand. Implementing strategies such as this do not require a high-capital investment from either the public or private side. Another TDM program, Strive Not to Drive, focuses on the month of May each year to encourage those in the region to “think beyond the car”. The month includes a range of events, such as walk audits and walk to school events in order to encourage collaboration between stakeholders in the region. The intention of having these programs throughout May is to carry the momentum through the year and establish partnerships that reduces single-occupancy vehicle (SOV) trips. Between GO Mountain Commuting and STRIVE, the TDM program promotes creative solutions to managing congestion in the region with the intention of providing a more sustainable commute for all.

Buncombe County was repeatedly scaled down to meet neighborhood concerns; and a proposed housing development in Henderson County repeatedly drew crowds of concerned residents. Often, concerns regarding the impact of these developments focus on the effects on the transportation system from increased traffic. However, heavy traffic is becoming an increasingly regional phenomenon. The impacts of developments extend well beyond their immediate context. While local governments maintain the ability to regulate land uses, coordination of growth in the region is an effective way to understand how growth affects our infrastructure.

The Process for Growth Projections

MPO staff began internally updating the region's land use, employment, and population data in 2015. This process developed "base year" data for the region that reflected where people were living, where jobs were placed, and different types of general land uses. This process also included meetings with local governments to get information on developments that were only at the permitting process. It should also be noted these projections went beyond the MPO Planning Area to include the five-county area that makes up the French Broad River MPO and the Land of Sky RPO.

The MPO then hired a consultant for its "Land Use Study" in 2017. The consultant was primarily tasked with developing population and employment projections for the region and determining where that growth was most likely to occur. These projections also included additional socioeconomic data including individuals/household, household incomes, and types of jobs being developed.

Socioeconomic projections are distributed among Traffic Analysis Zones (TAZs), small geographic blocks that divide the region for purposes of the region's travel demand model. These TAZs are loosely based on census block groups, but do not line-up with block group boundaries in many places. Each TAZ generally attempts to cover an area with similar transportation characteristics, but it should be noted that some TAZs include large swaths of state or nationally protected lands. This means that while some TAZs may be quite large in geographic size, their capacity for population and employment growth may be limited to smaller portions of the TAZ.

The consultant developed three projections for the region, using the same general population and employment growth projections for each scenario, but differing in the distribution of growth. Each of these scenarios were loosely based on the following:

Business as Usual - generally developed to determine how the region would be developed over 25 years if it continued with current growth policies with no major changes in market trends.

Efficient Growth - developed as part of the GroWNC initiative in 2010 that emphasizes growth in areas with existing water and sewer infrastructure with increased densities in more urbanized areas

WalkUP Scenario - based on an analysis from the MPO's Congestion Management Process that emphasizes more growth in areas determined to have residents more likely to walk, bike, or take transit for trips

These scenarios were all vetted by the MPO's Prioritization Subcommittee, which served as the steering committee for the study and includes staff, representation from the TCC, and elected official representation from Board Members across the region.

The Results

The Land Use Study projects that the five-county region will grow by an additional 189,173 residents in 78,842 new households over the next 25 years—a rate of growth that slightly exceeds what has been experienced in the past few decades of growth. To put that number in perspective, that is roughly the size of an additional Henderson, Haywood, and Madison county to the region. The study also projects that the region will consist of wealthier residents and a shift in employment towards more service and retail jobs.

In terms of scenarios, the MPO Board selected the WalkUP Scenario to be the Preferred Growth Scenario for the region. This scenario concentrated more growth in more urbanized areas than the other scenarios and less growth in rural and suburban areas. Overall, the scenario puts the fastest rates of growth in Asheville, Woodfin,

Hendersonville, and Waynesville, and considerably more growth in Buncombe, Haywood, and Henderson counties than Madison and Transylvania counties. The projections did not show any jurisdictions declining in population but did have considerably lower rates of growth in Montreat, Laurel Park, and Hot Springs.

This growth scenario is projected to help reduce the overall vehicle miles traveled (VMT) of the region and increase the utilization of public transit and trips made by walking and biking. However, the increased concentration of development in more urbanized areas is likely to shift congestion hotspots to some shorter, more urban arterials as well as freeways, and away from the longer, more suburban corridors. In other words, the scenario envisions a region with more people living more closely to jobs and services, but inter-regional travel as increasingly important for access to jobs and other trip purposes.

Table 2.4: Household Population

Household Population					
County/City	Year 2015 Base	2045 Preferred Growth Scenario	County/City	Year 2015 Base	2045 Preferred Growth Scenario
BUNCOMBE	247,277	352,887	HAYWOOD	59,812	84,917
Asheville	85,127	141,264	Canton	4,070	5,718
Biltmore Forest	1,511	2,286	Clyde	1,250	1,838
Black Mountain	8,031	10,438	Maggie Valley	1,194	1,540
Montreat	787	975	Waynesville	9,364	15,481
Weaverville	3,544	4,560	Other Haywood	43,933	60,340
Woodfin	4,824	7,318	MADISON	19,754	26,146
Other Buncombe	143,454	186,046	Hot Springs	547	689
HENDERSON	110,993	153,454	Mars Hill	1,187	1,730
Flat Rock	3,280	4,414	Marshall	802	1,466
Fletcher	7,000	9,794	Other Madison	17,218	22,260
Hendersonville	13,202	22,162	TRANSYLVANIA	32,676	42,282
Laurel Park	2,200	3,116	Brevard	7,250	10,581
Mills River	7,152	9,188	Rosman	494	848
Other Henderson	78,159	104,780	Other Transylvania	24,933	30,853
			Grand Total	470,513	659,686





CHAPTER 3: **PLANNING FOR MOBILITY**

PLANNING FOR MOBILITY

The French Broad River MPO is changing and is expected to continue to change with new developments to help accommodate more residents, visitors, and jobs. This section outlines the federal planning factors in order to help prepare for these changes and give a general overview of present and future challenges while also providing recommendations for what the MPO and its partners could undertake to better plan for identified challenges and address needs.

GOALS AND OBJECTIVES

Goals and objectives give high-level structure to the MTP and communicates the primary areas of concern that are expected to be addressed through the planning process. The MTP 2045's goals focus on moving people and goods around the region while also supporting initiatives tied to livability and sustainability in areas where appropriate.

The MTP process must address the following planning factors outlined in the FAST Act:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation movements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.²

The MTP Goals and Objectives outlined in this section largely overlap with the required planning factors and are discussed more in-depth later in this section



GOALS & OBJECTIVES

1: Improve Multimodal Transportation

- Improve Bicycle and Pedestrian Safety
- Increase Utilization of Public Transportation
- Increase Utilization of Other Modes
- Improve Multimodal Network Connectivity

2: Improve Safety

- Improve the Safety of Travelers and Residents
- Improve System Resilience to Incidents

3: Address Congestion and Bottlenecks

- Improve Travel-Time Reliability
- Improve Transit On-Time Performance

4: Improve Public Transit Options

- Improve Transit On-Time Performance
- Increase the Percentage of Population with Access to Public Transit
- Increase the Percentage of the Transportation Disadvantaged Population with Access to Public Transit

5: Ensure Changes Protect Our Unique Places and Environments

- Mitigate and Reduce Impacts to the Environment
- Minimize Impacts to Culturally and Environmentally Important Resources
- Reduce Overall Impacts to Communities
- Enhance Link between Transportation and Land Use Planning

6: Maintain and Improve Safe Freight Movement Within and Throughout the Region

- Reduce Crashes Involving Freight Vehicles
- Improve Freight Travel Time Reliability
- Increase Overnight and Rest Area Truck Parking

7: Maintain the Region's Infrastructure in Good Working Condition

- Increase the Number of Roadway Miles in Good Condition
- Improve the Transit Capital State of Good Repair
- Improve Bridge Safety

8: Develop a More Equitable Transportation System

- Increase Participation of Historically Underrepresented Groups in the Planning Process
- Decrease Adverse Impacts to Historically Underrepresented Groups

1

IMPROVE MULTIMODAL TRANSPORTATION

Expand the network of multimodal facilities to allow for safe, convenient, and attractive means of travel by bicycle, walking, or other non-motorized options.

Objective 1A: Improve Bicycle and Pedestrian Safety

- Increase the **Miles of Bicycle Infrastructure** to make bicycling a safer, more attractive way of making trips
- Increase the **Miles of Sidewalks** to make walking a safer, more attractive way of making trips
- Increase the **Miles of Multi-Use Paths** to provide a safe, attractive way for pedestrian and bicyclists to get around

Objective 1B: Increase Utilization of Other Modes

- Increase the **Number of Trips Made by Transit, Biking, and Walking** through

Objective 1C: Increase Utilization of Public Transportation

- Increase the number of **Fixed Route Passenger Trips**
- Increase the number of **Deviated Fixed Route Passenger Trips**
- Increase the number of **Demand Response Passenger Trips**

Objective 1D: Improve Multimodal Network Connectivity

- Improve **First/Last Mile Connections for Transit Users**
- Provide More **Transit Connections to Park and Ride Lots**
- Improve **Connectivity of Pedestrian and Bicycle Infrastructure**

COMPLETE STREETS

Complete Streets is a policy adopted by the French Broad River MPO, NCDOT, the City of Asheville, and the Town of Black Mountain that requires infrastructure components for all modes be considered for roadway projects and resurfacing. Such policies have helped to promote the inclusion of critical improvements to address the safety of pedestrians and bicyclists on our region's roads.



VISION ZERO

Vision Zero is a policy adopted by the NCDOT Board of Transportation and hundreds of agencies around the world that aims to achieve a transportation system with no fatalities or serious injuries involving traffic. One of the guiding principles of Vision Zero is that roadway users are not solely responsible for their well-being but roadway planners and designers bear a responsibility to ensuring and promoting safety.



Provide a transportation network that allows all users to get to their destination without harm.

Objective 2A: Improve the Safety of Travelers and Residents

- Reduce the Number of Crashes
- Reduce the Number of Fatal Crashes
- Reduce the Crash Rate
- Reduce the Crash Severity Rate
- Reduce the Number of Non-Motorized Crashes and Fatalities

Objective 2B: Improve System Resilience to Incidents

- Reduce the Crash Clearance Times on Major Roadways
- Improve the Transportation Network Resiliency to Major Incidents

3

ADDRESS CONGESTION AND BOTTLENECKS

Limit recurring congestion to appropriate parts of the transportation network to ensure reliable travel within and through the region and reduce impacts of non-recurring congestion events.

Objective 3A: Improve Travel-Time Reliability

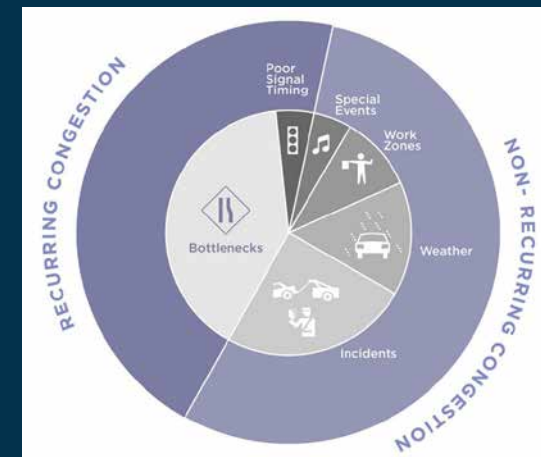
- Improve **Travel Time Reliability** for all vehicles on the region's major roadway facilities
- Improve **Truck Travel Time Reliability** on the region's major freight corridors

Objective 3B/4A: Improve Transit On-Time Performance

- Improve **Average Percentage of On-Time Performance for Fixed-Route Transit Providers**

RECURRING VS. NON-RECURRING CONGESTION

Not all congestion comes from rush-hour, in fact some studies have shown that 55% of congestion events are due to things like traffic incidents, work zones, weather, or other causes considered "non-recurring." Recurring congestion-causing an estimated 45% of congestion events- is when repeated peaks in volumes on roadways with insufficient capacities causes slowdowns and congestion.



TRANSIT PROVIDERS IN WNC

Public transportation in our region is provided by several different agencies. The City of Asheville and Henderson County provide fixed-route service, and Buncombe County provides deviated-fixed-route service. All five counties provide demand-response transit services.



Improve public transit to be a more responsive, attractive, and well-used mode in the region's transportation system.

Objective 3B/4A: Improve Transit On-Time Performance

- Improve Average Percentage of On-Time Performance for Fixed-Route Transit Providers

Objective 4B: Increase the Percentage of Population with Access to Public Transit

- Increase the Percentage of Population Living Within ½ Mile of Fixed-Route or Deviated Fixed-Route Transit

Objective 4C: Increase the Percentage of the Transportation Disadvantaged Population with Access to Public Transit

- Increase the Percentage of the Transportation Disadvantaged Population Living Within ½ Mile of Fixed-Route or Deviated Fixed-Route Transit

Consider the context of areas where changes to the transportation network are proposed to preserve- and potentially enhance- the assets that make our region unique.

Objective 5A: Mitigate and Reduce Impacts to the Environment

- Decrease Vehicular Miles Traveled per Capita

Objective 5B: Minimize Impacts to Culturally and Environmentally Important Resources

- Encourage design efforts to mitigate environmental impacts on Highway Projects Intersecting Critical Ecological Corridors
- Encourage design efforts to mitigate impacts on Highway Projects Intersecting Areas with Culturally-Significant Resources

Objective 5C: Reduce Overall Impacts to Communities

- Reduce Mobile Source Emissions
- Reduce Noise Impacts on Residential Neighborhoods

Objective 5D: Enhance the Link Between Transportation and Land Use Planning

- Increase Collaborative Efforts Between Transportation and Land Use Planning Processes

THE LARGEST HISTORIC DISTRICT IN THE STATE

The Flat Rock Historic District makes up approximately 4,000 acres of property in and around the Village of Flat Rock, encompassing many historic residences and structures, as well as the Carl Sandburg Home National Historic Site. The Flat Rock Historic District is currently the largest historic district in the State of North Carolina.



TRUCK PARKING SHORTAGE

"Jason's Law" was passed into federal legislation in 2012 that requires transportation agencies to plan for sufficient and safe parking for truck drivers. Recent studies have shown a shortage of truck parking in Western North Carolina, often resulting in trucks parking illegally on shoulders or in parking lots that may ticket illegally parked vehicles.



Maintain and enhance the ability for goods to move within and through the region to ensure economic competitiveness and economic connections to areas outside the region.

Objective 6A: Reduce Crashes Involving Freight Vehicles

- Decrease the Number of Crashes Involving Trucks
- Decrease the Number of Crashes Involving Freight Trains
- Decrease the Truck Crash Rate

Objective 6B: Improve Freight Travel Time Reliability

- Improve Truck Travel Time Reliability on roadways carrying a significant amount of freight

Objective 6C: Increase Overnight and Rest Area Truck Parking

- Increase the Number of Designated Truck Parking Spaces in the MPO Planning Area

Ensure that the region's infrastructure is maintained to continue providing the safe movement of people and goods.

Objective 7A: Increase the Number of Roadway Miles in Good Condition

- Increase the Percent of Interstate Miles in Good Condition
- Increase the Percent of Non-Interstate Miles in Good Condition

Objective 7B: Improve the Transit Capital State of Good Repair

- Decrease the Percent of Transit Vehicles that are Considered Beyond their Useful Life

Objective 7C: Improve Bridge Safety

- Decrease the Number of Bridges Considered Structurally Deficient

STRUCTURALLY DEFICIENT BRIDGES

As of 2017, North Carolina had more than 18,000 bridges maintained by various agencies and departments. Of those 18,183 bridges, 1,854, or 10.2%, were considered "structurally deficient" or in need of repair. This includes 174 structurally-deficient bridges on the National Highway System.



ADA SERVICES

Every county in the FBRMPO planning area contains a higher percentage of seniors than state and national averages. This facet of our demography increases the demand for accessible transit services. All ART buses are ADA-accessible, provide priority seating, and allow service animals.



Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, nation origin, age, income, ability, or sex.

Objective 8A: Increase Participation of Historically Underrepresented Groups in the Planning Process

- Increase Outreach Efforts to Historically Underrepresented Groups in the MPO Planning Area

Objective 8B: Decrease Adverse Impacts to Historically Underrepresented Groups

- Decrease Disproportionate Impacts to Low-Income and Minority Communities from Transportation Improvement Projects
- Improve Low-Income Communities' Access to Employment Centers
- Improve Considerations for Individuals with Disabilities into Planning and Design efforts

SAFETY & SECURITY

The safe movement of people and goods in and through a region is a fundamental priority of the metropolitan planning process. In 2005, safety and security became fully integrated as an MPO planning factor requirement under SAFETEA-LU law. The FAST Act requires MPOs to address safety and security by considering projects and strategies that:

- Increase the safety of the transportation system for motorized and nonmotorized users
- Increase the security of the transportation system for motorized and nonmotorized users

In 2018, the five-county area had 17,170 recorded crashes which resulted in 67 roadway fatalities. Since 2010, the number of crashes and fatalities in the region have been trending upwards with more crashes correlating with an increase in vehicle miles traveled over that same time period. This also includes an increase in crashes involving vulnerable user groups- pedestrians, bicyclists, and motorcyclists. While many crashes involve driver behavior (distracted driving, substance-involvement), there is more the MPO and its partners can do to improve safety on the roadway to reduce crashes and roadway fatalities.

In North Carolina, transportation projects with a safety concern can be funded through several different funding programs. The largest funding opportunity is the data-driven Strategic Transportation Investments (STI) process, which evaluates safety components as part of the quantitative criteria used for selecting projects. The STI process funds the majority of roadway projects in the state, using measures of crash severity, frequency, and rate as well as measuring the general efficacy of proposed countermeasures.

Unlike traffic volumes and congestion, which can be projected by the MPO's Travel Demand Model there is not a standard method to model future safety concerns. Regional and state crash data and engineering research help guide project design, decision-making, and prioritization. That makes it important to include context sensitive design solutions for projects that consider the safety of all users. It remains important for NCDOT and the French Broad River MPO to proactively educate users about their responsibilities and safety hazards when driving, walking, bicycling, or using public transit around the region.

Roadway Characteristics

Numerous factors can play a role in crash rate and severity trends, but roadway characteristics can play a major role. Roadways that encourage higher speeds with numerous conflict points are more likely to have more crashes- and more severe crashes. NCDOT and other public agencies regularly intervene when it becomes apparent that roadway characteristics are contributing to crashes. Sometimes these interventions are to increase driver awareness through better signage or the addition of rumble strips, other times it requires more costly interventions to add guardrail, turn lanes, or a redesign of significant parts of the roadway.

The data from the Highway Safety Improvement Program (HSIP) helps to provide a continuous and systematic process to review and address specific safety concerns along roadway corridors and intersections.³ Once a roadway segment has been analyzed for five years, has a minimum number of crashes, and meets a crashes per mile threshold, it is warranted as a HSIP location. Those projects are divided into intersections and sections (roadway segments) and are scored accordingly.

Map 3.1: HSIP Safety Sections

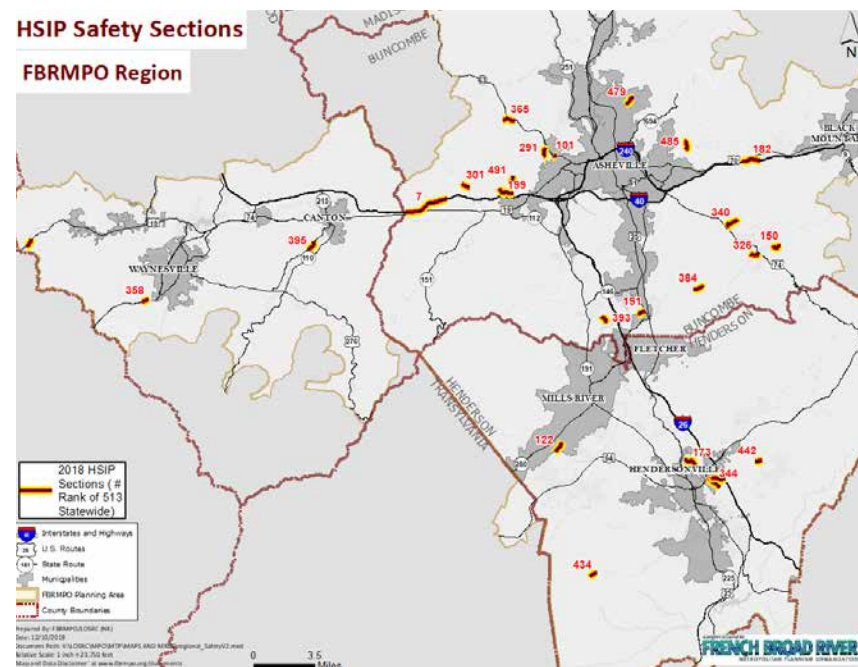


Table 3.1: Top 10 HSIP Safety Sections in the Region

Municipality	Section/Road	Rank – Statewide (Out of 513)	2013-2017 Fatal and Severe Crashes
Buncombe County	I-40 near Wiggins Road Exit	7	3
Asheville	NC 63 (New Leicester Hwy) at Old County Home Rd.	101	2
Mills River	Turnpike Rd near Brannon Rd	122	1
Buncombe County	Garren Creek Rd. near Whitaker Rd	150	0
Henderson County	Berkeley Rd. near Clear Creek Rd.	174	1
Buncombe County	I-40 near Patton Cove Rd Exit	182	0
Buncombe County/City of Asheville	Glenn Bridge Rd.	191	2
Buncombe County	Monte Vista Rd.	199	1
Buncombe County	Johnston School Rd	291	0
Haywood County	US 19/Soco Rd.	301	1

There are a total of 513 HSIP sections in the state, with 25 of those sections falling within the French Broad River MPO planning area. Only the I-40 section in western Buncombe County falls within the top 100 sections in the state. This section of I-40 is currently being considered for funding in the prioritization process for adding additional capacity. Table 3.1 summarizes the top 10 HSIP Safety Sections in the region.

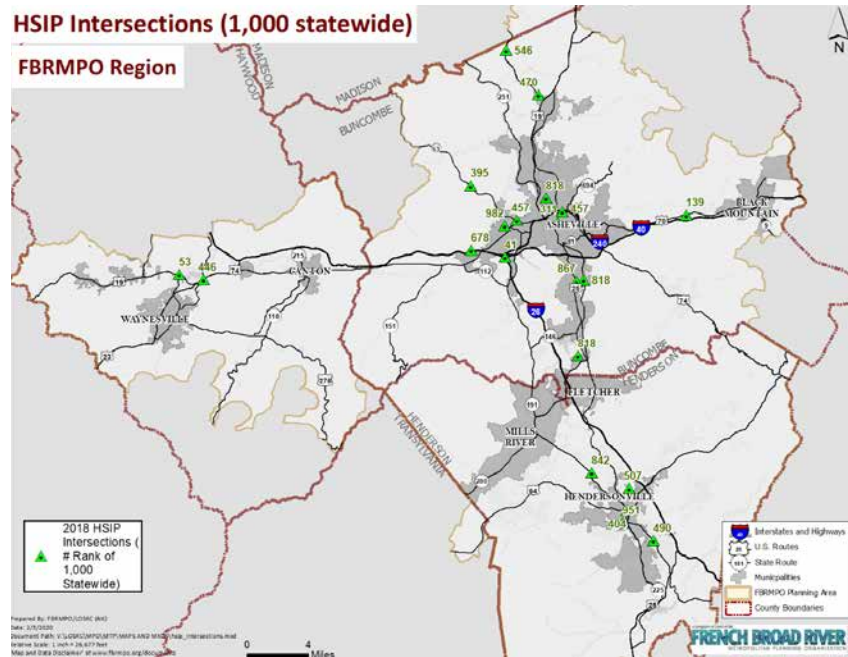
The French Broad River MPO has a total of twenty (20) intersections that fall within the top 1,000 statewide HSIP intersections. A number of factors determine top HSIP intersections, including the number of fatal and severe, frontal, nighttime crashes, and recent increases in crash

Table 3.2: Crashes At or Near the Top 10 HSIP Intersections

Municipality	Intersection/Road	Intersection Rank – Statewide (Out of 1,000)	2011-2015 Bike and Pedestrian Crashes	2013-2017 Fatal and Severe Crashes
Asheville	I-26 at I-40	41	0	4
Waynesville	US 19 (Dellwood Road) at US 276	53	0	2
Swannanoa	US 70 (Smokey Park Highway) at Patton Cove Road	139	0	2
Asheville	Biltmore Avenue at Southside Avenue	311	1	0
Buncombe County	New Leicester Highway at Newfound Road	395	0	1
Hendersonville	N. King Street at 6th Avenue	404	1	0
Waynesville	US 19 (Smokey Park Highway) at NC 209	446	0	2
Asheville	New Leicester Highway at Druid Rd	457	0	1
Asheville	Charlotte St. at Woodfin/US 240 Entrance	457	0	1
Weaverville	US 25/70 at Monticello Road	470	0	1

frequency. Table 3.2 summarizes the location and number of crashes at or near (within 250 feet) the top ten HSIP intersections. Four of the intersections are programmed in the TIP to be addressed with improvements.

Map 3.2: HSIP Intersections



Current Efforts

The French Broad River MPO is planning and working towards a safer transportation network. When evaluating project priorities, programs, and initiatives NCDOT and the French Broad River MPO emphasize safety. Safety is highlighted through:

- Highway Safety Improvement Program (HSIP)
- North Carolina's Vision Zero
 - This initiative works toward meeting the goal of zero deaths on state roadways through community involvement and data-driven interventions. The City of Asheville took the Vision Zero pledge and organized a task force to address safety issues in the city in 2018.
- Active Routes to School
 - A program that helps identify and address safety issues that prevent children from biking or walking to school in their community. Coordinators work with communities and the French Broad River MPO to identify opportunities to improve access to physical activity.

- Watch for Me NC
 - A statewide safety program that provides various education and enforcement of bicycle and pedestrian safety. Drivers and active transportation users benefit from the education through this program. The City of Asheville and City of Hendersonville are Watch for Me NC partners.
- Congestion Management Process
 - The MPO's Congestion Management Process includes a number of recommendations that focus on improving safety on congested corridors to reduce non-recurring congestion events (congestion events caused by crashes)
- Safety Audits
 - Roadway safety audits focus on gathering stakeholders to identify issues and potential solutions for communities or hot spots with pedestrian and bicycle concerns. Stakeholders document the issues and learn about best practices or funding sources for projects. These are effective, low-cost countermeasures that the FHWA cites can result in up to a 60% crash reduction rate.⁴
- Performance Measurement
 - The MPO maintains safety performance targets, as required by FHWA and NCDOT

Emphasis Areas

Safety emphasis areas reflect some of the most common causes of crashes, injuries, and fatalities within a particular region or state. The North Carolina 2019 Highway Safety Plan identifies safety emphasis areas, describes targets and measures related to key crash characteristics, and provides potential infrastructure and behavioral improvements.⁵

The 2019 plan set goals for the nine emphasis areas: demographic considerations, teen and senior drivers, driving while impaired, emerging issues and data, intersection safety, keeping drivers alert, lane departures, occupant protection/motorcycles, pedestrians, and bicyclists, and speed. This data, summarized in the figure above, shows senior drivers yielding the highest percentage of crashes but one of the smallest percentages of crashes resulting in serious injury or fatality. Meanwhile, crashes involving a pedestrian are not as frequent but 15.6% of them resulted in serious injury or fatality. The severity of

crashes must be considered in planning for the most vulnerable users including bicyclists, pedestrians, and motorcyclists who have little protection if involved in a crash with a vehicle.

Highway Safety

From 2009 to 2018, there were approximately 102,794 crashes in the French Broad River MPO region with an average of 10,279 crashes per year (Figure 3.2). The overall number of crashes and fatalities has been on the rise since 2012, which correlates to an increased number of vehicle miles traveled (VMTs) in the midst of a strong economy with low gas prices.⁶

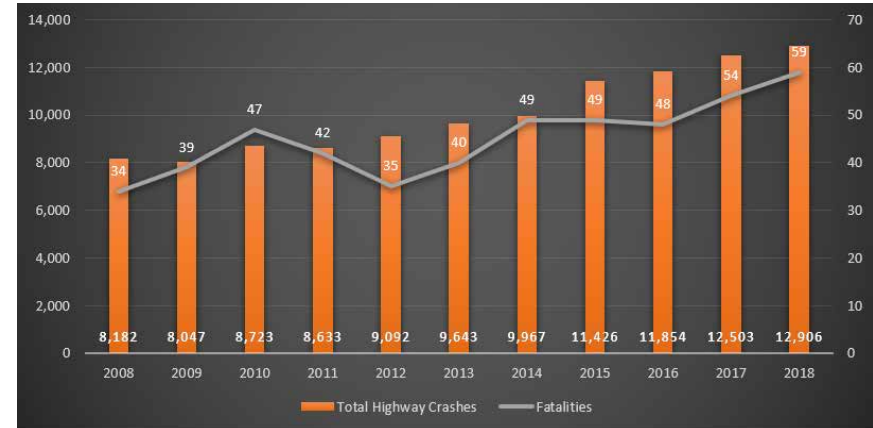
Using the most recent crash data from NCDOT TEAAS unit in five-year intervals (2013-2017) there were a total of 242 fatal crashes in the French Broad River MPO region. Of those crashes 152 were in Buncombe, 48 in Henderson, 38 in Haywood, and 4 in Madison. As expected, the majority of the crashes occurred on heavily traveled corridors with higher speeds including: US 19/23 in Buncombe County, US 25/Hendersonville Rd/Asheville Highway through Buncombe and Henderson Counties, the I-40 Corridor, and the I-26 Corridor.

A majority of the crashes that led to serious injuries or fatalities (52%) were caused by lane departures, which aligns with the FHWA report that lane departures account for 51% of all fatal crashes.⁷ Lane departures are the result of human error or roadway design flaws, thus making it hard to address uniformly. According to the Insurance Institute for Highway Safety, technology such as lane departure warnings facilitated by visible lane markings can reduce crashes with injuries by 21%. However, technology should not be expected to eliminate all roadway safety issues.⁸

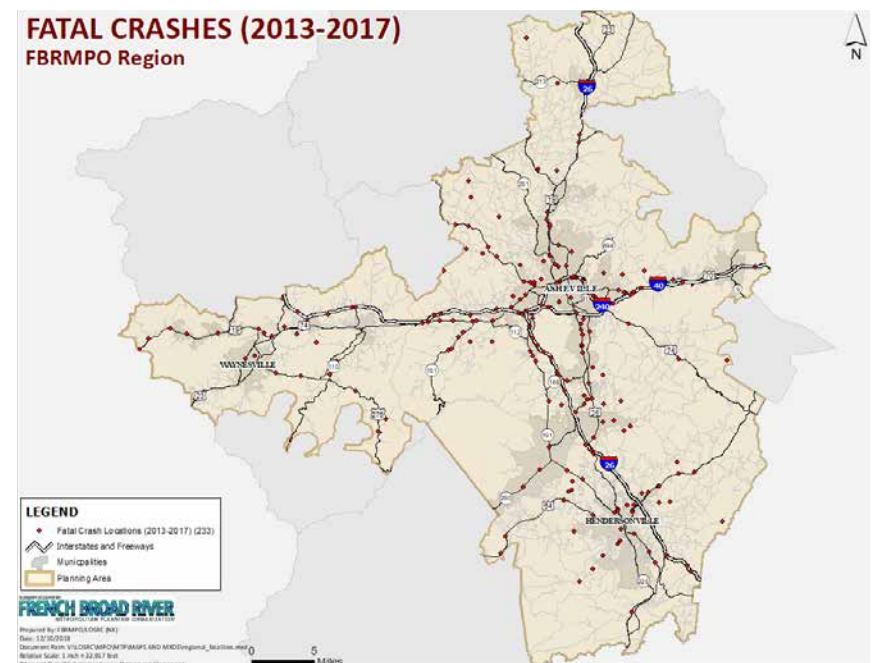
Vulnerable Users

Vulnerable users are roadway users that are generally more exposed and likely to experience a severe or fatal outcome if involved in a crash. This group includes pedestrians, bicyclists, and motorcyclists. All three groups make up a disproportionate percentage of fatalities in the region, and in some cases, an increasing share of fatalities on the region's roadways. In the five-county area approximately 32% of the fatalities on the region's roadways are from vulnerable user groups. Topography, fragmented development, and limited bicycle and pedestrian infrastructure make bicycle and pedestrian trips in the region challenging and dangerous. In many places, bicycle and pedestrian

Figure 3.2: Total Crashes and Fatalities, 2018 French Broad River MPO Region



Map 3.3: Fatal Crashes



infrastructure is inadequate or nonexistent, leading to dangerous crossings with no buffer between motorized and nonmotorized traffic. From 2014 to 2018 as reported by NCDOT, there were a total of 694 crashes involving either a bicycle or pedestrian in the French Broad River MPO region (Figure 3.3).

A majority of crashes in North Carolina occur in urban areas, but there is still a large distribution of fatal and severe bicycle/pedestrian crashes outside the larger municipalities (Maps 3.4 and 3.5). Between 2014 and 2018, 17% of bike crashes and 25% of pedestrian crashes occurred at conflict points adjacent to the roadway. This includes sidewalks, parking lots, vehicle crossing driveways/sidewalks, and on private property. These crash rates highlight the need for bicycle and pedestrian infrastructure to be implemented as part of other projects. The French Broad River MPO passed a Complete Streets Resolution in 2012, which requires that all roadway projects consider the inclusion of bicycle and pedestrian infrastructure. Similar policies exist within NCDOT, the City of Asheville, and the Town of Black Mountain.

The region is also a major destination for motorcyclists, with its winding roads and picturesque vistas. Groups of motorcyclists can be frequently seen racing up the Blue Ridge Parkway or other scenic highways in the region. However, the five-county region averages more than 250 motorcyclist-involved crashes per year and between seven and eleven fatalities per year, or almost 17% of the region's roadway fatalities over the last five years.

Recommendations

Roadway design, weather, season, vehicle type, and human error contribute to where and when crashes occur. Given the nuances of safety and safety data, there are a number of measures that the French Broad River MPO and its partners can undertake to improve safety throughout the region including:

- Support project designs that are proven to effectively improve the safety of all users of the transportation system.
 - Provide educational materials on design concepts that are likely to improve safety, especially the benefits of access management projects and techniques.

- Follow and implement best practice guidance from federal and state partners such as safety countermeasures, the FHWA Bikeway Selection Guide⁹, and FHWA Crash Reduction Factors¹⁰.
 - Some countermeasures, according to the FHWA¹¹, include roadway medians, paved shoulders, buffers or planting strips, marked crosswalks, "road diets" (narrowing or eliminating travel lanes on roadways), traffic calming/traffic control devices, and rumble strips.
- Conduct educational outreach efforts to engage the public and promote safe driving, bicycling, and pedestrian behavior.
 - Enhance coordination of safety initiatives in the region to identify partners and leaders interested in safety planning, coordinate with existing efforts, gather and analyze targeted safety data, and provide more regionally-specific safety recommendations.
 - Encourage partners to apply for funding from the Governor's Highway Safety Program (GHSP).
- Promote initiatives such as roadway safety audits, Active Routes to School, and Watch for Me NC.
- Work to cooperatively develop safety targets and interventions for roadway projects.

³ FHWA. (2019, Nov. 26). About HSIP. Retrieved from [safety.fhwa.dot.gov](https://safety.fhwa.dot.gov/hsip/about.cfm): <https://safety.fhwa.dot.gov/hsip/about.cfm>

⁴ FHWA (2014, Oct. 15). Proven Safety Countermeasures. Retrieved from [safety.fhwa.dot.gov](https://safety.fhwa.dot.gov/provencountermeasures/): <https://safety.fhwa.dot.gov/provencountermeasures/>

⁵ National Highway Traffic Safety Association (2018). Highway Safety Plan. Retrieved from [nhtsa.gov](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/nc_fy19_hsp.pdf): https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/nc_fy19_hsp.pdf

⁶ Reynard, M. (2019). Strong Economy Has Americans Driving More than Ever Before. USDOT. Retrieved from <https://highways.dot.gov/newsroom/strong-economy-has-americans-driving-more-ever>

⁷ FHWA (2019, Jan. 9). Roadway Departure Safety. Retrieved from [safety.fhwa.dot.gov](https://safety.fhwa.dot.gov/roadway_dept/): https://safety.fhwa.dot.gov/roadway_dept/

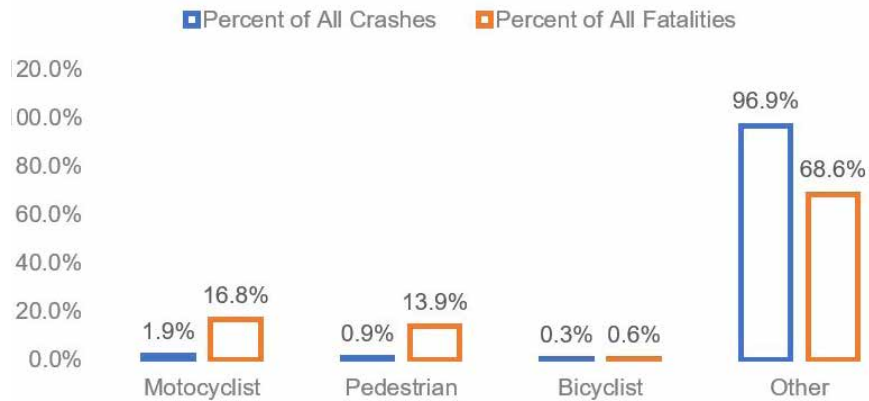
⁸ Cicchino, JB. (2018, Sept.). Effects of lane departure warning on police-reported crash rates. *Journal of Safety Research*, 66: 61-70. Retrieved from: <https://doi.org/10.1016/j.jsr.2018.05.006>

⁹ FHWA (2019). Bikeway Selection Guide. Retrieved from: https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf

¹⁰ FHWA (2014, Oct. 14). Crash Modification Factors Clearinghouse. Retrieved from [safety.fhwa.dot.gov](https://safety.fhwa.dot.gov/tools/crf/resources/#cmfc): <https://safety.fhwa.dot.gov/tools/crf/resources/#cmfc>

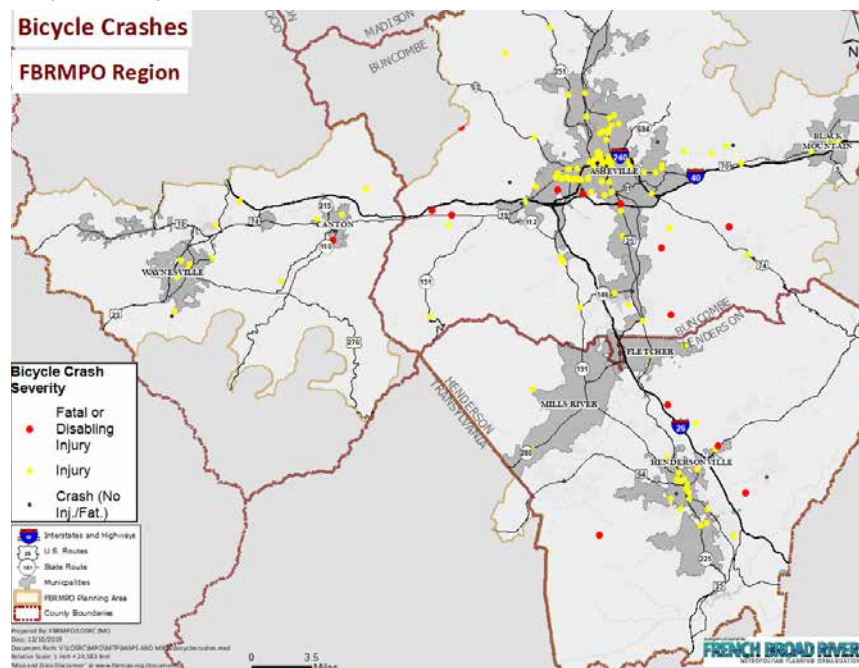
¹¹ FHWA (2014, Oct. 15). Proven Safety Countermeasures. Retrieved from [safety.fhwa.dot.gov](https://safety.fhwa.dot.gov/provencountermeasures/): <https://safety.fhwa.dot.gov/provencountermeasures/>

Figure 3.3: Crash and Fatality Proportion, By mode 2014-2018



Data: NCDOT Safety Performance Measures Target Setting Crash Data

Map 3.4: Bicycle Crashes



Map 3.5: Pedestrian Crashes

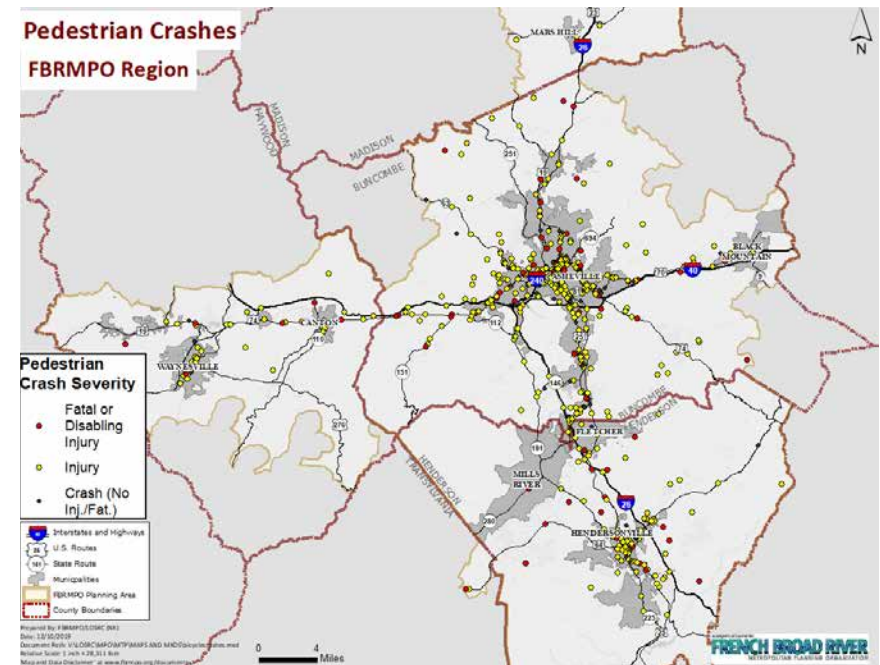
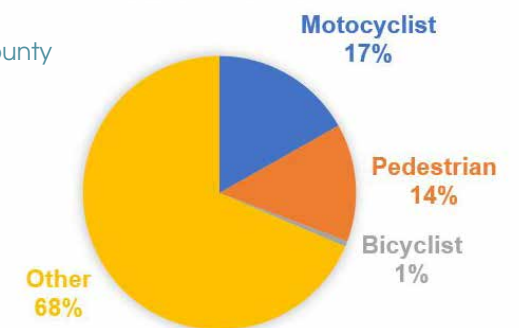


Figure 3.4: Percentage of Roadway Fatalities in Five-County Area, 2014-2018



CONGESTION

Roadway congestion can occur for a variety of reasons, but the result is always the same- vehicles stopped or taking considerably longer to reach their destination due to traffic. Individuals get frustrated, people get late, and professional drivers get behind schedule. In the French Broad River MPO, like many urban areas across the country, roadway congestion is a part of life. But understanding the causes of congestion can help to better plan for interventions.

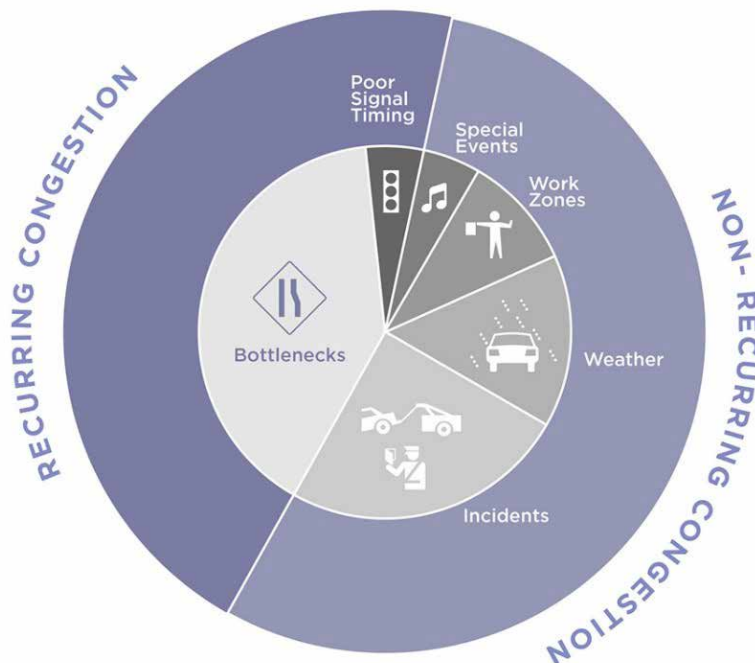
Recurring congestion is daily traffic that generally happens every day, or every weekday around the same time¹². This type of congestion has two prevalent causes: excessive demand and bottlenecks. Excessive demand is typically happening in the morning and in the evening during commutes to appointments and employment when most people are on the road. Due to human behavior, workplace schedules, and development patterns, it can be expected that commuters will continue to drive during peak-demand in the mornings and evenings. Recurring conditions also correlates to seasonal traffic. Bottlenecks occur in locations where the capacity of a facility is suddenly reduced. For example, a bottleneck happens when a three-lane highway is suddenly reduced to two lanes as the right lane is forced to exit or a long-term construction project restricts the width of the highway.

Non-recurring congestion is typically unexpected due to unforeseen incidents like crashes, disabled vehicles, special events, weather, etc. Any of these events or a combination of these events can cause free-flowing traffic to suddenly slow, causing immediate and severe congestion. As shown in the diagram below, non-recurring events cause more congestion than recurring events. While capacity improvements such as widening a highway focus on solving recurring congestion, a considerable portion of the congestion will persist is due to non-recurring events. Therefore, solutions must focus on addressing both types of congestion.

Current Conditions & Efforts

As the economic center of Western North Carolina, the French Broad River MPO often experiences significant congestion events- both recurring and non-recurring. With increased growth as well as increased traffic and freight moving through the region, several routes have become susceptible to congestion. I-26 in south Buncombe County regularly becomes backed up, but congestion also occurs at a variety of locations on secondary roads. Sometimes school traffic

Figure 3.5: Congestion



causes intermittent back-ups or inefficient signal timing can leave vehicles sitting through multiple cycles.

In a reflection of economic and demographic data, the congestion in the French Broad River MPO planning area is somewhat unique. With an economy that is more focused on sectors with irregular working hours, AM peaks throughout the region are generally not as problematic as PM peaks. Few roadways that aren't adjacent to schools tend to experience much recurring congestion. PM peaks, however, tend to be relatively problematic, especially on I-26 and I-240 in Buncombe County- likely due to a mixture of commuters and people coming to the City for nightlife. One unusual aspect to note is that the region has several areas that experience mid-day peaks- where congestion is often at its worst around noon.

As a destination for tourists, congestion events tend to differ on the day of the week as well. Most roadway congestion in the Asheville region tends to work in weekly cycles, slowly building up from Monday and peaking on Friday. The visitor travel pattern impacts can be noticed with

congestion often peaking on north/westbound I-26 and westbound I-40 on Fridays and congestion peaking in the opposite direction on Sunday afternoons.

Some congestion issues can be linked to connectivity and resiliency issues in the region. Steep slopes and river valleys limit the construction of new or expanded local and state routes, making connectivity at high connectivity nodes such as the I-240, I-26, and I-40 junction problematic. Navigating from the northern section of Henderson County up through Buncombe County stands as an example of a south-north connectivity issue. If construction or an accident causes severe congestion on I-26, there are few alternatives to continue northward travel through Buncombe County. NC 191 (Brevard Road) to the west of I-26, is a two-lane facility with already high-volumes that often lead to congestion during peak travel times. This corridor does not provide an ideal alternative to I-26 given its own congestion issues, as well as the limited number of intersections to access it. US-25 (Hendersonville Road) running parallel to I-26, is a five-lane facility but has similar issues as NC 191, and experiences major congestion during peak and non-peak travel times. Given the volume of commuter traffic traveling between Buncombe and Henderson counties, all these roadways experience problematic congestion with not enough options or capacity to alleviate it.

The French Broad River MPO has access to FHWA Regional Integrated Transportation Information System (RITIS), which provides aggregated data types such as traffic volumes, speeds, events, work zones, and incidents in the region. This data can identify congestion trends, bottleneck reports, and incident occurrences. By using several factors to determine total delay, the bottleneck ranking dataset provides a comprehensive look at problematic locations.¹³ Table 3.3 summarizes the top 25 bottleneck locations in the French Broad River MPO region based on calendar year 2019 data; ranks are determined based on the composite score of the "impact factor that accounts for the number of days in an analysis period, the number of bottleneck occurrences, the duration of congestion in minutes, and the length of congestion in miles.

Many of the funded projects in the region include elements that address congestion. The Strategic Transportation Investments (STI) law, which uses a data-driven approach to score and prioritize projects,

examines congestion as a factor when funding projects. In SPOT P5.0, thirty-eight percent (\$4.4 billion) of highway funding was used to widen existing roadways, which can be attributed to the goal of reducing congestion. Some of the projects in the region that include congestion mitigation elements such as widenings, interchange improvements, and utilization of high-impact, low cost funding include:

- *I-26 Widening (TIP ID: I-4700)*: adding additional capacity between NC 280 and I-40 to improve traffic flows on a section of corridor that frequently experiences Level of Service "F" conditions. Additional capacity can improve freight mobility along with commuter traffic that utilizes this route.
- *I-26 at NC 191/Brevard Road Interchange Upgrade (TIP ID: I-5501)*: converting the existing interchange to a diverging diamond (DDI) configuration allows high volumes of left turns at signalized intersections by eliminating the need for left-turn phase signals¹⁴. This project has been completed since 2020 and allows for the smooth movement of vehicles on and off of I-26, while improving safety since no left turns must clear opposing traffic.
- *US 19/23/Patton Avenue at NC 63/New Leicester Highway (TIP ID: U-5971A and B)*: intersection improvements, include adding turn lanes and eventually multimodal accommodations at this intersection. Phase one of this project was completed by adding turn lanes for the most problematic peak-travel turn movements. As commuters travel in the A.M. from western Buncombe and Leicester heading downtown, the NC 63 turn is the primary route onto US 19/23 and adding another turn lane is expected to reduce the congestion experienced. Left turn movements from US 19/23 onto NC 63 are typically higher in the afternoon, and has lead to queuing in the travel lane during peak-travel times. Adding a turn lane for this leg has reduced traffic queuing. Phase II of this project will further improve mobility along this corridor, while better accommodating bicycle and pedestrian movements.
- *US 23 Business/South Main Street (TIP ID: U-4712)*: in Waynesville from Hyatt Creek Road to Pigeon Street widening. This proposed widening project is expected to better accommodate higher traffic volumes and access in the southwest part of Waynesville. As growth occurs near and along this corridor, a proposed roundabout and traffic signal are expected to improve congestion and mobility on a roadway that currently has roughly 14,000 vehicles a day.

Table 3.3: Top 25 Bottleneck Locations

Rank	Head Location	Total duration (days/ hours/minutes)	Total Delay
1	I-26 W @ NC-191/EXIT 33	23 d 16 h 36 m	246,411,826
2	I-40 W @ GOV RD/HARMON DEN RD/EXIT 7	9 d 13 h 33 m	116,643,311
3	I-26 E @ NC-146/LONG SHOALS RD/EXIT 37	8 d 4 h 9 m	104,607,540
4	US-19 N @ I-240/US-70/US-74-ALT/PATTON AVE	114 d 2 h 34 m	78,678,763
5	I-40 E @ GOV RD/HARMON DEN RD/EXIT 7	10 d 23 h 42 m	76,367,966
6	I-26 W @ NC-146/LONG SHOALS RD/EXIT 37	9 d 23 h 42 m	63,837,824
7	I-26 E @ NC-280/NEW AIRPORT RD/EXIT 40	10 d 4 h 20 m	58,311,295
8	US-19 S @ NC-63/NEW LEICESTER HWY	28 d 20 h 44 m	53,460,554
9	I-26 E @ NC-191/EXIT 33	16 d 8 h 2 m	46,337,321
10	I-40 W @ N CAROLINA/TENNESSEE STATE LINE	3 d 1 h 55 m	37,183,634
11	I-40 E @ FINES CREEK RD/EXIT 15	3 d 16 h 43 m	36,491,510
12	I-26 W @ I-40/EXIT 31A	2 d 12 h 43 m	35,633,753
13	I-40 E @ I-26/I-240/EXIT 46	9 d 22 h 3 m	34,390,753
14	I-40 W @ FINES CREEK RD/EXIT 15	2 d 9 h 47 m	33,438,066
15	I-26 E @ US-64/CHIMNEY ROCK RD/FOUR SEASONS BLVD/EXIT 49	2 d 15 h 4 m	32,156,336
16	I-26 W @ US-25/US-25-BR/ASHEVILLE HWY/EXIT 44	2 d 12 h 51 m	30,815,311
17	I-240 W @ HAYWOOD ST/MONTFORD AVE/EXIT 4C	11 d 13 h 42 m	30,311,240
18	I-240 E @ US-19/US-23/US-70/EXIT 4A	7 d 21 h 55 m	30,178,651
19	I-40 W @ US-19/US-23/EXIT 44	7 d 13 h 39 m	30,091,897
20	I-40 W @ NC-2531/DUNSMORE AVE/EXIT 66	7 d 6 h 46 m	29,345,013
21	I-40 W @ NEWFOUND RD/EXIT 33	2 d 1 h 31 m	27,044,103
22	US-19 S @ I-240/US-70/US-74-ALT/PATTON AVE	9 d 18 h 44 m	26,004,672
23	I-40 W @ NC-1200/GEORGES BRANCH RD/EXIT 37	2 d 17 h 45 m	25,719,372
24	US-64 W @ US-276/MAIN ST	76 d 23 h 34 m	24,767,842
25	I-26 W @ NC-280/NEW AIRPORT RD/EXIT 40	2 d 12 h 42 m	24,210,833

- *US 64 (TIP ID: U-5783)*: improvements from Blythe street to White Pine Drive in Laurel Park. This project will accommodate higher traffic volumes and multi-modal users along the US 64 corridor by adding a series of roundabouts, controlling driveway access, and improving the roadway shoulder. Controlled access and movements through roundabouts will limit left-turn movements that lead to congestion and crashes.
- *Asheville signal system improvements (TIP ID: U-4715)*: funding for improving signals citywide, particularly on major arterials such as Patton Avenue is important to improve traffic flow and allow for adjustment for dynamic traffic patterns (based on time of day or seasonal variances).

Congestion Management Process

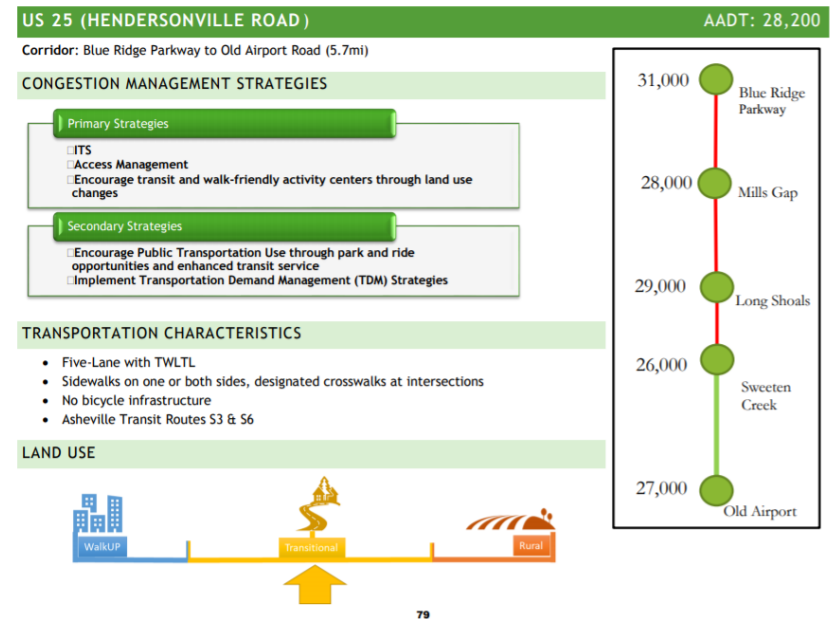
The Congestion Management Process (CMP) developed by the French Broad River MPO outlines the efforts underway to address regional congestion through a strategic process for identifying, managing, and monitoring congestion throughout the planning area. CMPs were first mandated by the 2005 SAFETEA-LU transportation bill and are required to follow an eight-step method for identifying regional congestion and incorporating mitigation goals and strategies. CMP recommendations are integrated into every stage of the transportation planning process from MTP project selection to SPOT prioritization, TIP funding, and project design.¹⁵

The French Broad River MPO's CMP divided corridors into three categories (freight, mobility, and destination) because congestion is experienced differently based on corridor context. Freight corridors primarily serve to transport freight and passengers within and through the region while most negatively being impacted by the recurrence of congestion. Mobility corridors are designated to move traffic from one part of the region to another, or what is typically thought of as commuter routes. Destination corridors are recommended as having a higher tolerance for congestion with priority being given to accommodate other modes and protecting the built environment.

Corridor conditions are evaluated and weighted based on which category they fall under. Truck volumes (Annual Average Daily Truck Traffic or AADTT) and high potential for recurring congestion on a freight corridor would be considered more problematic than if those conditions appeared on a destination corridor serving primarily local

trips. The CMP acknowledges the role that land use plays in determining future transportation needs by the patterns of population and job growth. As a project goes through the planning stages, the French Broad River MPO and municipalities can identify CMP strategies and incorporate them into project design. Figure 3.6 demonstrates corridor recommendations for Hendersonville Road.

Figure 3.6: Corridor Recommendations for Hendersonville Road



In order to monitor ongoing congestion and travel trends in the region, a CMP report will be generated biennially. Corridors can be evaluated to identify improvements or ongoing deficiencies through monitoring truck volumes, travel time index, and safety trends. CMP reporting is especially important for TIP funded projects so that the aforementioned criterion can be used to measure recurring congestion on a corridor before and after project implementation to show issues on the corridor.

Intelligent Transportation Systems

Technological advancements have improved capabilities to mitigate and avoid congestion. ITS controls such as signal timing and addressing highway bottlenecks are often incorporated in roadway design to contend with recurring congestion. For nonrecurring congestion like in work zones, merge control signals can improve operations. Currently, the French Broad River MPO region has variable message signs in place to alert drivers of traffic or weather patterns and work zones. Major projects such as the I-26 widening as well as projects at key intersections provide an opportunity to incorporate ITS in order to mitigate congestion. Further recommendations and features of ITS are outlined in the Emerging Trends in Technology chapter.

Challenges

Geographic constraints have limited the development of an efficient multimodal transportation system. The region's limited street network challenges interconnectivity. A grid network is one that has multiple streets running parallel and perpendicular to each other. Grids provide redundancies in a network, allowing multiple routes for traffic to be rerouted down if one street is blocked, and expanding options for pedestrians, cyclists, and motorists. The Asheville region does not have an extensive grid system outside of some downtowns, and even the downtowns with grid-like patterns.

Development and growth patterns created urban sprawl. In the 20th century, cars grew in popularity and modernists decried cities were synonymous with pollution, slums, and poverty, causing planners to lose sight of the tight grid network. After World War II, the desire for each man to have his own slice of the country replaced the desire to live downtown near factories and businesses. Development patterns expanded to the outskirts of the cities, with cul-de-sacs and large lots on dead-end streets becoming more common, leaving the family man to commute to work from his private driveway at the end of a cul-de-sac by taking a local street to a collector road then taking a large arterial highway into the city. These developments were seen to be safer for families; however, as foreclosure rates, vehicle miles traveled, and traffic fatalities increase, it becomes clear that cities had been intuitively developed for centuries to be most conducive to optimal growth by being intricately interconnected.¹⁶

Transportation and Development Should Be Better Coordinated.

As regional growth patterns radiate out from the economic center of Asheville, spreading along corridors into urban areas of Henderson, Haywood, and Madison Counties, many of the activities that dictate transportation trips—work, school, and recreation—occur in the hubs of these counties. Trips are taken during constrained time periods. Typically, work and school start at relatively the same time for everyone, meaning the roads are filled with vehicles trying to reach the same destinations day after day. This results in motorists trying to access the same area. Much like why flooding occurs in river basins, there is too much volume feeding the system, which has a limited carrying capacity. With limited connections, the corridors that do exist experience congestion disproportionate compared to other regions in North Carolina and the United States with similar populations. This challenge is made even greater because without municipal coordination, transportation planners have no control over land use. As the French Broad River MPO population increases, it is imperative that the network support efficient methods to manage the anticipated increase in volumes associated with growth.

Congestion is becoming more expensive. As communities face more congestion, they are having difficulties implementing enough projects and programs to meet their regional demands. Between wasted fuel, travel delays, and idle-related auto emissions, the cost of congestion, though often unrecognized, is overbearing in communities of all sizes. The *2019 Urban Mobility Report*, the Texas Transportation Institute (TTI) estimated that the average auto commuter spends \$1,080 annually on congestion-related costs, wastes 21 gallons of fuel, and is delayed 54 hours, which is almost 7 full workdays.¹⁷ The annual cost would be significantly higher if environmental impacts of emissions from idling cars and gas prices had been included in the calculations as well.

Recommendations

Addressing congestion requires coordination and collaboration with municipalities. Some of the recommendations to do this include:

- Incorporate the CMP into project prioritization
- Improve connectivity throughout the region
 - Consider the development of guidebooks for member governments to consider connectivity ordinances and other measures to improve roadway connectivity in the development process, which might include connecting dead-end streets or adding new road locations to improve access.
- Create a Regional ITS Plan
 - Using snapshots of ITS best practices, make a plan with corridor specific recommendations that incorporates regional ITS architecture and includes recommendations such as congestion pricing implementing Travel Time Index (TTI) measures, and signal timing.
- Provide context sensitivity guidance
 - Work with member governments and NCDOT to provide context-sensitive guidance for major projects in the region utilizing NCDOT Complete Streets policy to design multimodal streets with wide-sidewalks, bike lanes, and vegetative buffers to carry more people per hour than traditional streets.¹⁸ This is particularly important on congested urban corridors with compact development and could include corridor studies on future projects, pre-design discussions on environmental and cultural resources and other measures to prevent negative impacts on community resources.



¹² McGroarty, J. (2010). "Recurring and Non-Recurring Congestion: Causes, Impacts, and Solutions." The Niehoff Urban Studio, Winter. Retrieved from: https://www.uc.edu/cdc/niehoff_studio/programs/great_streets/w10/reports/recurring_non-recurring.pdf

¹³ RITIS (2020). Bottleneck Ranking. Retrieved from [ritis.org](https://www.ritis.org/tools#bottleneckranking): <https://www.ritis.org/tools#bottleneckranking>

¹⁴ Indiana DOT (2017). Diverging Diamond Interchange. Retrieved from [in.gov/indot/](https://www.in.gov/indot/): <https://www.in.gov/indot/3259.htm>

¹⁵ French Broad River MPO (2018). Congestion Management Process. Retrieved from frenchbroadrivermpo.org: http://frenchbroadrivermpo.org/wp-content/uploads/2019/08/DraftCMP_2018-1-1.pdf

¹⁶ Badger, E. (2011, Sept. 19). Debunking the Cul-de-Sac. Retrieved from [CityLab.com](https://www.citylab.com/design/2011/09/street-grids/124/): <https://www.citylab.com/design/2011/09/street-grids/124/>

¹⁷ Shrank, D., Eisele, B., and Lomax, T. (2019). The 2019 Urban Mobility Report. Texas Transportation Institute: The Texas A&M University System.

¹⁸ Boyac, Burak, and N. Geroliminis. (2011). Estimation of the network capacity for multimodal urban systems. *Procedia-Social and Behavioral Sciences*, 16: 803-813

FREIGHT

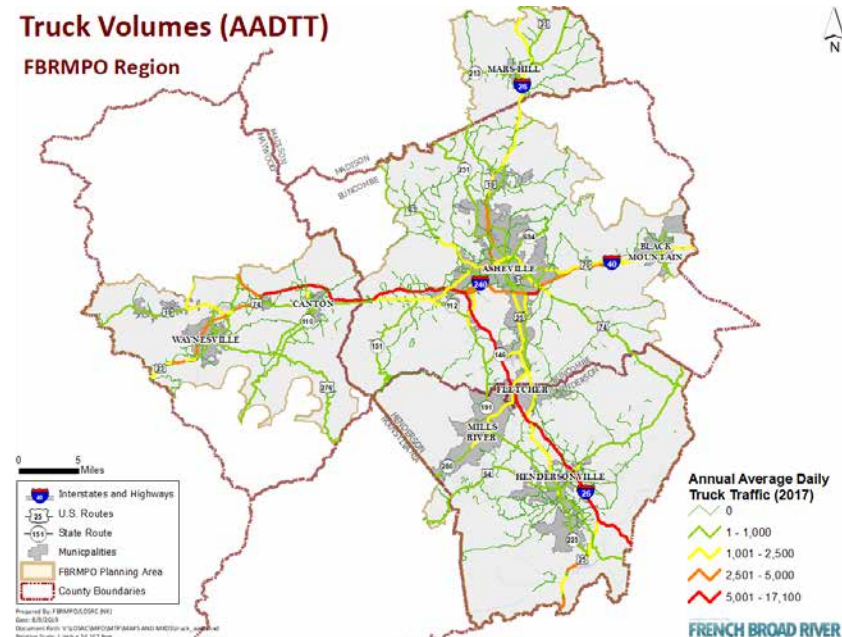
Strategic freight planning is crucial to fuel and sustain strong regional and domestic economies. Efficient freight systems not only improve the flow of goods and services through a region but helps to fortify the preservation of the entire transportation system. The French Broad River MPO planning area is unique in how freight moves in and through the region given the geographical constraints that limit the number of routes available. However, given that trucks make up the majority of our regional freight, it is important that strategic planning takes places to mitigate traffic and infrastructure issues in addition to reducing the harmful environmental impacts of freight traffic. The importance of freight in the planning process has been in recent transportation legislation, starting with the Transportation Equity Act for the 21st Century (TEA-21). TEA-21 ensured that freight stakeholders, such as shippers and manufacturers, were involved in the metropolitan and statewide transportation planning process in order to properly consider their needs¹⁹. The current legislation, the Fixing America's Surface Transportation Act (FAST Act), establishes a national policy for maintaining and improving the condition and performance of the National Multimodal Freight Network ("the Network")²⁰. The FAST Act specifies goals associated with this policy related to the condition, safety, security, efficiency, productivity, resiliency, and reliability of the Network, while also including goals to reduce the adverse environmental impacts of freight movements on the Network. Regarding freight, the FAST Act outlines the following two programs:

- **National Highway Freight Program:** Provides \$1.2 billion per year on average for states according to a formula, for construction, operational improvements, freight planning, and performance measures. Up to 10 percent of this budget can be spent on rail, port or intermodal projects. The National Highway Freight Program requires state freight plans.
- **FASTLANE Grant Program:** Provides \$900 million per year on average for competitive grants or Transportation Infrastructure Finance and Innovation Act (TIFIA) loans. These funds can be used for projects on the National Highway Freight Network, National Highway System, rail and intermodal infrastructure, and rail-highway grade crossings. States, large Metropolitan Planning Organizations, Tribes, localities, and Federal Land Management Agencies may apply.

To implement the two programs above, the FAST Act:

- Requires a national freight strategic plan that presents multi-modal freight policy goals.
- Requires the designation of a National Multimodal Freight Network.
- Requires the designation of a National Highway Freight Network.
- Requires state freight plans and;
- Encourages state freight advisory committees.

Map 3.6: Truck Volumes



Freight Trends/Planning for Freight Nationally

In the midst of economic growth, freight traffic by truck has risen steadily during the 2010s due to an increase of reliability and efficiency in freight. In 2015, the U.S. transportation system moved a daily average of 49 million tons of freight, nearly an 80% increase from 2000²¹. By 2045, it is expected that the daily average will rise to 57 million tons per day, an increase of 1.4% per year. North Carolina is expected to see a 57% increase in freight tonnage between 2015

and 2045, as reflected in Table xx. Given the capacity constraints that exist on our nation's major highways and arterials, effective policy solutions and creative project development will require coordinated and collaborative action by both public and private parties.

Planning for freight requires the recognition that the industry is experiencing a technological revolution as information and communication technologies are optimizing global supply chains. With real-time information and enhanced data, manufacturers and distributors can adapt more quickly than ever. Firms can match supply and demand using mobile technology that connects truck drivers to last-mile freight orders to fill excess capacity and improve delivery efficiency. Continued advances in information and communications technology improves data collection and analysis capacities of logistics firms, enabling faster, more accurate freight routes, travel times, and overall infrastructure capacity. These innovations may reduce the impact of the growing demand on the capacity of our freight transportation system. However, improved technology like GPS may lead to efficient routes that take drivers through constrained roads not designed to handle freight traffic, creating a safety hazard for truckers, roadway users, and existing infrastructure.

Advances in automation, including fully and partially automated trucks and freight-transfer facilities, may also transform the freight industry. While this will not be a short-term transition, automation trucks is already being tested on roads throughout the country. In a practice known as truck platooning or truck trains, partially automated trucks travel closely to improve fuel efficiency and improve safety by using sensor s to allow one truck to communicate with another. In some ways, this technology can improve reliability and increase freight volumes, but it also has the potential to increase congestion by putting more trucks on the roadways. This form of technology can be challenging in terrain that exists in Western North Carolina (WNC), where roadways are constrained and geography is not consistent. Advanced automation technology relies on consistency, which proves problematic for arterials or secondary routes that may not be kept up to strict maintenance standards or have uniform striping or signage.

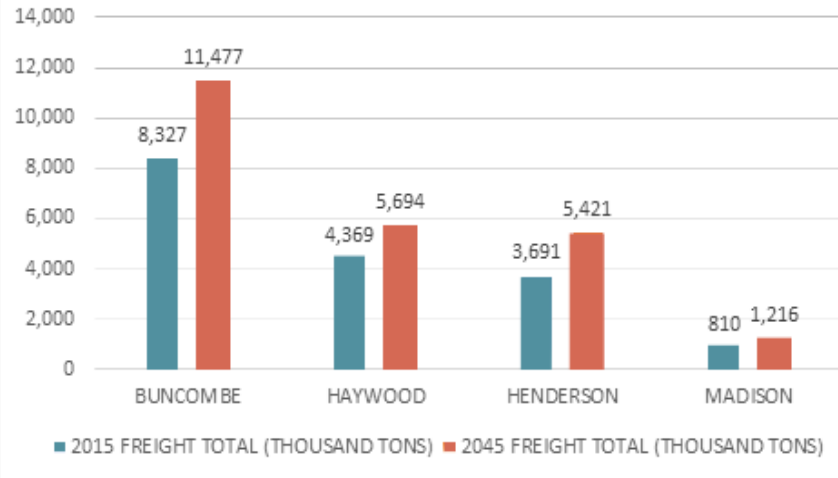
Table 3.4: NC Freight Tonnage and Value

North Carolina Freight Tonnage and Value		
2015	2045	
Thousand Tons	Thousand Tons	% Change
240,004	376,776	57%
Value USD (Millions)	Value USD (Millions)	% Change
\$ 518,552	\$1,009,787	94%

Table 3.5: FBRMPO Counties Freight

FBRMPO Counties Freight (Thousand Tons)			
County	2015	2045	%Change
Buncombe	8,327	11,477	27.4%
Haywood	4,369	5,694	23.3%
Henderson	3,691	5,421	31.9%
Madison	810	1,126	33.4%

Figure 3.7: Freight Growth 2015-2045



Freight directly affects the economy of the FBRMPO region. Like many areas throughout North Carolina, the FBRMPO region is in a period of economic transition as traditional textile plants and industry yield to businesses developing plastics, ceramics, and recreation equipment. The food, beverage, and biotech industries continue to see growth alongside population growth; these industries require the shipment of goods into and out of the region.

In November 2016, the French Broad River MPO held a regional freight meeting to discuss concerns and issues for freight in the region. 18 participants attended the meeting representing various businesses including manufacturing, government and food and beverage manufacturing, in addition to French Broad River MPO/Land of Sky staff. This group identified that their inbound and outbound freight volumes were projected to increase over the next five years. Table 3.6 verifies this expectation as freight volumes have increased through the region between 2012 and 2017. The stakeholders also identified that a majority of their freight comes from the Charleston, SC port, but occasionally from Savannah and Wilmington. Opportunities for improvement and recommendations identified by this group are referenced in the recommendations section below.

Highway freight is the primary means by which goods move through the FBRMPO region. It is the nature of transportation networks that they cross boundaries. As shown above, trucks play a major role in the region and given that freight volumes are expected to increase 23-33% region wide between 2015-2045, the region needs to strategically plan for how to handle these increased volumes. Interstate 40 (running East to West for 55 miles through Buncombe and Haywood) and Interstate 26 (running 40 miles geographically North to South through Madison, Buncombe, and Henderson counties) comprise the two major thoroughfares that are designated as part of the National Highway Freight Network (see table below). These two major interstates connect the aforementioned ports on the Gulf and the East Coast to destinations along the Ohio River Valley. In addition to high volumes of freight on these routes, I-40 and I-26 also carry the principal amount of congestion in the region.

- I-40 brings freight into and through the region through Buncombe and Haywood counties. The major freight movements occur on the segment west of Asheville, continuing through Haywood County and up through Tennessee. During times of congestion due to construction or crashes on I-40, US-70 serves as an alternative

Table 3.6: FBRMPO Interstate Freight Traffic Volume

French Broad River MPO Interstate Freight Traffic Volume					
Route	Location	County	2017 AADTT - Estimated Daily Truck Volume (High to Low)	Daily Truck Traffic %	2012 AADTT
I-40	W of I-26/I-40/I-240 Interchange	Buncombe	9260	10.4%	8440
I-40	W of US 19/23/74 - Asheville Exit	Buncombe	8770	16.6%	8650
I-26	E of US 64 - Hendersonville	Henderson	8570	13.2%	6650
I-40	E of NC 215 - Canton	Haywood	6800	14.4%	8230
I-40	W of Wiggins Road	Buncombe	8350	14.6%	8360
I-40	W of Buncombe/Haywood County Line	Haywood	8350	14.6%	8260
I-26	E of Airport Road exit	Henderson	8330	12.0%	6510
I-26	W of US 25/Asheville Highway Exit	Henderson	8330	12.1%	6500
I-40	E of I-40/US 23 Interchange - Clyde	Haywood	8320	14.6%	8150
I-26	W of US 64 - Hendersonville	Henderson	8150	12.2%	6230

route. A few distribution plants serve freight traffic on this corridor, especially between Black Mountain and Swannanoa.

- I-26 carries freight coming westbound from Charleston and Savannah ports, using the I-40/I-26/I-240 interchange to continue westward on I-40. That interchange sees high roadway volumes, truck volumes, and is the connection between three interstate-corridors, leading to congestion and becoming a "pinch point" for freight trying to move through the region. NCDOT's project I-2513C is scheduled for construction in 2025 to address this interchange and the surrounding highways to improve mobility.

A continued increase in overall freight growth throughout the region is predicted through 2045. Urban freeways and arterials have become increasingly congested, which is expected to persist. Trucks lose time and freight reliability in the midst of congestion.

Additionally, truck freight takes a major toll on the health of a roadway system, especially in a region where trucks are the primary freight mode. This leads to major wear and tear on major roads, causing local divisions to re-pave and perform costly maintenance more often. The effects of trucks on roads are even more noticeable on secondary routes such as NC-112 (Sardis Road), as even low levels of freight adversely affect pavement which was not designed to withstand higher truck volumes. The lifespan and pavement condition of these roads quickly deteriorates.

Freight flows in the region are driven by the manufacturing base and by freight moving through the region from ports to the south and to the east. The recent widening of the Panama Canal has enabled larger ocean-going vessels to reach ports in the gulf and east coast ports. This includes the cities of Charleston, Savannah, and Wilmington, who send a significant amount of their freight through Western North Carolina. Looking at freight flows in the region, it is apparent that a majority of trucks move through the I-26 section of Henderson County, turn west on I-40 in Buncombe County, and then go through the I-40 Pigeon River gorge in Haywood County (or vice-versa)²². From here, the majority of freight continues up to Knoxville where it splits and part of it heads north into the Ohio Valley on I-75, and the other part continues westward on I-40 through Tennessee. FHWA projects an increase in volume out to 2045 using this same network. As a point of comparison,

I-26 in north Henderson county sees an annual average daily traffic truck (AADTT) volume of 8,330, with 6,440 AADTT on the I-40 section through the gorge in Haywood County. The section of I-40 near Black Mountain entering Buncombe county from the east averages around 1,910 AADTT, which is just a fraction of the freight volumes on I-26.

As shown in the Table XX, a majority of goods are being imported versus exported into the region. This emphasizes the need for projects that incorporate freight needs on arterials and secondary routes where trucks may travel to reach their destinations. One example of this is a new route and interchange being constructed off I-40 near Black Mountain, in order to access a technology facility. By incorporating freight needs in design and construction of arterials, local roads will experience less wear and tear, thus increasing longevity and improving freight access as trucks can utilize improved roads.

The establishment of truck networks to help move freight through the nation as efficiently and safely as possible was originally mandated in 1982 as part of federal transportation legislation and was most recently updated in North Carolina in 2015. The National Highway Freight Network includes I-40 and parts of I-26 in the FBRMPO region. Trucks following these routes are traveling on roads typically built to NCDOT standards and have limited access, meaning the highways/interstates used minimize drive time.

Freight parking has also become a concern throughout the FBRMPO region, North Carolina, and the U.S. for truck drivers, motor carriers, truck facility operators, and public officials. Tired drivers are the leading cause of truck crashes, highlighting the importance of maintaining public rest areas and having adequate, safe truck parking areas. Approximately 20% of all crashes and 12% of all near-crashes are caused by tired truck drivers.²³ Jason's Law was established as part of federal legislation in 2012 to provide long-term parking for commercial motor vehicles in response to the shortages occurring nationwide. FHWA issued an updated survey in 2018 to better understand the capability of transportation agencies in providing adequate facilities.

NCDOT released a [Statewide Freight Plan study](#) in 2017, which observed truck parking to provide an analysis of off-road truck parking and offer solutions to better serve freight transportation. The study proposed that a weigh station could serve truck parking given that there are no truck parking facilities nearby and that the location is

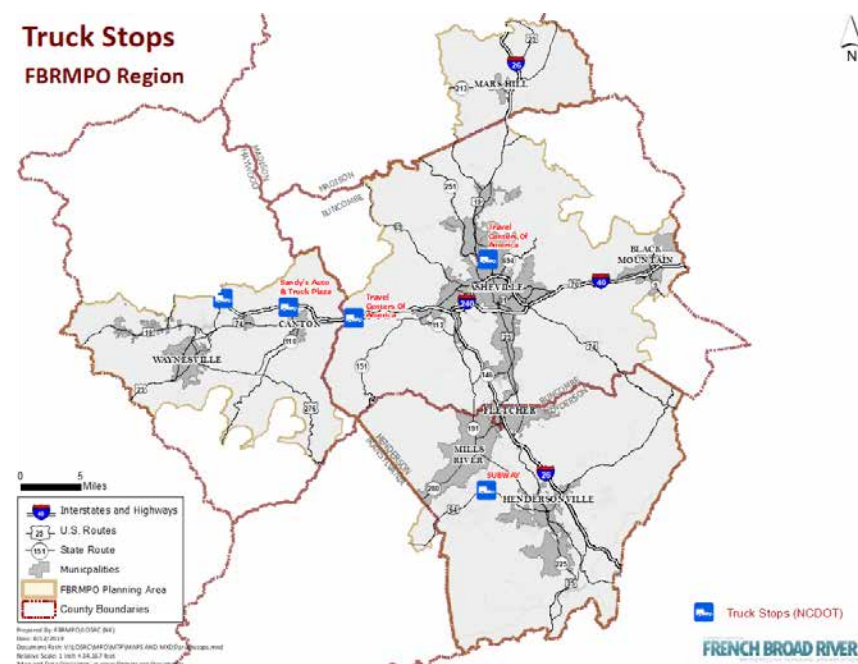
on a main freight corridor. It is a known issue that there is insufficient parking for overnight trips. This is particularly true given the sporadic locations of truck parking in the FBRMPO region. This has led to trucks parking illegally and dangerously on the shoulders of roads, onramps, exit ramps and private parking lots. In addition to the safety hazard of trucks being parked illegally, they also become liable to be ticketed or towed. The weigh station on I-26 is a good candidate for expansion to accommodate truck parking, but the study cited that it was too small to accommodate more than 2 or 3 trucks overnight. To expand parking, additional right-of-way would likely have to be purchased at this site. Along the I-40 stretch, the study showed that the closest available truck parking space was near Winston-Salem (145 miles away) because the ones in the FBRMPO region were cited as full. Some truck parking spaces do not have utilization information though they are often anecdotally reported as full. Near Candler along I-40, the travel center is ranked 9th in the state for top truck parking with 29 stopped trucks per 1,000.

Providing adequate and safe parking for trucks will likely require partnerships on both the public and private side. Some of the findings that could be used in this region are outlined in the freight plan including:

- **Partner with Truck Travel Centers seeking to expand facilities.** It was noted that the private sector controls 85 percent of truck parking in the state. Having a formalized partnership between NCDOT and travel centers would allow capital funding for maintaining existing operations, retrofitting older facilities and expanding or building new parking locations.
- **Employ technology solutions.** Utilizing existing technology has the potential to significantly improve the parking situation in the state. In order to help drivers plan their rest periods ahead of time, fixed and variable signage indicating available parking would be a low-cost solution. Other communication systems such as web-based or smartphone applications to crowd-source available parking has proven reliable elsewhere.
- Convene a Standing Truck Parking Committee. This statewide committee could help oversee the implementation of study recommendations and develop a plan to detail the actions and resources required to execute the plan.
- Coordinate with Metropolitan Planning Organizations (MPOs)

and Rural Planning Organizations (RPOs) to develop guidelines and mitigation strategies aimed at easing public opposition to private truck parking facilities. This would include mitigating public opposition to truck parking with local municipalities. As new businesses develop, the MPO can help ensure adequate truck parking and access is part of the development design process. Engaging private sector representatives and having them participate in the MPO process is important to be sure their concerns are discussed.

Map 3.7: Truck Stops



Challenges

Having provided an overview of freight planning and the current state of freight networks throughout the FBRMPO region, the following summarize some of the primary challenges that freight faces in the region:

Roads are not all adequately built to support freight. Secondary routes, especially, are not built to support truck traffic; however, as technology advances and operators rely on GPS to take them to their destination quickly, secondary roads become increasingly utilized

by trucks. Even low levels of freight can negatively affect pavement. Potholes, broken pavement, and road debris pose a public safety hazard when they prevent safe roadway navigation.

Terrain and weather challenges truck movement. Steep mountainsides, sharp curves, and adverse weather create difficult passage for freight. In February 2019, a rockslide shut down all of I-40 through the Pigeon River Gorge for five days, leading to a major detour and economic toll for a section of the roadway that serves 6,400 trucks a day. Repairs were made so that the roadway was fully open a few months later, but the economic fall-out from the delays and detours were far-reaching as no alternative routes could conveniently serve freight traffic.

Increased crashes on the road as a result of increased freight activity. As congestion on the roads increases, so do crashes on roadways. For a five-year period between 2014-2018, there was a total of 3,144 crashes involving a truck in the five county region.²⁴ It is worth noting that there were 707 truck-involved crashes in 2018 compared to 493 in 2014. This accounts for 4.1% of all vehicle crashes in the region. These crashes resulted in 46 fatal or disabling injuries, which makes up 5.4% of all crashes of that severity. It is also important to note that those statistics are still significantly less than the U.S. average, where about 12% of all motor vehicle fatalities involve trucks.²⁵

Lack of truck parking in the region. Truck parking serves the vital purpose of providing respite for drivers completing lengthy routes. Approximately 20% of crashes and 12% of all near-crashes are caused by tired truck drivers.²⁶ In the FBRMPO region, the lack of truck parking is well-known. Existing truck parking locations are sporadic and few. The Statewide Freight Plan study recommended partnering with truck travel centers to expand facilities, employing technological solutions, convening a standing truck parking committee, and coordinating with MPOs and RPOs to develop guidelines and mitigation strategies aimed at easing public opposition to private truck parking facilities.

Recommendations

Considering the existing state of the freight network and the challenges faced in the FBRMPO region, the following recommendations are to be considered:

- Prioritize freight needs on secondary roads
- Improve signage throughout the region to encourage use of freight corridors
- Review and update thru-truck movement prohibitions
- Review the improvements on main thoroughfares with freight stakeholders such as manufacturers, truck companies, and municipal officials
- Improve and increase availability of truck parking
- Coordinate MPO and RPO to develop mitigation strategies to ease opposition to truck parking facilities
- Utilize existing technology to improve freight movement and problems.
- Increase mitigation measures and preventative repairs along major corridors to ensure efficient and safe freight movement throughout the region.
- Incorporate ample lane width and adequate turning radii into TIP improvement projects near industrial parks and manufacturers
- The following recommendations results from the regional freight workshop held in 2016:
 - As larger infrastructure projects including widenings and interchange improvements take place, consider construction at night and during non-peak hours to reduce traffic impacts
 - Coordination and communication to increase backhauls (returning to the origin with freight versus an empty load)
 - Address driver shortages
 - Enforcement and visibility of highway patrol needed for trucks and motorists

¹⁹ <https://www.fhwa.dot.gov/tea21/summary.htm>

²⁰ <https://www.transportation.gov/fastact/freight-factsheet>

²¹ https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

²² https://ops.fhwa.dot.gov/freight/freight_analysis/state_info/north_carolina/truckflow.htm

²³ https://connect.ncdot.gov/projects/planning/Statewide-Freight-Plan/Documents/Truck_Parking_Study_Final.pdf

²⁴ <https://ncvisionzero.org/visualizations/crashquerytool>

²⁵ <https://www.fmcsa.dot.gov/safety/data-and-statistics/large-truck-and-bus-crash-facts-2017>

²⁶ https://connect.ncdot.gov/projects/planning/Statewide-Freight-Plan/Documents/Truck_Parking_Study_Final.pdf

THE ENVIRONMENT & RESILIENCY

Definition

Resiliency refers to “the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.”²⁷ In the world of transportation, resilience also incorporates “reducing vulnerability and ensuring redundancy and reliability to meet essential travel needs”²⁸ and making sure that a system can “quickly respond to unexpected conditions and return to its usual operational state”²⁹. It is challenging to measure resilience proactively; however, in the wake of extreme weather and public health crises, including resilience in long-range transportation plans becomes more important. Resilience planning is also essential for equitable responses to disruptions. Natural disasters, vulnerabilities, and other events that disrupt transportation often produce disparate effects on disadvantaged populations. It is important to consider the way resiliency planning will affect various communities.

Current Efforts/Conditions

Rural and remote parts of the French Broad River MPO region can be difficult to access when natural disasters such as rock slides and land slides strike. Increased rainfall and development on slopes has increased the portion of the region susceptible to natural disasters. When the road network is limited, first responders face greater challenges. A flooded road can result in a lengthy detour that can be fatal when police, fire, or paramedics are trying to respond to an emergency. In addition to natural disasters, the French Broad River MPO aims to be resilient through other security threats. Buncombe, Haywood, Henderson, and Madison Counties have adopted Hazard Mitigation Plans. These plans were developed in coordination with transportation, law enforcement, planning, and other operational agencies within each county. Additionally, each county operates emergency 9-1-1 communications systems. This is critical in order to prevent the occurrence of street naming and address conflicts that can impact emergency response times.

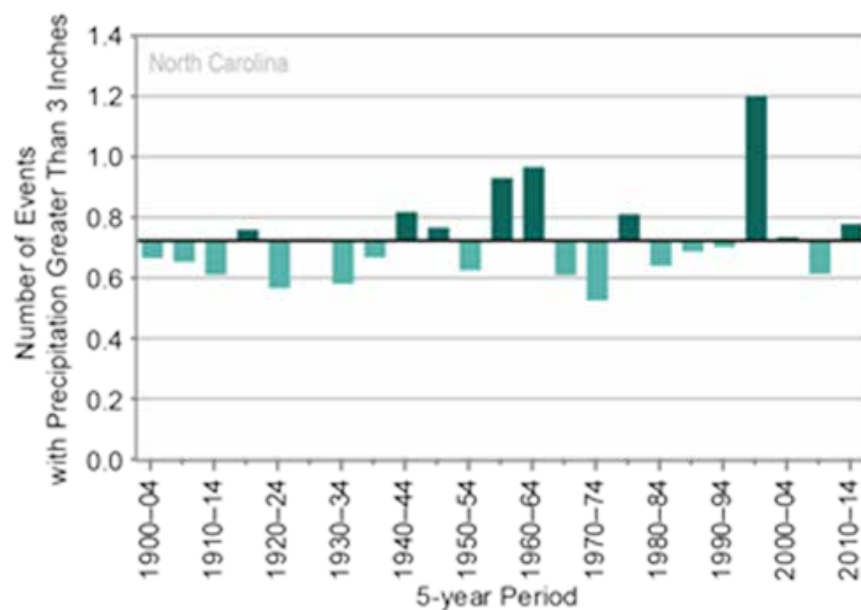
Vulnerabilities

- **Flooding** - The mountains and steep slopes contribute to floodplain development in and along rivers and streams. This land use patterns results in higher occurrences of flooding for structures and transportation facilities. Flooding leads to extensive road closures, bridge failures, and expensive damage. Local government land use planners, emergency managers, NCDOT,

NC Department of Environment and Natural Resources, and other stakeholders work to identify potential impacts and seek solutions or redesign opportunities

- **Slope Failure/Rock Slides** - The region's mountainous terrain leads to a prevalence of roads in steep, narrow valleys subject to rockslides or slope failures. I-40 in the Pigeon River Gorge is particularly concerning, since there have been numerous landslides resulting in road closure, traffic re-routing, and slope stabilization. Chronic problems like that highlight the importance of considering safety from rock slides.
- **Wildfires** - Wildfires disturb ecosystems and create negative impacts on communities. Wildfires become more likely in drought conditions and can have more extreme impacts when there is a lack of fuel management and vegetation.
- **Wildlife Collisions** - Wildlife crashes occur in the urbanized area, as it is located close to large areas of preserved natural land and critical wildlife corridors. MPO staff consider innovative techniques to accommodate wildlife to reduce danger to drivers and at-risk wildlife.

Figure 3.8: Observed Number of Extreme Precipitation Events



Roadway Impacts on the Environment

While the environment can have major impacts on the region's transportation network through flooding, wildfire, and landslides, the transportation network can also have a major impact on the environment. Better planning to reduce and mitigate impacts on the environment are especially important given the natural assets of the region. One of the major assets of Western North Carolina is its pristine waterways, highlighted by the presence of trout streams. Trout require cool, unpolluted streams to prosper and propagate. The presence of trout in Western North Carolina illustrates the work that has gone into environmental protection from communities and non-profits in the region.

To help maintain these pristine waterways, more can be done to reduce stormwater impacts from roadways. As rain falls on roadways, the water is carried into either a ditch or a curb and gutter system and eventually makes it way into nearby creeks, streams, and rivers- often carrying pollutants that accumulate on the roadbed. The stormwater can negatively impact through two primary means: (1) transmitting unmitigated pollutants into the region's waterways; and (2) increasing the flow of stormwater into creeks, streams, and rivers that causes erosion and warms water. While NCDOT and other agencies bear the brunt of responsibility to make sure stormwater impacts are minimized, but more can be done in planning to make sure projects are properly scoped to include stormwater mitigation elements and cost estimates reflect any additional work required.



Roadways also play a major impact on wildlife movements in and around the region. Non-profits and land conservancies have played a major role in mapping wildlife migration patterns, including elk, black bear, and deer, and have found numerous conflict points on major roads including I-40, I-26, US 74A, and US 19. While some work has been done in the region, especially on I-40 and I-26, to provide better wildlife crossings, numerous collisions happen every year involving wildlife. I-26 Wildlife Crossing in Madison County, GroWNC Regional PlanAs projects are scoped and developed, more can be done to improve the safety of known wildlife areas for the protection of the wildlife as well as roadway users.

Ongoing Efforts

Land of Sky Regional Council currently operates an on-going resiliency effort to analyze asset/threat pairings throughout the region. The Land of Sky Regional Council based its analysis on the best available information for specific threats and assets in the region, presenting quantitative results based on data with uncertainties and assumptions³⁰.

NCDOT has a resiliency committee that is organized at the state level.

Challenges

Geographic and network constraints limit the easily accessible alternate routes. The lack of a grid system inherently limits the facility of planning for emergencies such as evacuation routes. For example, the Duke Energy natural gas plant is the only power plant in the region and is also located near a major highway. In the case of an emergency such as an explosion at the plant, access to I-26 would be critical and might be restricted.

Resilience planning must continuously evolve, directly anticipate failure, be inclusive, and integrate across the transportation network. Planning for resiliency requires a comprehensive and holistic approach, considering every angle and collaborating with community groups and various agencies for the best outcome. It requires a systems-level perspective, which can be challenging because different organizations have different goals. Because there is not a one-size-fits-all approach to resilience, strong communication and cross-sector planning is crucial.

Natural disasters cannot truly be anticipated or predicted—such as infectious diseases. Existing Hazard Mitigation Plans in the region need to be updated, especially in the wake of the COVID-19 pandemic. The North Carolina Hazard Mitigation Plan, updated in 2018, included infectious diseases in their risk assessment. It seems prudent for counties in the French Broad River MPO region to update their plans by referencing the North Carolina Hazard Mitigation Plan. Ultimately, public health threats can occur anytime, so professionals in the field of public health should be included in the conversations regarding response.

Resiliency planning requires a big imagination to plan for any and every possible disaster.

Recommendations

We must (a) find a way to rank resiliency issues as they relate to transportation, (b) determine how to prioritize projects whose main purpose is to address resiliency issues.

- Conduct a vulnerability assessment to create a foundation for a regionwide Hazard Mitigation Plan.
- Include resiliency in scoring projects to make sure that security components are explicitly addressed.
 - Create or maintain alternate routes to key transportation corridors, and repair and replace bridges that serve as major connection points or could be targets.
- Consider identifying metrics to measure resilience based on the components of **robustness** (measured by hours of congestion, travel time index, pavement condition, and volume of congestion), **redundancy** (measured by distance to alternate routes, percentage of corridor with alternate routes, congestion on alternate routes, adjacent park-and-ride lots, availability of alternate routes, and transit alternatives), **resourcefulness** (measured by average incident duration, funding availability, variable message signs, use of alternate routes, weather mitigation capability, and construction projects), and **rapidity** (measured by average construction project duration and time until reopened).
- Encourage transit operators to have plans in place to respond to epidemics and public health emergencies.

- Work with state and local partners to identify and secure funding for recurring hotspots for natural disasters like mudslides, debris flow, and flood prone roadways.
- Address gaps in local and statewide plans for emergency planning and security elements as it relates to transportation.
- Work with transit agencies to identify and implement security measures at the appropriate scale for their fleet based on ongoing research, including identifying and securing funding for communications technology such as automated vehicle locator systems and security cameras.
- Identify transportation system elements for evacuation planning including key roadway corridors and the use of transit vehicles to evacuate all roadway users.

²⁷ SDOT, Federal Highway Administration. (2014). FHWA Order 5520: Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events. Retrieved from <https://www.fhwa.dot.gov/legregs/directives/orders/5520.cfm>.

²⁸ Minnesota DOT. (January, 2017). Minnesota Statewide Multimodal Transportation Plan: 2017 to 2036. Pp. 90. Retrieved from http://minnesotago.org/application/files/2614/8614/1428/SMTP_PlanAppendices_Final_Jan2017_small.pdf

²⁹ Wisconsin DOT. (2009). Connections 2030: Statewide Long-Range Transportation Plan. Pp. 9-2. Retrieved from <https://wisconsin.dot.gov/Documents/projects/multimodal/conn2030/2030-g.pdf>

³⁰ Hall, N., Fox, J., and D. Michelson. Economic Resilience Exposure Analysis: Phase 1 Report for the Land of Sky Regional Council. Asheville, NC: UNC Asheville's National Environmental Modeling and Analysis Center, June 2018. Retrieved from http://www.landofsky.org/pdf/LGS/LOS_Resilience_Exposure_Phase1_Report.pdf.

PUBLIC TRANSIT

Public transit creates mobility choices for everyone in a community, especially for underserved populations such as the elderly, differently abled, and economically disadvantaged. Transit is an efficient, low-cost, high-capacity way to connect people to services, which supports the economy, improves the quality of life for a community, facilitates freight movement, and reduces environmental impacts. Throughout the French Broad River MPO region, 90-100% of public transit riders are transit dependent, highlighting the importance of renewing the commitment to equitable transit that attracts new riders.

For every dollar invested in public transit, it is estimated that \$4 are generated in economic returns, and approximately 50,000 jobs are created with every \$1 billion investment.³¹ Transit riders save on transportation costs annually, which are estimated to be the second highest costs to U.S. residents after housing.³² In addition to the economic and cost-saving benefits, public transit offers a safer form of mobility than SOVs. According to APTA, transit trips are 10 times

Figure 3.9: Transit Flowchart

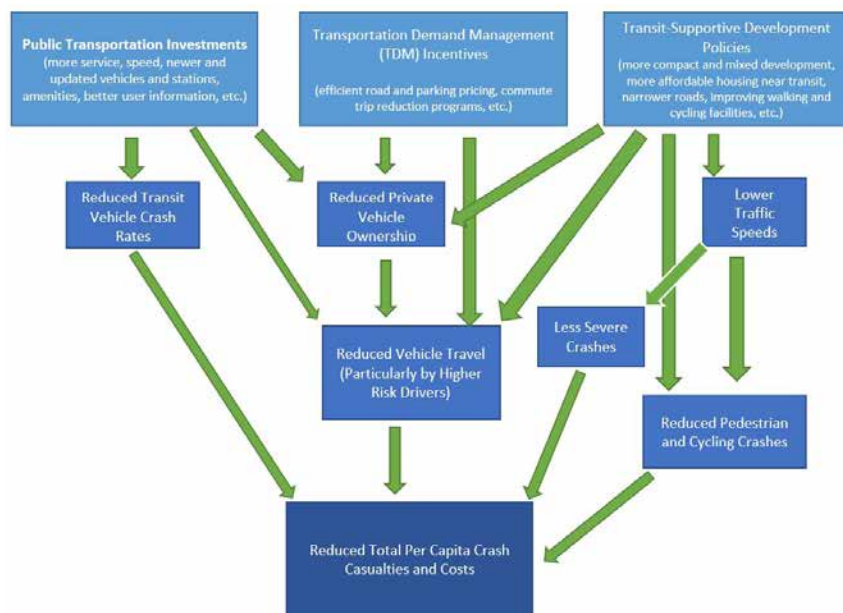
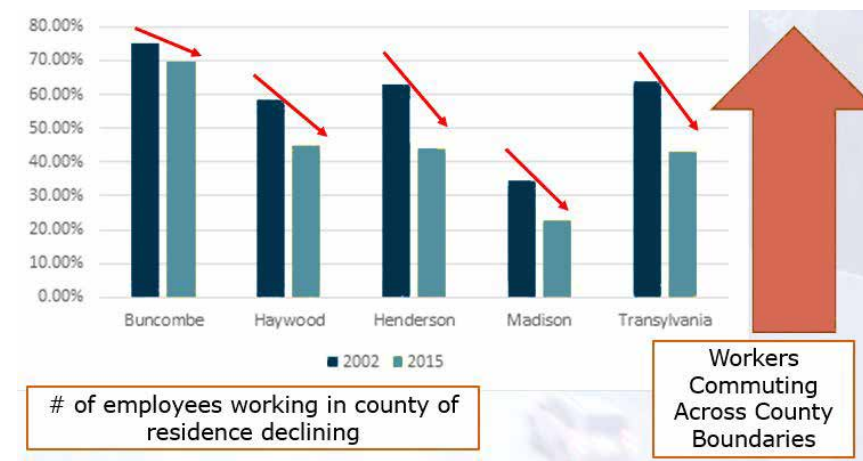


Figure 3.10: Residents Living and Working in the Same County



safer per mile than car trips, because of the urban design features that increase ridership and decrease higher-risk drivers.³³

Public transit positively affects community health outcomes. SOVs encourage sedentary behavior, which contributes to lifestyle-related illness such as diabetes, obesity, and cardiovascular problems. By opting to take transit, physical activity is necessarily increased, which impacts health outcomes.³⁴ Since transit is a high-capacity form of transporting people, it offers the potential to reduce traffic congestion and in turn reduce air pollution caused by idling vehicles.

Current Conditions

The French Broad River MPO region's population is increasing by 1.4% per year, which will lead to more vehicles on the road, increased congestion, and potentially new transit riders.³⁵ The number of residents that commute across counties for work is also growing. Based on 2017 data, 28,988 individuals from surrounding counties drive to Buncombe County for work each day and 10,659 people commute from Buncombe County to surrounding counties daily.³⁶

Meanwhile, the demography of the region indicates that the older adult population is growing, which indicates the future need for improved paratransit services. Considering commuting patterns and changing demographics is essential in planning the future of transit.

Since the publication of the 2040 MTP, there have been many ongoing initiatives taken in the realm of public transit throughout the French Broad River MPO region including:

- **Regional Transit Feasibility Study.** As recommended in the 2040 MTP, a Regional Transit Feasibility Study is in the early stages of development. In early 2020, the French Broad River MPO issued an RFQ for this study, which will analyze opportunities for the establishment of a Regional Transit Authority to provide cross-county transit routes.
- **Asheville Transit Master Plan (2018).** The City of Asheville updated the Transit Master Plan, aimed to serve as a guide on topics like how and where ART would provide service while ensuring safety, convenience, and accessibility in public transportation for all residents, workers, and visitors. The plan provides a vision for long term service expansion and infrastructure needs. The first changes based on the updated TMP occur in FY2020—extension of service hours on all routes until 10:30pm on Sundays and holidays, extension of service hours on all routes to 10pm on weekdays and Saturdays, expansion of service to operate 365 days a year, route changes, and Fare Free Weekend throughout FY 2020.
- **Asheville in Motion (AIM).** The underlying philosophy guiding this 2016 mobility plan is the idea that vitality, growth, and quality of life are “best achieved when community mobility is maximized.”³⁷ AIM provides a cohesive strategy and method for prioritizing transportation projects with the goal of improving multimodal connections by working with existing bicycle and transit plans. This plan positioned Asheville to gain success against defined goals and metrics that are understandable and align with residents' opinions.
- **Haywood County's URBAN Fixed Route.** Haywood Public Transit rolled out a new fixed route service, designed as a route where riders walk to the nearest stop. There are two routes: Black Bear EAST serves Clyde and Canton, Mountaineer WEST serves Waynesville and Hazelwood. Mountain Projects, Inc. serves as the Central Hub.
- **CTABs.** Each county in the French Broad River MPO region has County Transportation Advisory Board meetings at least once every quarter. These groups are comprised of representatives from public human service agencies, transportation providers, public and business sectors, and government representatives.

- **5307 Suballocation Study.** The French Broad River MPO completed an Urban Transit Funding Formula Study in 2017 that covered Buncombe, Haywood, and Henderson Counties, including the City of Asheville. After the 2010 census reduced 5311 rural transit funds in several counties, the question was raised about how to redistribute 5307 urban funding to accommodate the needs of Asheville, Buncombe, Henderson, and Haywood. One of the most significant results of this study was the decision to set aside a percentage of 5307 funds for Job Access Reverse Commute (JARC) and then allocate a percentage of those funds to Haywood County.
- **Statewide Locally Coordinated Plan.** In 2018, NCDOT published a Statewide LCP to satisfy Section 5310 programming requirements, achieve greater efficiency, leverage limited resources, and reduce barriers to transportation service by expanding mobility options.

Taking public transit in the French Broad River MPO region differs based on where you are and where you are going. Three systems manage a fixed-route, running on a designated route with a set schedule. The City of Asheville's transit system—Asheville Rides Transit (ART)—operates with the most frequency, with most routes running hourly. ART has a transit mobile application integrated with Google Maps, and provides real-time text updates. Haywood County (through Mountain Projects), Henderson County and Buncombe County operate fixed routes as well.

Each county in the French Broad River MPO region operate demand response transit that serves rural, elderly, and disabled populations. Demand-response service is shared transportation based on passenger demand rather than a schedule set on repeating the same route. In the most rural counties, demand response services are in high demand but with limited resources to provide services.

Fares for public transit vary based on the system. The table below shows the cost of standard, one-way fares in each system.

Buncombe County

The two systems within Buncombe County serve the largest population and make up a majority of trips in the region.

- Mountain Mobility, established in 1989, provides deviated fixed-route, demand response, and subscription services. There are

Table 3.7: Cost of Standard, One-Way Fares

Transit System	Standard, One-Way Fare
Asheville Redefines Transit	\$1.00
Mountain Mobility	\$0.50
Apple Country Transit	\$0.75
Haywood Public Transit	Haywood-Buncombe - \$3.00
Madison County Transportation Authority	Madison County - \$2.50 Weaverville - \$3.00 Asheville - \$6.00

currently three deviated fixed routes called Trailblazer Routes that run to Black Mountain, Enka-Candler, and North Buncombe. Mountain Mobility also offers ADA paratransit in the City of Asheville within $\frac{3}{4}$ miles of ART fixed routes. In 2018, Mountain Mobility completed 131,689 unlinked trips, or total boardings on individual vehicles.³⁸

- Asheville Rides Transit boasts the most extensive fixed-route service in the region. ART currently operates 17 routes that run 6 days a week—8 of those routes also run on Sundays. The routes begin and end at a central location in downtown Asheville. In 2018, ART provided 1.9 million unlinked trips.³⁹

Haywood County

- Haywood Public Transit contracts with Mountain Projects, Inc., a nonprofit organization, to provide demand response service throughout Haywood County and to Buncombe County. Haywood Public Transit launched the URBAN Fixed Route with two separate routes throughout Haywood County.

Henderson County

- Henderson County maintains two cooperative transit services—Apple Country Public Transit, which is managed by the County, and Apple Country Transportation, which provides rural transit services through Western Carolina Community Action (WCCA.) Apple Country Public Transit provides urban fixed-route transit service with complimentary paratransit, including a route that connects to Asheville Rides Transit (ART) near the Asheville Regional Airport.

Apple Country Transportation maintains rural demand-response transit services, independent of the County."

Madison County

- Madison County Transportation Authority provides county-wide demand response service, working closely with senior-care providers to offer transportation for individuals seeking medical care and general on-demand trips.

Challenges

The transportation systems in the French Broad River MPO region face challenges that highlight the need for connected, reliable, and quality public transit. These challenges can be addressed in part by implementing transit capital investments, improving service, and introducing transit-supportive policy to move people along corridors and improve regional connectivity.

Population growth carries numerous implications for transportation development. Growth presents both opportunities and challenges for transportation development that can be addressed through implementing capital transit investments, improving service, and creating transit-supportive policies to move more people along corridors and to improve regional connectivity. As the population grows, so does roadway use, VMTs, and drivers. This leads to higher demand on all modes of transportation, increased congestion, and increased demand for alternative modes of transportation. Public transportation creates the opportunity to reduce the necessity of separate trips by SOV in urban areas. In the face of growth, transit becomes the most efficient mode of transportation provided that a system operates with enough frequency and reliability. Urban areas are growing more quickly than rural areas. According to the North Carolina Office of State Budget and Management, 51.5% of population growth from 2019-2038 will be concentrated in Divisions 5 and 10 (Raleigh-Durham and Charlotte)⁴⁰. Thus, transportation planners must adjust and guide travel demand to avoid being overwhelmed with more roads, traffic, and emissions as a result of geographic preferences. Traffic volumes are growing faster than facilities, so determining policies and best practices for improving transit should be determined.

Financial constraints limit transportation planning and expansion. Transportation funding is not sufficient to meet demand in many places. Funding shortfalls pose a problem for public transportation.

There has been a decrease in the purchasing power of federal gas tax revenue due to inflation, more fuel efficient cars, and the fact that the gas tax has remained unchanged since 1993. Additionally, operating expenses have increased 39.8% since 2009 (NTD). As funding and ridership decrease, it becomes harder to maintain current levels of service and limits potential service expansion. However, creative funding mechanisms can be employed to address transportation-funding shortfalls.

Ridership has decreased in recent years. Many transit agencies across the country have seen decreases in ridership over the last several years and that trend can be seen in transit ridership in the French Broad River MPO. There are several ideas for why this is happening from limited transit resources becoming stretched too thin to increases prosperity leading to more people buying cars and not utilizing transit as much.

Table 3.8: 2014-2018 Annual NTD Ridership Data

2014-2018 Annual NTD Ridership Data					
	Asheville	Buncombe	Haywood	Henderson	Madison
2014	1,430,959	162,100	37,414	108,282	25,038
2015	1,458,306	165,382	39,992	110,611	23,892
2016	2,135,879	158,940	39,649	100,963	15,949
2017	2,125,214	146,079	38,132	90,829	18,332
2018	1,964,451	131,689	31,925	76,541	18,569

*Numbers derive from NTD data and county reporting.⁴¹

Cross-County Trips By Transit Can be Lengthy. As employment centers and residential nodes crop up in areas without reliable transit, this challenge becomes more pressing. The MPO continues to hold meetings with the Transit Operators Workgroup in order to facilitate conversation and cooperation between counties. Additionally, the MPO will begin the process of conducting a Regional Transit Feasibility Study in order to gain insight into potential efforts that can be made to facilitate cross-county transit routes.

Recommendations

- Increase coordination between transit agencies
- Complete Regional Transit Feasibility Study and consider the development of a Regional Transit Authority.
- Continue conversations with regional transit operators regarding how to best serve people throughout the entire French Broad River MPO region.
- Maintain and improve existing public transit services.
 - Add more park and ride lots.
 - Consider transit partnerships with employers to reduce congestion in central business districts.
 - Improve walkability and bikeability alongside transit improvements to address "first and last mile" trips that are currently unsafe near transit stops that lack bike/pedestrian infrastructure.
- Enhance convenience, attractiveness, and efficiency of service.
 - Study feasibility of fare-free service.
 - Increase frequency—ideally to every 15 minutes for fixed route service on high demand corridors.
 - Utilize tactical outreach to appeal to more potential riders.
- Explicitly consider transit in land use planning and development.
 - Continue conversations with land use planners throughout the region to determine how to work in tandem and more effectively plan transportation infrastructure.
- Consider reviving a streetcar in Asheville.
 - Since the infrastructure existed in Asheville until 1934, resuming a service that caters to tourists and downtown movements could serve to further decrease the number of cars within the city, attract more visitors to the region, and encourage locals to try public transit.

³¹ National Express Transit (2017, July 18). 9 Benefits of Public Transit. Retrieved from [nationalexpresstransit.com](https://www.nationalexpresstransit.com/blog/9-benefits-of-public-transportation): <https://www.nationalexpresstransit.com/blog/9-benefits-of-public-transportation>

³² FHWA. (2017, May 16). Transportation and Housing Costs. Retrieved from [fhwa.dot.gov](https://www.fhwa.dot.gov/livability/fact_sheets/transandhousing.cfm): https://www.fhwa.dot.gov/livability/fact_sheets/transandhousing.cfm

³³ APTA. (2016). The Hidden Traffic Safety Solution: Public Transportation. Retrieved from [apta.com](https://www.apta.com/wp-content/uploads/Resources/2020/02/Final-Report_LandUseStudy_013020.pdf): https://www.apta.com/wp-content/uploads/Resources/2020/02/Final-Report_LandUseStudy_013020.pdf

³⁴ Margolis, J. (2015, Oct. 28). Why Taking the Bus is Better Than Walking for our Health than Driving. Economics <https://www.pri.org/stories/2015-10-28/why-taking-bus-better-our-health-driving>

³⁵ French Broad River MPO. (2020). Land Use Study. Retrieved from [frenchbroadrivermpo.org](http://frenchbroadrivermpo.org/wp-content/uploads/2020/02/Final-Report_LandUseStudy_013020.pdf): http://frenchbroadrivermpo.org/wp-content/uploads/2020/02/Final-Report_LandUseStudy_013020.pdf

³⁶ U.S. Census Bureau. (2017). LEHD Origin-Destination Employment Statistics (2002-2017) [computer file]. Washington, D.C.: U.S. Census Bureau, Longitudinal-Employer Household Dynamics Program [distributor], accessed on 12/19/19 at <https://ontheedge.ces.census.gov/LODES7.4> [version]

³⁷ City of Asheville. (2016). Asheville in Motion: City of Asheville Mobility Plan. Retrieved from <https://drive.google.com/file/d/1-CWm7GvxcCDu6UORlniakhWFDHdloCy/view>

³⁸ National Transit Database (2018) at <https://www.transit.dot.gov/ntd/transit-agency-profiles/buncombe-county>

³⁹ National Transit Database (2018) at <https://www.transit.dot.gov/ntd/transit-agency-profiles/city-asheville>

⁴⁰ North Carolina Office of State Budget and Management, Population Projections, Vintage 2018.

⁴¹ FOOTNOTE ABOUT APC DATA DIRECTING TO APPENDIX OR JUST SUMMARIZED HERE

BICYCLE/PEDESTRIAN

Walking and bicycling form critical pieces of the French Broad River MPO's region transportation system. Creating an integrated, multimodal strategy ensures a system wherein each mode of transportation supports the others, moving people and goods safely, effectively, and efficiently. Bicycle and pedestrian travel are localized modes of transportation. Thus, its infrastructure centers around nodes of activity. While roads were originally designed for pedestrian and equine travel, over the last century, communities throughout the U.S. have been designed and built for motorized transportation, leaving the needs of pedestrians and bicyclists inadequately addressed by creating a sprawling, disconnected street network.⁴²

The French Broad River MPO region boasts activity centers and cities that are inherent places for active transportation. Enhancing bicycle and pedestrian facility serves to improve accessibility of services, strengthen local economies, and increase tourism. An influx of growth in the region has led to a demand for better bicycle and pedestrian infrastructure. A 2011 study showed that bicycle/pedestrian infrastructure project investment created more jobs than projects for cars alone.⁴³ For every \$1 million invested in bike projects, 11.4 jobs were created—46% more jobs than road projects for cars. Small

business owners also ranked proximity and availability of open space and parks as the most important factor in choosing their location.⁴⁴ Investment in bicycle and pedestrian infrastructure also improves public health by reducing the environmental impact caused by SOVs and encouraging physical activity, which produces positive health outcomes in communities. Design contributes to an individual's transportation decisions, so prioritizing bicycle and pedestrian infrastructure could ultimately alter commuter patterns.

Current Conditions

Communities in the French Broad River MPO have placed a high-priority on improving bicycle and pedestrian infrastructure. Most local governments have adopted bicycle and pedestrian plans and the region has adopted the Blue Ridge Bike Plan, a bicycle plan that covers seven counties in Western North Carolina.

The interest in active transportation is a reflection of the region's character. The region is made-up of walkable downtowns, long hiking trails that stretch into the mountains, and extensive mountain bike networks that attract people from around the world. Residents and visitors want to enjoy the region's environment and outdoor assets—providing infrastructure that facilitates an active and sustainable lifestyle is a part of that.

However, while the region can be an exciting and enjoyable place to walk and bike, safety concerns are a major problem in the region. Bicycle and pedestrian crashes are trending distinctly upwards throughout the region and roadway fatalities disproportionately skew towards bicyclists and pedestrians. Between 2014 and 2018, roughly 15% of roadway fatalities in the five-county region involved bicyclists and pedestrians.

The disproportionate danger to people walking and biking also poses a problem with equity. The region has an aging population, both one that is encouraged to maintain or engage in an active lifestyle for individual health or may not be able to drive a vehicle anymore. The region also has a large population without access to vehicles, individuals with disabilities, and low-income households. These groups are more likely to make trips by walking and biking and require safe infrastructure to access services and destinations. With limited safe infrastructure for walking and biking in the region, individuals in these groups may either be limited in their ability to access jobs and services or may be risking themselves to make those trips.



Figure 3.11: Pedestrian Crashes in the 5-County Region

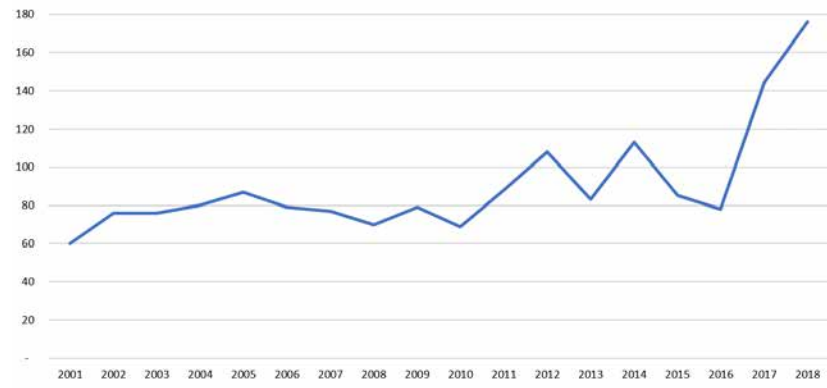
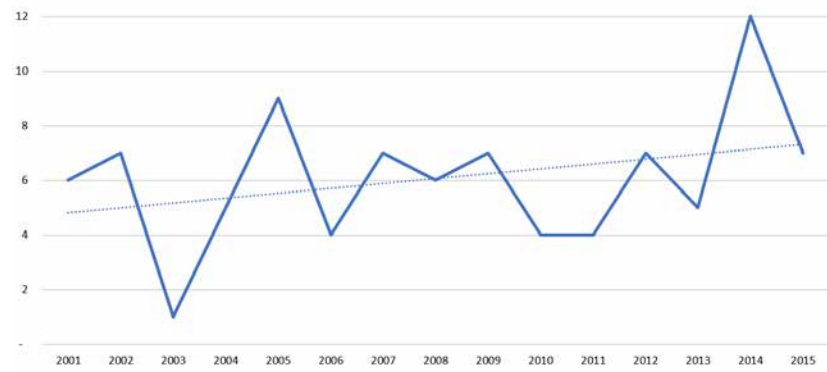
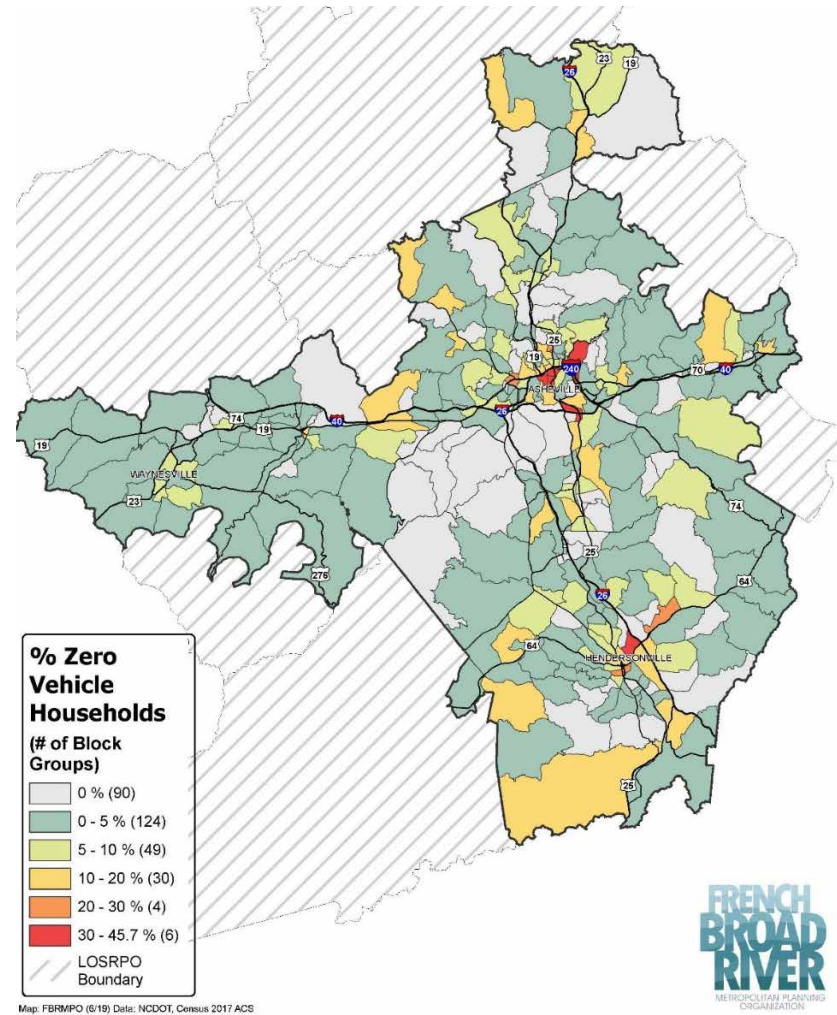


Figure 3.12: Pedestrian Fatalities in the 5-County Region



The equity issue is further exacerbated by the mechanisms for funding bicycle and pedestrian infrastructure in North Carolina and observed growth patterns. The vast majority of bicycle and pedestrian infrastructure in North Carolina resides within municipalities. There are no county roads in North Carolina and therefore counties don't generally have transportation departments. However, some of the most quickly growing parts of the region are in urbanizing parts of counties, just outside of municipalities. These were areas that used to fall under municipalities' extraterritorial jurisdictions (ETJs) that would often require sidewalks from developers before the area was annexed. However, annexation in North Carolina is a difficult endeavor and some communities no longer have ETJs. So in urbanizing parts

Map 3.8: Percent of Households: Zero Vehicle Households



of counties, this leaves residents much less likely to have safe infrastructure for walking and biking and a local government that has not historically provided transportation infrastructure. In those areas where housing is more affordable, more low-income residents are moving that may need to make trips by walking or biking. In sum, the places where many low-income residents are moving are the same places that are the least likely to accommodate affordable means of active transportation.

Pedestrian and bicycle infrastructure in the region can be extensive in places, but more is needed in order to provide a safe network that encourages residents and visitors to make trips by walking or biking. To date, there are 583 miles of sidewalks throughout the French Broad River MPO region, but only 15 miles of disconnected multi-use paths and one community with on-street bike lanes.

Growth patterns in the region also illustrate a problem with convenience that may deter many residents from making trips by walking or biking. Many areas that are growing the most quickly are not downtowns, but formerly rural areas being developed. In the US, these areas are often longer distances from jobs and services, lengths that are not normally covered by walking or biking.

Initiatives and Plans

Communities in the French Broad River MPO have invested heavily in planning for improved bicycle and pedestrian networks. Bicycle and pedestrian plans in our region include:

- Oklawaha Greenway Study
- Buncombe Greenway Master Plan
- Haywood County Comprehensive Bicycle Plan
- NC 280 Corridor Bikeway Study
- Ecusta Rail Trail Planning Study & Economic Impact Analysis
- Bent Creek Greenway Feasibility Study: Brevard Road/191 Corridor
- Blue Ridge Bike Plan
- Black Mountain Bike Plan
- Black Mountain Pedestrian Transportation Plan 2015 Update
- Waynesville Greenway Feasibility Study
- Waynesville Comprehensive Pedestrian Plan (2010)
- Henderson County Greenway Master Plan 2017
- Apple Country Greenways Plan
- Laurel Park Bicycle and Pedestrian Plan
- Asheville Pedestrian Master Plan
- Asheville Bike Share Study
- Asheville Bicycle Master Plan
- Asheville-in-Motion Multimodal Plan
- Hendersonville Bicycle Plan
- Hendersonville Pedestrian Plan
- Fletcher Greenway Plan
- Fletcher Bike Ped Plan
- Clyde Pedestrian Plan
- Mars Hill Pedestrian Plan
- Canton Bicycle and Pedestrian Plan
- Mud Creek Greenway Study

The MPO has also undertaken a study to envision a regional trail network that can attract tourists and enhance regional connectivity for residents. This regional trail network has been dubbed The Hellbender, named after the giant, aquatic salamanders native to our region. As of now, it would include the US 70 multi-use path, Oklawaha Greenway, NC 280 multi-use path, Bent Creek Greenway, NC 251 Greenway, Hominy Creek Greenway, Ecusta Rail Trail, US 19/23 Trail, and an imagined trail to Mars Hill. The total regional trail system would consist of 146 miles. As of now there are 12 built miles, 18 potentially funded miles, 8 miles being engineered, 45 miles being studied, 49 miles in local plans, and 17 miles not in local plans.

In the midst of regional growth, it is important to plan for more walkable and bikeable communities, both to improve safety for those who need to access jobs and services by walking and biking but to help accommodate more trips without the use of a car. Some studies suggest it is more dangerous to walk and bike in the U.S. than it is to drive. According to a 2003 study, per kilometer traveled, pedestrians are 23 times more likely to get killed than car occupants and bicyclists are 12 times more likely to get killed.⁴⁵ Between 2008 and 2017, pedestrian and bicyclist fatalities increased by 32% while overall traffic fatalities decreased by 0.8%.⁴⁶

2019 NCDOT Complete Streets Update

NCDOT updated their Complete Streets guidelines in 2019 in order to better accommodate multi-modal transportation when building new projects or making improvements to existing infrastructure. This policy is a requirement for NCDOT planners and designers to consider and incorporate multimodal facilities (sidewalks, bike lanes, paved shoulders, etc) in the design and improvement of roadway projects. The policy defines the cost share of these improvements as well.

The key to ensuring that NCDOT pays for Complete Streets elements of roadway projects is making sure that the elements are in an adopted plan. Numerous communities in the French Broad River MPO have locally adopted bicycle and pedestrian plans but, with the update to the complete streets document, every community should consider producing a plan and keeping it updated.

The NCDOT update to Complete Streets policy will have the greatest impact in communities that have documented multimodal needs in existing plans and could not afford to contribute to local share

Table 3.9: Complete Streets Cost Share

Complete Streets Cost Share			
Facility Type	In Plan	Not in Plan, but Need Identified	Betterment
Pedestrian Facility	NCDOT pays full	Cost Share	Local
On Road Bicycle Facility	NCDOT pays full	NCDOT pays full	Local
Side Path	NCDOT pays full	Cost Share	Local
Greenway Crossing	NCDOT pays full	Cost Share	Local
Bus Pull Out	NCDOT pays full	Cost Share	Local
Bus Stop (pad only)	NCDOT pays full	Cost Share	Local

previously. This step towards improving multimodal infrastructure is expected to significantly improve regional bicycle and pedestrian connectivity.

Challenges

Limited funding. The prioritization of transportation projects calls for multiple rounds of scoring submitted projects on select criteria. Currently, this process primarily funds highway projects. The SPOT process puts a 10% cap on non-highway projects, including rail and aviation, and only requires a minimum of 4% of funding to go towards non-highway projects. Other sources of funds generally require a match from local governments, which can be barriers to towns with smaller tax bases. While a 20% local match does not sound unmanageable, bicycle and pedestrian infrastructure costs have continued to increase. For example, the average cost per mile of a greenway is \$1 million. For smaller communities, a local match of \$200,000 can be burdensome.

Steep, mountainous topography. The natural landscape of the French Broad River MPO region makes planning for and constructing bicycle and pedestrian infrastructure challenging. Terrain influences design and construction, making connections difficult. The steep nature of some of the region's streets attracts avid cyclists and deters infrequent cyclists. Adding infrastructure on or near mountainous roads can be difficult and expensive.

Limited Right of Way. In addition to the challenges posed by the landscape throughout the French Broad River MPO region, narrow roads restrict right of way in many areas. With narrow right-of-way, the space available for bicycle and pedestrian facilities is significantly limited, requiring more creative solutions to safely accommodate all modes.

Land-use patterns. Sprawling development patterns have generally encouraged the use of cars for all trips by spreading out residents from access to jobs and services, producing longer and longer trips. Not only does urban sprawl make trips by walking and biking less convenient but adds a degree of difficulty to effectively producing infrastructure that reaches important community destinations.

Lack of documentation on usage and demand. It is difficult and unreliable to measure bike and pedestrian infrastructure usage. Bicycle and pedestrian planning, as planning for cars, requires data to support the planning for new infrastructure. Collecting regular bicycle and pedestrian counts is necessary to inform planners about current infrastructure utilization.

Recommendations

Improving bicycle and pedestrian infrastructure and travel offers a simple solution for a host of complex problems. Bicycle and pedestrian investments enhance connectivity, which can expand an overall transportation network and improve mobility and accessibility regionwide. Creating a walkable and bikeable environment starts with a supportive built environment. Studies have shown that bicyclists go out of their way to ride on infrastructure made for them.⁴⁷ Bicycle and pedestrian infrastructure also benefits all modes of transportation by decreasing motorist accidents and speeding accidents while increasing bike and pedestrian activity.⁴⁸ Recommendations for the

future of bicycle and pedestrian planning in the French Broad River MPO include:

- Encourage member governments to pursue ordinances that require new developments or major redevelopments to include the addition of bicycle and pedestrian infrastructure where appropriate.
 - Promote the benefits of roadway connectivity ordinances.
- Improve safety for bicyclists and pedestrians.
 - Improve sidewalks and bike lanes alongside roadway projects.
 - Utilize crash and fatality data to prioritize bicycle and pedestrian safety improvements.
 - Reduce the number of bicycle and pedestrian crashes and fatalities.
- Consider developing a bicycle and pedestrian model for the French Broad River MPO region.
- Prioritize connecting existing infrastructure, where possible, while also encouraging the development of new bicycle and pedestrian networks in appropriate areas
- Enhance coordination between land use and transportation
- Consider factors like direct, indirect, and cumulative health impacts of proposed projects along with baseline health status and health determinants when scoring projects including a project's effect on air quality, health, equity, and safety.
- Update plans to include Complete Streets designs proactively and keep up-to-date with changes in bicycle and pedestrian research.
 - Explore involvement in efforts like the North Carolina Non-Motorized Volume Data Program to increase the extent and quality of data for bicycle and pedestrian traffic, which can be used in scoring methodology

⁴² https://commons.wikimedia.org/wiki/File:Bike_and_pedestrian_lanes_in_Roger_Williams_Park.jpg

⁴³ Garrett, Peltier, H. (2011). Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts. Political Economy Research Institute: University of Massachusetts, Amherst.

⁴⁴ Crompton, J., Love, L., & More, T. (1997). An Empirical Study of the Role of Recreation, Parks, and Open Space in Companies' (Re)location Decisions. *Journal of Park and Recreation Administration*, 15 (1). Retrieved from <https://js.sagamorepub.com/jpra/article/view/1695>

⁴⁵ Pucher, J. and Dijkstra, L. (2003). Promoting Safe Walking and Cycling to Improve Public Health: Lessons from the Netherlands and Germany. *American Journal of Public Health*, 93 (9): 1509-1516.

⁴⁶ USDOT. (2018). Safety. Retrieved from http://www.pedbikeinfo.org/factsfigures/facts_safety.cfm

⁴⁷ DILL, J. (2009). Bicycling for Transportation and Health: The Role of Infrastructure. *Journal of Public Health Policy*, 30: 95-110.

⁴⁸ New York City DOT (2011). 2011 Sustainable Streets Index. Retrieved from <http://www.nyc.gov/html/dot/html/about/ssi.shtml>

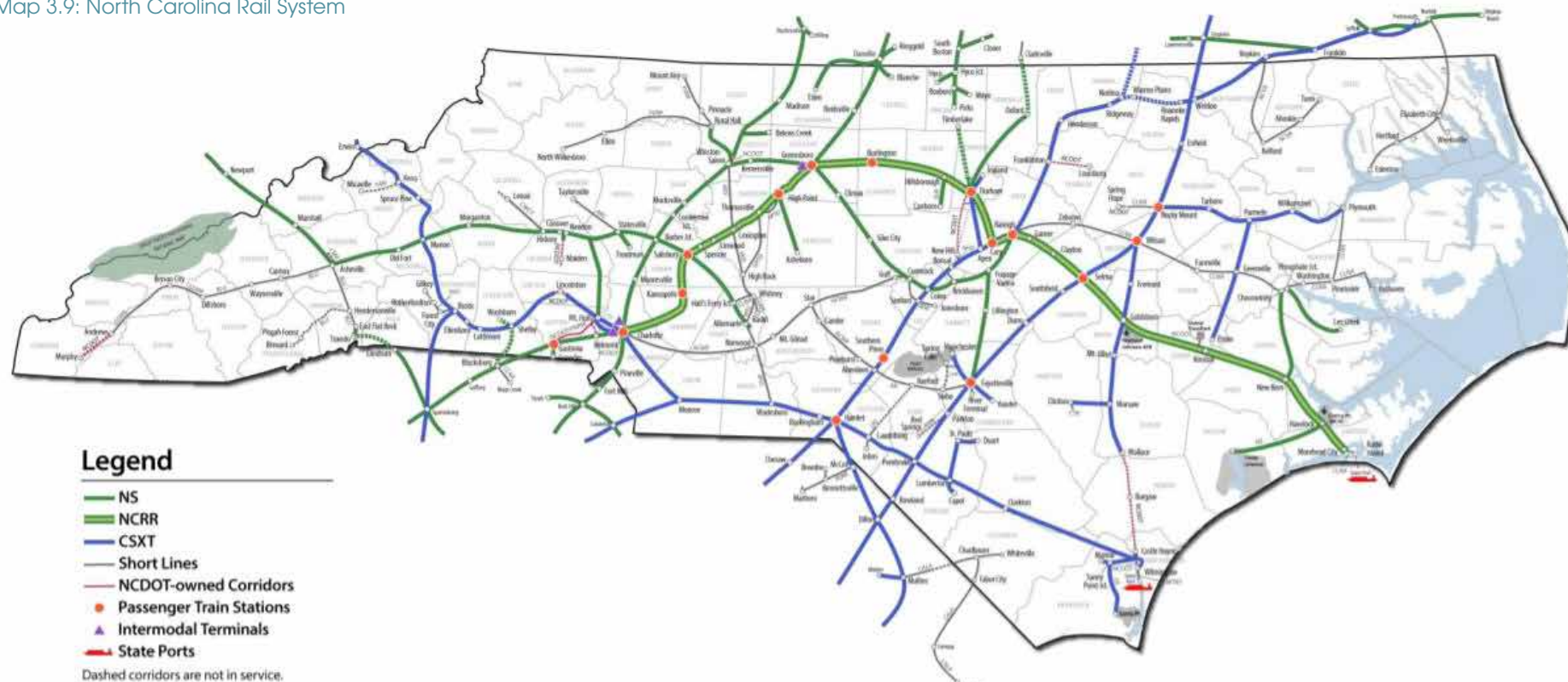
RAIL

After a challenging period of construction culminating in its completion in 1879, the Western North Carolina Railroad operated for close to 100 years, with regular passenger rail service to Salisbury ending in 1975.⁴⁹ The Murphy Branch of the Western North Carolina Railroad revolutionized business and travel throughout the region, connecting mountaineers to the outside world. By the early 1900s, passenger business was so good that there were six trains that ran daily between Asheville and Lake Junaluska and four that ran between Asheville and Murphy.⁵⁰ Passenger traffic on the Murphy branch declined with the popularity of automobiles, leading to discontinued service in 1948. After discontinuation of rail service to Asheville, it took less than 25 years before interest in reviving the service to Salisbury was sparked. Thus, in 1997, NCDOT produced the Western North Carolina Passenger Rail Study, which developed detailed estimates and plans for the previously proposed route from Raleigh to Asheville via Salisbury.⁵¹ The ultimate cost estimate was over \$134 million, and the updated 2002 report recommended that the state not implement rail passenger service to WNC.

The rail network serves 86 of North Carolina's 100 counties. It provides access to strategic locations like power plants, mines, and military installations while facilitating the movement of goods for agriculture, forestry, plastic, furniture, coal, food, and chemicals. Most of NC's rail system is owned, operated, and maintained by the private sector. According to the NCDOT Rail Division, there are approximately 2,323 miles of Class 1 railroads, 956 miles of short line railroads, and 109 miles of state-owned corridors.⁵² In the French Broad River MPO region, only Norfolk Southern and 20 short line railroads, which connect businesses to injury without disrupt the natural environment. Norfolk Southern and 20 short line railroads (which connect small businesses to larger businesses and operate on short distances) provide freight rail service through the French Broad River MPO region. *North Carolina's Rail System*⁵³

As Map 3.9, the only rail service in the French Broad River MPO region is freight service by Norfolk Southern, namely a 139-mile line from Salisbury to Asheville carrying mostly coal, and various short lines. The Great Smoky Mountains Railroad (GSMR) is the only passenger

Map 3.9: North Carolina Rail System



rail service in Western North Carolina. The GSMR, located in Bryson City, provides scenic rail excursions throughout the WNC countryside ranging from 3.5 hours to a full day. The service runs both an historic steam locomotive, which was restored and then debuted in 2016, and five diesel locomotives that offer year round trips on the east bound Tuckasegee River and west bound Nantahala Gorge routes. GSMR caters to tourists with tickets ranging from \$42 to \$125 depending on the experience. The Nantahala Gorge route runs 44 miles, crossing Fontana Lake; the Tuckasegee River route runs a 32 mile round trip through old railroad towns and rolling meadows.

The freight rail industry in the United States is highly cost-effective and efficient, spanning approximately 140,000 miles.⁵⁴ It is also economically critical, progressively safer, and highly sustainable—one ton of freight

can move over 470 miles on one gallon of fuel and the greenhouse gas emissions are 75% less than with trucks.⁵⁵ Unlike freight rail, passenger rail in the U.S. is rare outside of the northeastern corridor, including Boston, New York, Philadelphia, and Washington, DC.⁵⁶

Nationwide forecasts have suggested that long-term economic growth will lead to a demand for substantial additional capacity on main rail corridors, which railroad industry will not be able to pay for on its own. Public-private partnerships offer a strategy for achieving that capacity. North Carolina General Assembly created a House Select Committee on a Comprehensive Rail Service Plan in 2008 to study the potential development of a statewide, comprehensive rail plan. In 2015, the NCDOT Comprehensive State Rail Plan was adopted, presenting

a 25-year vision for rail movement in the state. The Comprehensive State Rail Plan resulted from the efforts of railroads, rail-users, agency stakeholders, and the general public and identified goals by region for rail in North Carolina. The Western goal was to “provide industrial access to freight rail lines to accommodate agribusiness and economic development while utilizing the multimodal transportation system”⁵⁷. As an overall, or comprehensive, goal, the plan encourages the state to expand access to passenger rail service throughout all the regions in order to better accommodate changing demographics, address congestion, and meet needs—a goal that can begin with a statewide thruway bus service expansion.⁵⁸

Current Conditions

In 2017, the Western North Carolina Rail Committee, Inc was reconstituted and incorporated after functioning for nearly 20 years as the WNC Rail Corridor Committee, Inc. The Committee has three foci: (1) To improve and expand freight rail service in WNC; (2) To increase the number of tourist and excursion trains in the region (such as the Great Smoky Mountain Railroad and the Craggy Mountain Line); and (3) Re-establish a passenger rail connection to WNC beginning with AMTRAK Thruway Bus Service between Asheville and Salisbury as the first step toward launching a dedicated train to serve communities along this route.

However, this region attracts millions of visitors annually from areas that are served by Amtrak. Presently, passenger rail service in North Carolina includes 6 passenger routes with stops in 16 cities.⁵⁹ The Greater Hickory MPO aims to gain the approval of its TAC for submitting a NC Rail new passenger service project from Salisbury to Asheville as well as submitting a Public Transportation project for an intercity bus to and from the Amtrak station in Salisbury via Statesville, Conover, Valdese, Morganton, Marion, Old Fort, Black Mountain, and Asheville.

The Southeast Rail Forum will be held from June 8-10, 2021 in Raleigh. This forum will be amongst the states included in the Southeast High Speed Rail Corridor, aiming to connect Virginia, North Carolina, South Carolina, Tennessee, Georgia, and Florida ultimately. The Southeast Rail Forum displays the continued commitment to interstate connectivity via rail that is shared.

Challenges

Rail improvements and construction to meet standards and upgrade infrastructure are costly, which makes funding for rail projects a challenge. Non-highway funds available through STI are capped at 10%. Thus, between the high cost of rail projects and the pre-existing cap making only 10% of STI funds available to non-highway projects (for competition), rail projects that lack current passenger use have little chance of securing state funds.

Lack of support for re-establishing passenger rail service. There has been a lack of support for re-establishing passenger rail service throughout the French Broad River MPO region in the past and a subsequent failure to receive funding through SPOT. The Greater Hickory MPO's renewed commitment to passenger rail and an intercity bus from Salisbury to Asheville may change the likelihood of such a project being funded.

Recommendations

- Study the potential economic and connectivity impacts of passenger rail service in WNC
- Study the potential costs to reimplementing passenger rail service to Western North Carolina
- Work with NCDOT on improving highway rail crossings in problematic locations

⁴⁹ NCDOT. (2001). Western North Carolina Passenger Rail Study. Retrieved from <https://connect.ncdot.gov/resources/Rail-Division-Resources/Documents/2001%20-%20Archived%20-%20Western%20North%20Carolina%20Passenger%20Rail%20Study%20-%20Summary%20Report.pdf>

⁵⁰ Great Smoky Mountain Railroad. (n.d.). History. Retrieved from <https://www.gsmr.com/train-history#.XmtgCJNKjUo>

⁵¹ NCDOT. (2002, April). Report on Western North Carolina Rail Operations and Station Right-of-Way Acquisition. Retrieved from <https://connect.ncdot.gov/resources/Rail-Division-Resources/Documents/2002%20-%20Archived%20-%20Report%20on%20Western%20North%20Carolina%20Rail%20Operations.pdf>

⁵² NCDOT Rail Division, personal communication, March 17, 2020 (see Appendix G)

⁵³ NCDOT. (2015). Comprehensive State Rail Plan. Retrieved from <https://connect.ncdot.gov/resources/Rail-Division-Resources/Documents/2015%20Comprehensive%20State%20Rail%20Plan-%20Full%20Report.pdf>

⁵⁴ Hoffrichter, A. (2019, April 1). Rail Travel is Cleaner than Driving or Flying, but will Americans buy in? Retrieved from TheConversation.com: <http://theconversation.com/rail-travel-is-cleaner-than-driving-or-flying-but-will-americans-buy-in-112128>

⁵⁵ Association of American Railroads. (n.d.). Railroad 101. Retrieved from <https://www.aar.org/railroad-101/>

⁵⁶ The Environmental Literacy Council. (2015). Rail Transportation. Retrieved from <https://enviroliteracy.org/environment-society/transportation/rail-transportation/>

⁵⁷ NCDOT. (2015). Comprehensive State Rail Plan. Retrieved from <https://connect.ncdot.gov/resources/Rail-Division-Resources/Documents/2015%20Comprehensive%20State%20Rail%20Plan-%20Full%20Report.pdf>

⁵⁸ Ibid.

⁵⁹ Ibid.

AVIATION

Airports form a crucial part of the transportation system in North Carolina by connecting the state's economy to global activity. According to the 2019 NCDOT Division of Aviation's State of Aviation report, the annual economic impact of NC airports was \$52 billion, \$12.6 billion in personal income, and \$2.2 billion in state and local tax revenues.⁶⁰ Aviation stands as the only global transportation network and thrives through the efficient use of resources and infrastructure. By bringing in tourists, providing jobs, and carrying freight, airports like the Asheville Regional Airport contribute immensely to regional growth, economic strength, and residents' quality of life.

The Asheville Regional Airport (AVL) opened in 1961, is a Class C airport located in South Asheville. In 2019, AVL served over 1.6 million passengers—a record breaking year, and the 5th consecutive year of airport growth.⁶¹ AVL ranks 3rd out of North Carolina's 10 commercial service airports in number of annual passengers and destinations, serving 18 cities with nonstop flights provided by Allegiant, American Airlines, Delta, Elite Airways, Spirit, and United Airlines.

Current Conditions

The airport is in the process of completing Project SOAR, a 4-phase construction project to update the over 50 year old runway.⁶² SOAR began in 2014 and is now in the 4th phase of construction—paving and electrical with the new runway expected to open in 2020. In 2013, AVL updated its master plan to plan for responsible development over 20 years by considering existing facilities, operational levels, and capacity to meet future needs. The airport has brought jobs, new airlines and routes, and new facilities to the region since its inception. Since 2015, there has been rapid growth and change at the airport.

2015

- New Allegiant planes, crew, and facility
- New long-term parking lot completed and opened

2016

- Completed the airport's strategic plan
- 3 new routes

- Design of five story garage

2017

- Construction began on five story garage

2018

- Garage completed and opened
- Spirit Airlines added

2019

- New nonstop routes to Washington DC and Dallas

Recommendations

- Continue to encourage growth of the Asheville Regional Airport and coordinate on funding opportunities

⁶⁰ NCDOT Division of Aviation. (2019, January). North Carolina The State of Aviation: What Aviation Means to our Economy. Retrieved from <https://www.ncdot.gov/divisions/aviation/Documents/state-of-aviation.pdf>

⁶¹ Asheville Regional Airport. (2020, January 23). Retrieved from <https://flyavl.com/article/unprecedented-43-annual-growth-avl-served-16-million-passengers-2019>

⁶² Asheville Regional Airport. (n.d.) Project Soar. Retrieved from <https://flyavl.com/project-soar>

EMERGING TRENDS IN TECHNOLOGY

As technology continues to advance in the realms of infrastructure and mobility, it is important that the French Broad River MPO acknowledge and incorporate emerging technological trends into long-range plans. This chapter of the MTP covers five different emerging trends in technology and provides insight into how those may impact transportation in the region. The French Broad River MPO aims to understand the implications of changing technology and plan to the best of its ability for an uncertain future.

Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) stand as the jumping off point for technological change as it is the most integrated of advancements and has become commonplace since its introduction in 1984. ITS ensures maximum interoperability for technologies, vehicles, and drivers, improve safety and mobility, reduce environmental impacts, and enhance efficiency through the integration of communications-based information and electronic technologies into infrastructure. ITS technology includes GPS, traffic signal controls, variable message signs, license plate recognition and speed cameras, parking guidance, weather information, bridge de-icing systems, sensing technologies, emergency vehicle notification systems, traffic optimization systems, dedicated short range technology that enables vehicle-to-vehicle communication, and much more. ITS provides a high return on investment, especially when incorporated during construction. The cost of acquiring and installing ITS technology is only about 5% of the overall construction budget if installed simultaneously. The return on investment, measured in safety, travel time reliability, and quality of life, occurs after only 6 months following installation.⁶³ WRITE ABOUT NCDOT AND ITS

Ride-Share

Ridesharing includes carpool, vanpool, and transportation network companies (TNCs) such as Uber and Lyft. Uber arrived in Asheville in 2014, followed by Lyft in 2016. The introduction of rideshare changes traffic patterns, reduces drunk driving incidents, increases congestion, creates jobs, and affects transit ridership. In one Boston survey, 42% of rideshare users claimed they would have taken transit if Uber was not available.⁶⁴ Because these companies provide fast, albeit costly

mobility, they decrease political support for transit too, since transit often entails lengthier trips. At the same time, TNCs create the potential to reduce reliance on SOV when shared as opposed to carrying a single rider and are often presented as solutions to congestion. However, according to the San Francisco County Transportation Authority, 20% of TNC vehicle miles traveled (VMT) in San Francisco are spent during out-of-service movement (i.e. with no passenger).⁶⁵ If TNCs obtained full participation and exhibited centralized optimization, their benefits would be immense and would actually offer the potential to reduce congestion and privately owned vehicles within cities. When integrated with mobility services through provision of first/last mile connections, TNCs can also create opportunities for improved equity.

A study conducted at UC Boulder gathered a dataset with 416 rideshare trips and 311 passenger interviews to analyze the effects of ridesourcing on a city. By observing origins and destinations of riders and considering trips that otherwise would have required parking, researchers concluded that the intentional use of TNCs reduced parking in urban cores. Thus, parking could be used as a Transportation Demand Model (TDM) tool to influence behavior and reduce car dependency if land use planning identified the value in guiding travel through design.⁶⁶

The Asheville Regional Airport set rules for TNCs to follow. Drivers must wait in a designated zone and have their company name clearly displayed. Drivers must pick up passengers in the "Ride App Pickup Zone" and risk incurring fines if the guidelines are broken. TNCs must also pay fees to operate at the Asheville Regional Airport. The airport's proactive regulations were made to decrease congestion in the drop-off/pick-up entrance and could serve as an example in forming agreements with TNCs to guide travel behavior on a larger scale.

Electric Vehicles

The growing popularity of electric vehicles (EVs) affects transportation planning in various ways. The Federal Highway Administration (FHWA) has taken strides towards incorporating and encouraging EVs on a national level through the establishment of a national network of alternative funding and charging infrastructure along the national highway system corridors. Thus far, the FHWA's Alternative Fuel

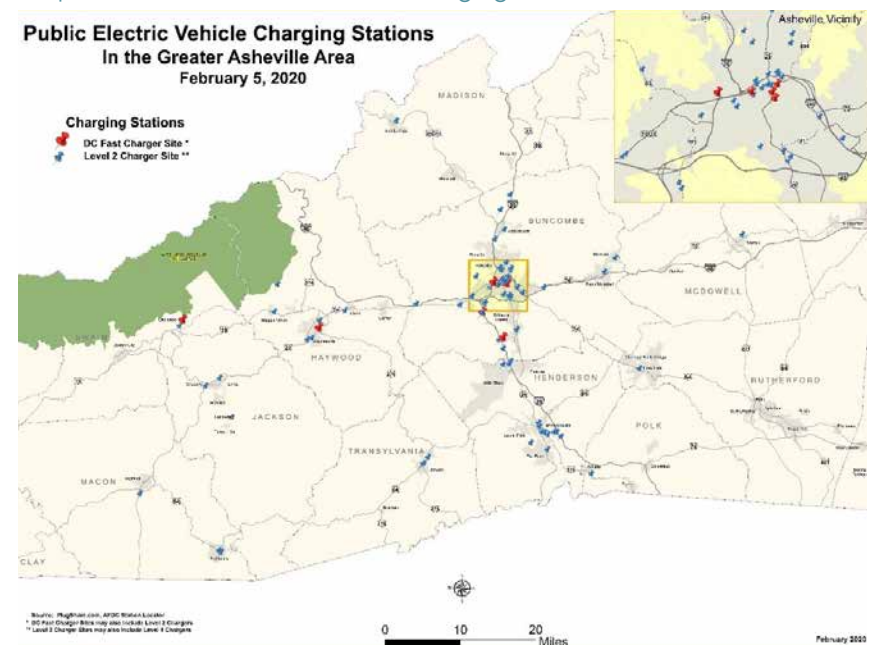
Corridor Designations have included 135,000 miles of the national Highway System, including the portions of 100 interstates and 76 US Highways/state roads.

In 2019, NCDOT published the ZEV Plan: A Strategic Plan for Accelerating Electric Vehicle Adoption in North Carolina. This plan came on the heels of Executive Order No. 80, which called for a 40% reduction in statewide greenhouse gas emissions by 2050. Since the transportation sector contributes 32% of greenhouse gas emissions statewide, devising a plan to implement zero-emission vehicles proved logical.⁶⁷ The ZEV Plan considered education, convenience, affordability, and policy surrounding zero-emission vehicles and their adoption, concluding that North Carolina was well-positioned to reduce emissions through adoption of electric vehicles. The ZEV Plan outlined short-, medium-, and long-term goals while identifying leaders and stakeholders to address those goals. Some goals included education about EV charging stations and the development of workplace and rest area charging stations. Map 3.10 shows the existing charging stations in the French Broad River MPO region.

EVs have affected revenue streams for transportation planning as well. The gas tax makes up a significant portion of Highway Trust Funds. The federal gas tax has not increased since 1993, thereby not keeping up with inflation and resulting in the short-term fix of general fund transfers to supplement the lack of gas tax revenue. Because EVs do not depend on gasoline at all, the revenue that normally flows from the gas tax is decreasing faster as EVs become more popular. North Carolina has three major sources of roadway funding: the gas tax, Highway Use Tax, and license/title/registration fees. Due to North Carolina's lack of road improvement funding through property taxes and a high percentage of state roads, the state relies heavily on the gas tax to support maintenance, operations, and capital needs.⁶⁸

In 2019, the NC First Commission explored alternative funding strategies to the gas tax, surveying the public in the process.⁶⁹ The alternatives included mileage based fees (VMTs), a weight-based tax, and road use fees. Presently, North Carolina requires a \$130 fee on top of existing registration fees for EVs; however, that revenue doesn't equate to the revenue generated annually by non-electric vehicles through the gas tax.⁷⁰

Map 3.10: Public Electric Vehicle Charging Stations



Micromobility

Micromobility refers to shared use fleets comprised of fully or partially human powered light vehicles like bikes, e-bikes, and e-scooters, which may be rented through an app, picked up and dropped off in public right-of-way, and used for short trips of five miles or less.⁷¹ E-scooter services surged in 2018, gaining widespread popularity throughout the U.S., offering a solution to first/last mile transit connections, and improving accessibility while providing a multimodal experience for users. According to the National Household Transportation Survey, 40% of car trips are two miles or less.⁷² Micromobility could serve to replace those short distance SOV trips in urban cores.

Micromobility changes quickly and can be disruptive. In 2018, Asheville experienced the disruption of e-scooters, when a company deployed 200 scooters without permission at 4am, asking for waivers at 9am. The city seized the scooters and returned them to the company with a verbal promise that they would stay off the streets. However, the next day, the scooters were back. After that second deployment, the city issued a cease and desist order then voted to ban e-scooters entirely.

the next month. This guerrilla manner of gaining footing in new cities has worked sometimes, as it did in Charlotte, but Asheville was not as lenient. Within the City of Asheville, micromobility faces the challenges of narrow streets, and steep terrain, which creates less safe conditions for users, along with limited right-of-way, and safety concerns and impacts on bicyclists and pedestrians when introducing vehicles using assigned facilities without understanding or education on regulation of e-scooters on either end. After the guerrilla scooter incident, Asheville added e-scooters to their Bike Share Feasibility Study, so that there could be a recommendation formed regarding next steps as far as scooters are concerned.⁷³

Micromobility is most effective and safe in dense, urban cores, which excludes most of the French Broad River MPO region outside of the central Asheville area. However, understanding safe and effective ways to integrate micromobility into the transportation network is essential, especially as the region continues to grow in population.

Autonomous and Connected Vehicles

The subject of autonomous and connected vehicles (ACVs), or self-driving cars, is one that requires background and definition. An autonomous vehicle is a car that is capable of sensing its environment and operating without human involvement. ACVs rely on sensors, algorithms, and processors to monitor, detect, and respond to road conditions. There are levels of autonomy as table 3.10 shows. Levels 1 and 2 of ACVs are relatively standard in cars today—features include automatic braking, adaptive cruise control, parking assist, and lane assist. A Level 3 autonomous vehicle would have some feature like self-parking where the driver does not need to use the gas, brake, or steering wheel to park, a feature that Teslas boast. There are currently no Level 4 or 5 vehicles available to consumers, though full automation is the ultimate goal of engineers.

When considering the impending effects of ACV, planners have a narrow window of opportunity to predict and appropriately pave the way for change. Presently, cities are designed for SOVs, which inherently limits alternative methods of mobility from traditional modes like bicycling and walking to anticipated modes like fully autonomous, or self-driving cars.

Table 3.10: Levels of Autonomy

Level 0
The human driver does all of the driving
Level 1
The vehicle might be able to assist with one or more functions like braking / accelerating or steering but not at the same time
Level 2
The vehicle can control both steering and braking / accelerating simultaneously under some circumstances
Level 3
The vehicle has a system which can perform all aspects of the driving task under some circumstances
Level 4
The vehicle itself can do all of the driving in certain circumstances
Level 5
The vehicle can do all of the driving in all circumstances

In 2018, the Consolidated Appropriations Act (Omnibus Bill) created US Department of Transportation funds for ACV research. Since 2012, more than 40 states (and D.C.) have introduced or enacted legislation related to ACVs.⁷⁴ In 2017, North Carolina General Assembly passed regulations on the operation of fully autonomous vehicles on public highways in the state via HB 469/ S 337. The bill defines fully autonomous vehicles and clarifies that its provisions only apply to fully autonomous vehicles. This legislation followed the January 2017 designation of the North Carolina Turnpike Authority by USDOT as one of the 10 national pilot program testing grounds for autonomous vehicles, incentivizing companies to deploy ACVs in North Carolina. In early 2020, NC State University and NCDOT launched Connected Autonomous Shuttle Supporting Innovation (CASSI), an autonomous vehicle, for testing on Centennial Campus to learn more about how technology can be effectively and safely used to offer mobility solutions in the future by accepting applications from municipalities and private

or public agencies to apply to become a CASSI deployment test site. Local policy also should match state and federal policy progress. Municipalities will be the testing grounds for ACV technology, so in order for the smooth integration of ACV technology into everyday life, local policies should facilitate safe testing, find ways to leverage data, improve interdepartmental communication, engage and educate residents on ACV issues, and consider how ACV adoption will impact transit services.

Ultimately, the future of ACVs is relatively unknown. It is best to prepare for the unknown. In this realm, that means planning and designing for ACV safety, embracing uncertainty, and aligning ACV planning with community visions and goals. ACVs will impact infrastructure and design, leading to impacts on existing transit networks, reducing the need for parking, and making more efficient right-of-way demands. Once technology is in place and hardware is developed, there will be a convergence and confluence that is necessary for ACVs to fully integrate into our lives. While we do not know exactly how or even when ACVs will integrate, we do know that there are certain steps, as mentioned in the previous paragraph, that can be taken in preparation for that day.

Challenges

The future is uncertain, and change is often unwelcome. The greatest challenge that faces the French Broad River MPO regarding technological advances is the innate uncertainty of such advances. While definitive steps have been taken in the realm of technology in transportation, advances such as driverless cars may be in the near or distant future. When such dramatic technology does become more accessible, there will likely be significant resistance to it as well. Regardless of resistance that technology will face, the change itself is inevitable. The French Broad River MPO aims to position itself to be able to easily and painlessly adapt to trends as they emerge.

Recommendations

- Educate and collaborate.
 - Inform the public and transportation stakeholders about how to navigate in mixed-fleets and what the future of ACVs could look like.
 - Work across levels of government and private sectors as well as through public engagement to gain various perspectives on

emerging trends in technology.

- Encourage further research into the effects of emerging technology trends on travel patterns.
- Create an ITS strategic plan for the region.
- Study the travel patterns connected to TNCs and the subsequent implications for land use planning.
- Consider partnerships with TNCs to provide first/last mile connections to existing transit.
- Continue adding more public charging stations for electric vehicles.

⁶³ County Health Rankings & Roadmaps. (2019). North Carolina, Buncombe. Robert Wood Johnson Foundation. Retrieved from <https://www.countyhealthrankings.org/app/north-carolina/2019/rankings/buncombe/county/outcomes/overall/snapshot>

⁶⁴ Schmitt, A. (2019, Feb. 4). All the Bad Things About Uber and Lyft in One Simple List. Retrieved from StreetsBlog-USA: <https://usa.streetsblog.org/2019/02/04/all-the-bad-things-about-uber-and-lyft-in-one-simple-list/>

⁶⁵ San Francisco County Transportation Authority. (2017). TNCs Today: A Profile of San Francisco Transportation Network Company Activity. Retrieved from https://www.sfcta.org/sites/default/files/2019-02/TNCs_Today_112917_0.pdf

⁶⁶ Henao, A. (2017). Impacts of Ridesourcing—Lyft and Uber—On Transportation Including VMT, Mode Replacement, Parking, and Travel Behavior. University of Colorado. Retrieved from <https://pdfs.semanticscholar.org/e2cf/15b3a462917337062834c69213bf8ed41144.pdf>

⁶⁷ NCDOT. (2019, Oct. 1). North Carolina ZEV Plan: A Strategic Plan for Accelerating Electric Vehicle Adoption in North Carolina. Retrieved from <https://www.ncdot.gov/initiatives-policies/environmental/climate-change/Documents/nc-zev-plan.pdf>

⁶⁸ Jackson, S. (2019). At the Crossroads: Recommendations for the Future of Transportation in North Carolina. NC Justice Center. Retrieved from <https://www.ncjustice.org/wp-content/uploads/2019/02/At-The-Crossroads-final-pdf.pdf>

⁶⁹ NCDOT. (2019). The NC Motor Fuels Tax. Issue Brief: Edition 1, NC First Commission. Retrieved from <https://www.ncdot.gov/about-us/how-we-operate/finance-budget/nc-first/Documents/nc-first-brief-edition-1.pdf>

⁷⁰ NC General Statutes § 20-87

⁷¹ NACTO (2019). Guidelines for Regulating Shared Micromobility. Retrieved from https://nacto.org/wp-content/uploads/2019/09/NACTO_Shared_Micromobility_Guidelines_Web.pdf

⁷² Flusche, D. (2010, Jan. 22). National Household Travel Survey—Short Trip Analysis. Retrieved from BikeLeague.org: <https://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis>

⁷³ City of Asheville. (2020). Bike Share and E-Scooter Feasibility Study. Retrieved from <https://www.ashevillenc.gov/departments/transportation/current-projects/bike-share-and-e-scooter-feasibility-study/>

⁷⁴ National Conference of State Legislatures. (2020, Feb. 18). Autonomous Vehicles: Self-Driving Vehicles Enacted Legislation. Retrieved from <https://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>

TOURISM

Tourism and travel are driving economic factors for many communities in the French Broad River MPO region. The City of Asheville draws the largest number of visitors to the region, attracting over 11 million tourists per year and generating \$199.2 billion in state and local taxes.⁷⁵ Just as Asheville's history, cuisine, and brewing culture brings in visitors, the mountain scenery, fast-flowing rivers, and outdoor recreation draw visitors and residents to various destinations throughout the year. The livelihood of many businesses and communities in the French Broad River MPO region depends on seasonal tourists, most of whom travel within the region via private automobile.

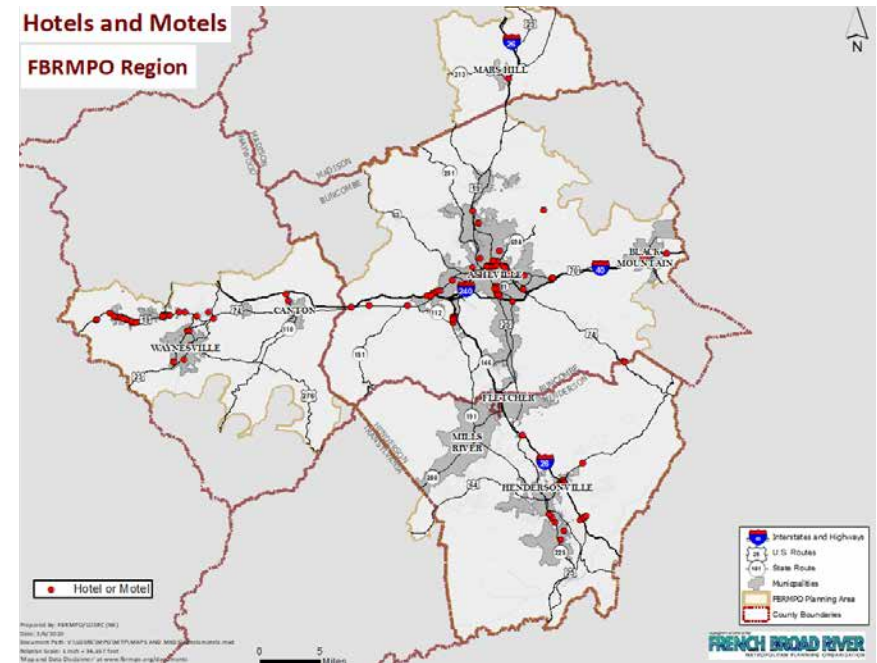
While the population of the five-county region was around 458,000 in 2017, it was estimated that there were over 11 million visitors to Buncombe County alone in that same year.⁷⁶ In only a five year time span, from 2012-2017, the number of visitors to Buncombe county went from 9 million to 11 million.⁷⁷ This growth in tourism has increased traffic and the number of hotels and short-term rentals. While only 3.8 of the 11 million tourists stayed overnight, many of them still visited destinations where they supported local businesses and jobs. As this region boasts many unique attractions, overnight visitors in Buncombe County are also likely to visit destinations in Haywood, Henderson, Madison and/or Transylvania counties.

Map 3.11 shows where the more than 320 hotels and motels in the region are located. Outside of the ones in urbanized areas, many are located along the highways and arterial routes. This map does not show the numerous short-term rental properties scattered throughout the region.

Current Conditions (trends)

Given the limited regional connections to transit and aviation terminals, over 95% of visitors drive into Asheville from their origin cities, with a majority being from surrounding Charlotte, Greenville, Atlanta, and Raleigh.⁷⁸ While most tourist activity is evenly spread throughout the year, there is a measurable seasonal peak from March to October, putting a strain on the transportation network. Activities once driven mainly by specific, discrete recreational attractions are now complemented by the growing appeal of intown nightlife (live music, restaurants, breweries, etc.). The region's amenities and infrastructure near popular destinations see the highest use in the summer, which

Map 3.11: Hotels and Motels



creates a challenge for transportation planning and management during “peak tourism” season.

As part of the effort to see how key tourism-related destinations impact traffic volumes and fluctuating demand in the region, French Broad River MPO maps and maintains a list of the points of interest listed below. The data regarding location and number of visitors to a few key tourism destinations is integrated into the Travel Demand Model which helps forecast future traffic volumes. Some of the key tourism destinations in the MPO region are listed in Table 3.11.

Many establishments that are not listed above also attract a large number of tourists to the region. Frequently cited as having more breweries per capita than any U.S. city, Asheville and the surrounding region draw visitors from all over for brewery tours, beer festivals, and unique atmospheres. Many craft beverage manufacturers have started to export to regional markets, with a few companies distributing

Table 3.11: Key Tourism Destinations

BUNCOMBE	HAYWOOD	HENDERSON	MADISON
Asheville Downtown	Blue Ridge Parkway (various access points and hiking destinations including Black Balsam)	Apple Valley Model Railroad Museum	The Appalachian Trail (various access points including Max Match)
Biltmore Estate	Cataloochee Valley/Ski Area	Carl Sandburg Home	French Broad Rafting and Ziplines
Biltmore Village	Maggie Valley	Flat Rock Playhouse	Hot Springs Resort and Spa
Bent Creek Trails	Great Smokey Mountains National Park	Dupont State Forest	Marshall Downtown
Black Mountain Downtown	Pisgah Inn	Historic Village of Flat Rock	Wolf Ridge Ski Resort
Grove Park Inn	Waynesville Downtown	Hendersonville Downtown	
North Carolina Arboretum	Wheels Through Time Museum	Jump Off Rock	
West Asheville Haywood Road Corridor			
Weaverville Downtown			

nationally and as far as Europe. In addition to new breweries continuing to open, a wide variety of wineries, distilleries, and craft beverage manufacturers have located to the region. A variety of festivals and special events such as Lake Eden Arts Festival (LEAF) and North Carolina Apple Festival also attract both locals and visitors and can have a significant traffic impact during the duration of the event.

The various Tourism Development Authorities (TDAs) in the region put a portion of the tax revenue they receive back into community in several ways. As part of their grant funding programs, TDAs have funded transportation related projects such as wayfinding signage, greenway development and other projects that sustain local tourism. The Buncombe County TDA through its Tourism Product Development Fund, has reportedly awarded \$44 million of occupancy tax revenue to 39 projects, including recently awarding the Town of Woodfin \$2.25 million for their greenway/blueway system.⁷⁹ Henderson County granted \$473,000 to the county to showcase 72 signs showing people how to reach popular destinations while Haywood County rolled out a similar tourism signage program using their "1% zip code occupancy tax."

Buncombe County TDA estimated that 1 in 7 jobs are supported by visitors spending, while generating \$368 million in tax revenue annually.⁸⁰ In their 2018 Tourism Impact Report, Henderson County found that travel and tourism directly employs more than 2,500 people in the county.⁸¹ Looking statewide, tourism has become the second largest industry in North Carolina, while employing 161,000 people and having \$2.5 billion in annual payroll.⁸²

In 2015, new FAST Act requirements involving tourism were established to "include projects, strategies and services that will enhance travel and tourism [23 U.S.C. 135(d)(1)(I) & (J)]. Through dialogue with Tourism Development Authority (TDA) stakeholders and planning efforts, the French Broad River MPO has developed strategies to incorporate tourism and travel planning into the region. In 2018 and 2019, French Broad River MPO staff met with TDAs to solicit feedback on future transportation planning efforts. French Broad River MPO staff held group-discussions with staff and stakeholders within Buncombe County TDA/Explore Asheville, Henderson County TDA and Haywood County TDA.

Challenges

Tourism significantly contributes to the regional economy and is affected by statewide, national, and global factors, making it unpredictable at times. While the seasons can generally predict tourist volumes, unpredictable events—such as COVID-19—severely affect the tourism sector and overall regional economic climate.

Congestion hotspots and management of growth. The Buncombe County TDA identified congestion as a challenge facing the tourism and travel sector.

Lacking connectivity complicates regional travel between Henderson County and Buncombe County. The region has numerous attractions that draw tourists, spread out across the counties in the French Broad River MPO planning area. However, the existing infrastructure does not provide direct connections between the attractions. Lack of connectivity creates additional congestion on major and secondary roads, affecting the state of repair of the roads and increasing congestion during seasons with heavy tourism.

Tourism contributes to population growth as visitors who visit often decide to relocate. This creates a challenge because it places additional strain on the transportation network. Regional TDAs identified the following challenges:

- Workforce and how to get employees from home to the job site (Buncombe County TDA);
- Congestion hotspots and management of growth (Buncombe County TDA);
- Support of greenway and local transportation projects (Buncombe County TDA);
- Opportunity to capitalize on natural areas in the county (Henderson County TDA);
- Connectivity issues given the limited number of roads that connect Henderson County to Asheville and Buncombe County (Henderson County TDA);
- Growth in particular geographies of Henderson County, such as the eastern part as more destinations appear (Henderson County TDA)

- Consider the role tourism plays in driving relocation, as visitors who frequently visit consider moving here (Henderson County TDA)
- Increased number of visitors in the winter months (Haywood County TDA)
- Desire for new lodging and wayfinding options (Haywood County TDA)

Recommendations

The following recommendations indicate how the French Broad River MPO could contribute to Tourism in the region:

- Compile a comprehensive set of visitor data and figures from regional TDAs to better understand trends and challenges.
- Continue to explore opportunities that the Transportation Demand Management (TDM) program has to work with tourism related employers and employees regarding commute options.
 - Encourage improvements along key travel corridors that are "tourist dense" such as downtowns in order to address commute needs within the travel and tourism sector while enhancing access to other attractions outside the downtowns.
- Continue to work with NCDOT, TDM, and local municipalities to identify areas where Park and Rides would benefit commuters.
- Continue to support projects that promote connections between the regions' major destinations and travel choices.

⁷⁵ BCTDA. (2018 September). The Economic Impact of Tourism in Buncombe County, North Carolina: 2017 Analysis. Retrieved from <https://www.ashevillecvb.com/economic-impact/>

⁷⁶ Buncombe County Tourism Development Authority. (n.d.) 2013-14 Annual Report. Retrieved from <https://www.ashevillecvb.com/wp-content/uploads/2015/06/BCTDA-2013-14-Annual-Report.pdf>

⁷⁷ Ibid.

⁷⁸ D.K. Shifflet & Associates, Ltd. (2015, September). 2014 Asheville Visitor Profile. Retrieved from <https://www.ashevillecvb.com/wp-content/uploads/2014-Asheville-Visitor-Profile-09212015.pdf>

⁷⁹ BCTDA. (n.d.). Look Who's Counting on Tourism. Retrieved from <https://www.ashevillecvb.com/tourism-builds-community/>

⁸⁰ BCTDA. (2020). Annual Report 2018-2019. Retrieved from https://www.ashevillecvb.com/wp-content/uploads/2018-19-BCTDA-Annual-Report_FINAL_WEB.pdf

⁸¹ Baker, K. (2019, August 25). TDA: Tourism spending in Henderson County is up, with visitors from around the world. Retrieved from BlueRidgeNow.com: <https://www.blueridgenow.com/news/20190825/tda-tourism-spending-in-henderson-county-is-up-with-visitors-from-around-world>

⁸² Preservation North Carolina. (1998). Profiting from the Past. Retrieved from <https://www.presnc.org/profitng>

FEDERAL PERFORMANCE MEASURES

As part of federal transportation legislation requirements, measures for both highway and transit system performance have been developed. These measures offer a strategic approach to make investment and policy decisions that reflect and achieve transportation system goals as outlined in MAP-21 and the FAST Act. Although federal performance measures are defined at the federal level, it is a key task for MPOs, state DOTs, and transit agencies to establish their own targets based on these measures. The targets are a quantifiable way to measure level of performance that is achieved within a specific time period.

The highway performance measures align with the seven national planning goals as listed below in Table 3.12. Highway targets are generally required to be adopted by State DOTs first, and then MPOs have 180 days after the state targets are established to define their own targets. MPOs can establish target one of two ways: 1) Agree to contribute toward the accomplishment of the State DOT target, or 2) Develop a quantifiable target for the MPO planning area. As of development of this MTP, the French Broad River MPO has selected to support and contribute towards the accomplishment of NCDOT targets. While this is a collaborative effort, it is ultimately the responsibility of NCDOT to report target data and measures to FHWA.

Table 3.12: Seven National Planning Goals

NATIONAL GOAL AREA	RULEMAKING CATEGORY	PERFORMANCE MEASURE
Safety	Safety	Number of Fatalities
		Rate of Fatalities
		Number of Serious Injuries
		Rate of Serious Injuries
		Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries
Infrastructure Condition	Infrastructure	Percentage of Pavements in Good Condition (Interstate)
		Percentage of Pavements in Poor Condition (Interstate)
		Percentage of Pavements in Good Condition (Non-Interstate NHS)
		Percentage of Pavements in Poor Condition (Non-Interstate NHS)
		Percentage of Bridges in Good Condition (NHS)
		Percentage of Bridges in Poor Condition (NHS)
System Reliability	System Performance	Percentage of Reliable Person-Miles Traveled (Interstate)
		Percentage of Reliable Person-Miles Traveled (Non-Interstate NHS)
Freight Movement & Economic Vitality	System Performance	Truck Travel Time Reliability (TTTR) for the Interstate System
Environmental Sustainability	System Performance	Total Emissions Reduction
Congestion Reduction	System Performance	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the National Highway System (NHS)
		Percent of Non-Single Occupancy Vehicle (SOV) Travel

Source: <https://fhwa.dot.gov/tpm/about/regulations.cfm>

Table 3.13 summarizes the FHWA measures as determined by NCDOT and breaks them into four categories referred to as PM1, PM2, and PM3 and Transit Assets. The chart also shows the current status for each target area based on NCDOT adoption.

Table 3.13: FHWA Measures

	Final Rules (FHWA – 23 CFR 490)	States Set Targets By	NCDOT Status
FHWA	PM1 – Safety (5 measures)	Aug. 31, 2017	✓ Completed – 2018 targets established in Highway Safety Improvement Program (HSIP)
	PM2 – Pavement/Bridge (6 measures)	May 20, 2018	✓ Completed – Pending submission to FHWA, NCDOT set 2-year and/or 4-year targets
	PM3 – System Performance (6 measures)	May 20, 2018	✓ Completed – Pending submission to FHWA, NCDOT set 2-year and/or 4-year targets
FTA	Transit Assets	Jan. 1, 2017	✓ Completed – 2017 targets and Transit Asset Management Plan

Safety Targets or “PM1”

The MPO and NCDOT are required to evaluate and report on safety targets, on an annual basis, for five safety measures. These five measures include: number of fatalities, fatality rate (per 100 million vehicle miles traveled), number of serious injuries, serious injury rate (per 100 million vehicle miles traveled), and number of non-motorized fatalities and serious injuries. Beginning in February 2018, the French Broad River MPO Board passed safety targets for the region that supported the state’s target noting that the MPO lacked the ability to set and monitor its own targets due to insufficient data. Most recently in February 2020, the French Broad River MPO Board adopted NCDOT safety targets for FY 2020 that are reflected in Table 3.14. The NCDOT target supported by these goals is based on cutting fatalities and serious injuries, for all modes, by 50% by 2030 based on 2013 figures. The projects programmed in the FBRMPO’s 2045 MTP are intended to enhance safety and contribute to the accomplishment of NCDOT’s safety targets.

Table 3.14: 2020 HSIP Targets

2020 HSIP TARGETS			
Target	2014-2018 Average	2016-2020 Average	% Reduction
Reduce Total Fatalities	1,396.40	1,227.80	6.23%
Reduce the Fatality Rate	1.211	1.084	5.39%
Reduce Total Serious Injuries	3,362.60	2,812.80	8.84%
Reduce the Serious Injury Rate	2.886	2.462	7.64%
Reduce the Total Nonmotorized Fatalities and Serious Injuries	494.60	426.60	7.13%

Infrastructure and System Performance Targets or “PM2” and “PM3”

PM2 measures relate to the pavement and bridge performance and condition on both the interstate and non-interstate system. PM3 measures relate to the system performance of the system which includes measures such as travel time reliability and congestion mitigation. Table 3.15 details the targets for each of these measures. These were set by NCDOT with 2-year targets covering 2018 and 2019 as well as 4-year targets covering 2018-2021.

In October 2018, the French Broad River MPO in coordination with the City of Asheville (as the direct recipient of transit funds in the region) signed a Performance Measure Agreement with NCDOT agreeing to adhere to protocols for meeting programming requirements as they relate to performance measure planning. This agreement demonstrates interagency coordination and allows the MPO and NCDOT to share data regarding performance measures. It also provides language that shows MPO support of the 2-year and 4-year targets for PM2 and PM3 adopted by NCDOT.

As of development of the 2045 MTP, the current TIP covering 2020-2029, includes projects and language specifying that the MPO has established performance measure targets in concurrence with NCDOT.

Table 3.15: PM2 & PM3 Targets

	PERFORMANCE MEASURE	2 YEAR TARGET 1/1/2018 – 12/31/2019	4 YEAR TARGET 1/1/2018 – 12/31/2021
PM2	Interstate Pavement Condition (Good)	--	37.0 %
	Interstate Pavement Condition (Poor)	--	2.2 %
	Non-Interstate NHS Pavement Condition (Good)	27.0%	21.0%
	Non-Interstate NHS Pavement Condition (Poor)	4.2%	4.7%
	NHS Bridge Condition (Good)	33.0%	30.0%
	NHS Bridge Condition (Poor)	8.0%	9.0%
PM3	Interstate Level of Travel Time Reliability	80.0%	75.0%
	Non-Interstate NHS Level of Travel Time Reliability	--	70.0%
	Interstate Truck Travel Time Reliability	1.65	1.70

Transit Assets

Effective in October 2016, Transit Asset Management (TAM) Final Rule became effective and established a strategic and systematic process of operating, maintaining and improving public capital assets for transit. These performance measures for transit are reported to FTA by NCDOT. The performance measures apply to transit agencies and must be established and monitored by MPOs. The four performance measures include the following:

- **Equipment:** percent of equipment valued > \$50,000 (support, non-revenue service vehicles) that have met their Useful Life Benchmark (ULB)
- **Rolling Stock:** percent of revenue vehicles surpassing their ULB by Asset Class
- **Facilities:** percent of facilities with condition rating below 3.0 on FTA Transit Economic Requirements Model (TERM) scale
- **Infrastructure:** percent of guideway directional route miles with performance restrictions by class

Since the City of Asheville is the direct recipient of transit funds for the region, they are listed in the performance management agreement signed in October 2018 and set their own targets for each asset category. The NCDOT Public Transportation Division prepared a Group TAM plan for all community transportation systems and small urban systems opting to be included in the plan. This removed the local reporting burden for smaller systems. The transit agencies in the region opting in to the TAM group plan include: Buncombe County, Madison County Transportation Authority, Mountain Projects Inc. (Haywood County) and WCCA (Henderson County). Table 3.16 summarizes the adopted measures for FY 2021 set by NCDOT regarding TAM. The Asheville Redefines Transit (ART) set a 20% target for 2019 – 2023 in parallel with the NCDOT Group TAM. These were adopted by resolution, in addition to the performance management agreement by the French Broad River MPO Board in October 2018.

Table 3.16: FY21 NCDOT Adopted Measures

Asset Category - Performance Measure	Asset Class	2021 Target
REVENUE VEHICLES		
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AB - Articulated Bus	N/A
	AO - Automobile	20%
	BR - Over-the-road Bus	N/A
	BU - Bus	20%
	CU - Cutaway Bus	20%
	DB - Double Decked Bus	N/A
	FB - Ferryboat	20%
	MB - Mini-bus	20%
	MV - Mini-van	20%
	RT - Rubber-tire Vintage Trolley	N/A
	SB - School Bus	N/A
	SV - Sport Utility Vehicle	20%
	TB - Trolleybus	N/A
	VN - Van	20%
	TR - Tram	N/A
	Custom 2	N/A
	Custom 3	N/A
EQUIPMENT		
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	20%
	Steel Wheel Vehicles	N/A
	Trucks and other Rubber Tire Vehicles	N/A
	Maintenance Equipment	20%
	Computer Software	20%
	Office Equipment	20%
FACILITIES		
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	20%
	Maintenance	20%
	Parking Structures	20%
	Passenger Facilities	20%
	Shelter	20%
	Storage	20%
	Custom 3	N/A

Related Performance-Based Plans

There are several other plans maintained by state and local transportation agencies, including the French Broad River MPO, that contribute to performance management. It is important that the goals and objectives of those plans are incorporated into the MPO's overall performance-based planning efforts. The following plans contain applicable components:

- **NCDOT Strategic Highway Safety Plan (SHSP):** This plan, most recently updated in 2014, is the basis in which NCDOT safety performance measures were set. The focus of the SHSP is to establish partnerships to identify and implement safety improvements for all roadway users in addition to fostering awareness around safety measures.
- **Transportation Asset Management Plan:** This plan accounts for the National Highway System and is one of the federal requirements associated with performance-based planning. NCDOT developed a three-phase plan to cover highway assets, other highway assets (rest areas, weight stations) and other modes (airports, rail).
- **Transit Asset Management (TAM) Plan:** Tier I transit providers are required to develop a TAM Plan that includes an implementation strategy, key activities, and list of resources, along with an outline of how the provider will monitor, update, and evaluate its TAM plan.
- **Congestion Management Process (CMP):** As discussed in previous sections, the CMP is a systematic and regionally-accepted approach for managing congestion based on system performance. In addition to being a requirement for the French Broad River MPO, the CMP utilizes travel data to offer alternative approaches to meet state and local needs regarding congestion.

Additional Targets and Performance Measures

The projects programmed in the FBRMPO's 2045 MTP are intended to enhance and meet the targets and performance measures as established by FHWA and NCDOT. This emphasizes the importance of continuing to monitor and adopt measures that support the transition to performance-based planning and programming, as required by MAP-21 and the FAST Act.

Resources

Metropolitan Planning Organization Safety Performance Measures Fact Sheet
https://safety.fhwa.dot.gov/hsip/spm/docs/mpo_factsheet.pdf
 FHWA Safety Target Setting Resources
https://safety.fhwa.dot.gov/hsip/spm/target-setting_resources.cfm
 North Carolina Strategic Highway Safety Plan
<http://ncshsp.org/>





CHAPTER 4: PLAN DEVELOPMENT

PLAN DEVELOPMENT

PUBLIC INVOLVEMENT

The French Broad River MPO is committed to making public involvement a critical factor in the development of the MTP. Early on in the MTP 2045 process, the MPO outlined strategies and efforts of ways to engage the public. These efforts are guided by both federal and state requirements, as well as best practices identified by the MPO.

The Public Involvement Policy (PIP) adopted in 2014 and most recently adopted in 2019 has served as a guiding document for involvement efforts and outlines minimum requirements for MTP public involvement.⁸³ As stated in the PIP, the goals and objectives of the MTP Public Involvement Process are to:

- Encourage citizens to take a proactive role in the development of Transportation Plans.
- Bring a broad cross-section of members of the public into the public policy and transportation planning decision-making process.
- Educate the public and elected officials in order to increase public understanding both the options and constraints in transportation alternatives.
- Determine public concerns and/or perceived impacts of Transportation Plan elements.
- Determine which elements of the Long Range Transportation Plan would support or diminish the citizens' desired lifestyle.
- Establish a channel for an effective feedback process.

MTP 2045 Steering Committee

The Prioritization Subcommittee at the MPO served as the MTP Steering Committee. This committee has been responsible for reviewing draft components of the plan and providing feedback, receiving input from the Citizens Advisory Committee (CAC), and working with MPO staff to incorporate changes into the final draft of the Plan. Key Responsibilities of the Steering Committee include:

- Assist in developing this Public Outreach Plan that actively seeks the input and participation from the municipalities, agencies, businesses and residents within the French Broad River MPO region. The steering committee emphasized the role of CAC and

MPO staff efforts to collect public input

- Communicate with organizations they represent and assist with other public involvement efforts
- Develop updated MTP goals and objects along with performance measures
- Balance and prioritize competing public objectives
- Establish and recommend project priorities for area transportation needs based on a fiscally constrained list

Stakeholders

In order to engage as many constituents in the planning region as possible, the MPO compiled a list of stakeholders in the region with help from the Citizens Advisory Committee (CAC). This list of stakeholders comes from a wide variety of interest and community groups, as listed below but it is not comprehensive. Using publicly known names and organizations, in addition to entries from CAC members, an on-going email contact list was developed for outreach. This list includes a large number of area residents that are involved with advocacy groups, homeowners associations, business groups, and other civic organizations. Throughout development of the plan, information about upcoming workshops and chances for input was sent via Mailchimp to this list of over 380 community stakeholders. This is in addition to information being sent out via email to a list of nearly 300 MPO stakeholders that includes the TCC, Board and interested citizens whom previously signed up via the MPO website. The chart below lists the various groups that were potential stakeholders to participate in MTP efforts.

Table 4.1: Stakeholders

AREA RESIDENTS	Advocacy Groups	Community Associations
	Homeowners Associations	Historically Under-Represented Groups
CIVIC ORGANIZATIONS	Bike/Ped Advocacy Groups	Faith Based Organizations
	County-City Tourism and Development	Volunteer Organizations
ECONOMIC DEVELOPMENT	Municipality Chamber of Commerce	Industry Boards
	Business Associations	Career/Workforce
ELECTED OFFICIALS	City Council and Mayors	Planning Commissions
	State Legislators	Transportation and Public Works Committees
PUBLIC AGENCIES	Municipal Administrators/Planners (Local Government)	Environmental Resource
	State/Federal Department of Transportation	Parks and Recreation Departments
TRANSPORTATION SYSTEM USERS	Bicyclists and Pedestrians	Freight
	Transit Riders	Commuting/Telecommuting Programs
TRANSPORTATION AND COMMUNITY SERVICE PROVIDERS	Intercity and municipal Bus Service	County Transit Providers and Boards
	Airport and Freight	Aging and Disability Providers
FBRMPO	Staff	TCC and Board
	Prioritization Subcommittee	Citizens Advisory Committee

Events and Involvement Efforts

In order to gather feedback from as many citizens as possible, and to do so in an efficient manner, MPO staff utilized a variety of outreach methods. Table 4.3 provides an overview of the efforts and events that have taken place as part of this plan. Staff also participated in other events such as "Coffee with a Transportation Planner" and presentations to community groups that while not focused on the MTP, were an opportunity to inform the public about the MTP and offer a chance to subscribe to the email/newsletter list.

Staff visited various community events at different stages of the plan development in order to meet people where they were already gathering. This type of engagement, often called "meeting in a box", allows for quick setup and engagement of populations that may not traditionally attend public meetings. By posting components of the plan on the MPO website and accepting feedback via email and/or via surveys, this information was more readily available for those who wanted to participate on their own time. For example, early in the process, staff utilized the MetroQuest platform for soliciting feedback on what goals matter most to the public, identifying transportation hotspots/areas of concern. This online survey ran for a few months in early 2019 and garnered over 620 responses, which provided valuable feedback to the steering committee regarding the priority goal areas (picture of goal/vote results? In appendix?). Later in 2019, staff setup at holiday events around the region with posters of the goals and maps to identify hotspots in order to reach additional citizens. The events MPO staff setup at is listed below in Table 4.2. For event by event results, as well as reports regarding surveys, refer to Appendix xx.

Table 4.2: Public Involvement Timeline

Municipality	Event	Date	MTP Focus Area
Asheville	The Lighting of Downtown Asheville	November 22, 2019	MTP Goals and Transportation Areas of Concern
Canton	Canton Christmas Parade	December 5, 2019	MTP Goals and Transportation Areas of Concern
Black Mountain	Black Mountain's Holly Jolly	December 6, 2019	MTP Goals and Transportation Areas of Concern
Hendersonville	Hendersonville Christmas Parade	December 7, 2019	MTP Goals and Transportation Areas of Concern
Fletcher	Fletcher's Christmas in the Park	December 7, 2019	MTP Goals and Transportation Areas of Concern
Mars Hill	Mars Hill Candlelit Stroll	December 7, 2019	MTP Goals and Transportation Areas of Concern
Henderson County	Public Workshop	March 2, 2020	MTP Overview and Draft Project Input
Waynesville	Public Workshop	March 5, 2020	MTP Overview and Draft Project Input
Asheville	Public Workshop	March 11, 2020	MTP Overview and Draft Project Input
Summer events			

Table 4.3: Public Involvement Timeline

Stakeholder Email List Development	September 2018 - December 2018
<ul style="list-style-type: none"> •386 contacts organized through MPO staff and CAC efforts •Compiled and utilized for various Mailchimp newsletters 	
Goals and Areas of Concern Metroquest Survey	March - April 2019
<ul style="list-style-type: none"> •Over 620 users took the online survey for the more than 60 days it was open. •Full summary of results provided in the Appendix. 	
Priority Goals and Areas of Concern Public Events	December 2019
<ul style="list-style-type: none"> •Staff setup at six public events to gather feedback on goals of the MTP and collect problematic "hotspots" in the region •Full summary of results provided in the Appendix. 	
MTP Overview and Draft Projects Public Workshops	March 2020
<ul style="list-style-type: none"> •Staff hosted three drop-in style workshops at three public libraries around the region to showcase the plan and ask for feedback on the draft project list •36 participants attended the three events •The maps and data presented at the workshops were posted on the MPO website and open for public comment March through April 2020. 	
Draft MTP Input	Summer 2020

Ongoing Involvement Strategies

Given the varying success of engagement efforts and events held throughout development of the plan, staff worked to identify challenges and future opportunities for addressing those challenges. While some of them are specific to particular events or engagement methods, they can help provide a template for engagement over the course of the MTP implementation.

⁸³ French Broad River MPO. (2014). Public Involvement Policy. Retrieved from <http://frenchbroadrivermpo.org/wp-content/uploads/2019/08/Public-Involvement-Policy.pdf>

Table 4.4: Ongoing Involvement Challenges and Opportunities

CHALLENGE	OPPORTUNITY
Lack of familiarity with the French Broad River MPO: The general perception citizens have of transportation planning is that NCDOT owns a majority of the roads, and that municipalities tell them where to build or maintain. Many people, locally and statewide, are not aware that MPOs exist or what their role is.	Expand in-person and virtual outreach efforts: This includes continued coordination with local planning partners to distribute surveys and workshop information, in addition to holding smaller workshops and events such as “coffee with a transportation planner” to increase familiarity. Social media outreach is also a beneficial way to inform and engage the public. A future update to the Public Involvement Policy should outline strategies.
Timing of workshops: The March workshops took place around the 2020 primary elections, when a lot of citizenry were focused on voting and engaging with local issues, which can lead to “meeting fatigue”. Additionally, the outbreak of the COVID-19 virus nationwide quickly led to people avoiding crowds and gatherings, making them less likely to attend public meetings.	Online engagement: If circumstances for in-person engagement appear challenging, more emphasis can be placed on setting up online platforms for collecting feedback. The MPO received over 2,400 responses electronically to its SPOT 5 survey asking for project priorities in 2018. There are ample online tools available to the MPO such as MetroQuest and Survey Monkey. Paper copies and printed materials should accompany online surveys to ensure equal accessibility for those unable or unwilling to use online tools.
Consideration of localized versus regional issues: It can be a challenge for the public to think regionally about the transportation system versus the few routes they take to get to their destinations. Planning for the region over the next twenty-five years can be a long-time frame for the general public, as they are more likely to have comments on projects that directly impact their neighborhood or businesses over the next five to ten years.	“3-C” approach: The MPO should continue to ensure that the transportation planning process is continuous, cooperative and comprehensive. Transparency and partnerships are crucial aspects for ensuring public trust. Breaking down the complexity of transportation funding and project prioritization for the public’s understanding can help citizens feel more empowered and engaged, thus more likely to participate in giving feedback. Updating resources and providing opportunities for public input at all stages of the planning process is fundamental to a continuous process.
Overload of information: Some of those who attended the March workshop voiced concerns over the amount of information to consider for the MTP. Understandably, over 160 highway projects being considered for the MTP is a lot to provide feedback on, in addition to thinking about bike, pedestrian, and transit projects.	Segmenting of workshops: Since the primary focus of the March workshops was to get feedback on the draft project list, having two or three direct questions soliciting feedback could provide better results than overarching what do you like/not like questions. However, it is important that citizens understand how those projects factor into the long-range planning process.
Time and location of workshops: Considering the time and place of events is an on-going public engagement challenge. Regarding the March workshops, two of the workshops were held mid-day, with the other extending into the evening. All the workshops were held in library meeting rooms. While they were publicly accessible, it could be a challenge for those with work commitments or transportation limitations. The same persisted with the December events being held at community events where participants may have been pre-occupied with family, the parade, etc.	Shorter and more frequent engagement efforts: It has been discussed nationally that getting people to show up is the greatest hurdle to improving public engagement. Holding short (1-2 hour) events at multiple locations or giving a quick talk to a group of stakeholders may be better than holding a few ~3 hour workshops at one location on one day. This approach requires additional resources and planning but may also increase familiarity with the MPO. The CAC can provide feedback on how best to time and locate future events.
Engagement with materials: The maps and data provided may not have encouraged specific feedback regarding project preferences and priorities. Not enough “hands on” material may have discouraged participation. This resulted in lack of engagement from some citizens.	Focused engagement: Providing a limited number of maps and having interactive charts/ranking lists/projects to select from could improve feedback. This could involve online tools (virtual Q/A, responsive questions and prompts) or interactive ranking games (i.e. budgeting for projects, prioritizing goals).

FINANCIAL PLAN

Metropolitan Transportation Plans are required to have a financial plan, meaning there must be a reasonable assumption that funding will be available in the next twenty-five years for the projects programmed in the MTP.

Assumptions

The French Broad River MPO Financial Plan is based on several assumptions that fit the guidelines of FHWA's requirements for MTP financial plans. No major changes in legislation are assumed, no funding sources that do not currently exist are expected, and there are no increases in funding programs that cannot be reasonably assumed based on current legislative bills and local planning.

The other primary funding assumption is that the Strategic Transportation Investments (STI) Law of North Carolina will continue to be in place. This primarily impacts the distribution of state and federal funds for highway and bike/ped modes. STI splits funding into three tiers based on the facility type of the project: Statewide Mobility, Regional Impact, and Division Needs.

Statewide Mobility

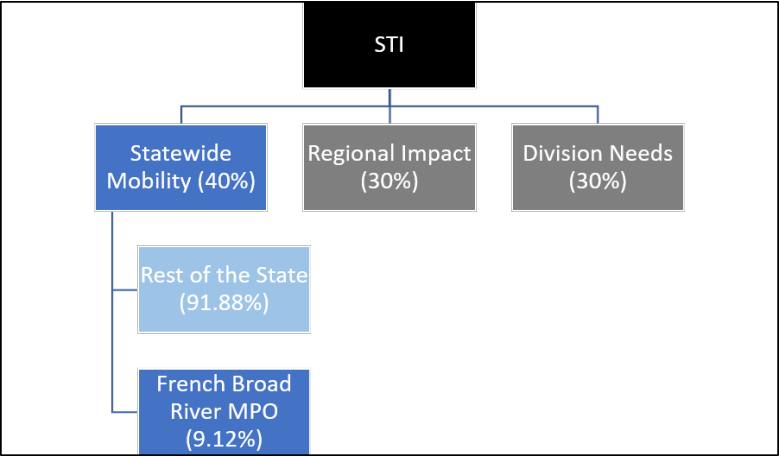
The Statewide Mobility tier makes up 40% of funding programmed through STI and is available for Interstate and facilities on the Strategic Highway System (STRAHNET). In the French Broad River MPO region, this funding can be applied to projects on I-26, I-40, I-240, and US 23/74 in Haywood County.

Projects funded in the Statewide Mobility tier are determined by the data-drive quantitative SPOT score. That means there is no funding guaranteed to specific regions; funding is just applied to projects considered to have the greatest need. To determine how much statewide mobility funding the French Broad River MPO would receive, the assumption is that the French Broad River MPO will continue to take down the same percentage of statewide mobility funds from the 2020-2029 State Transportation Improvement Program (9.12%) as it will over 25 years. This would result in- by far- the single largest source of funding for transportation funding in the French Broad River MPO Planning Area.

Table 4.5: Financial Plan Assumptions

Funding Source	Assumption
Highway- Federal Funding Programs (NHP, STBG, TAP)	Maintain current funding levels to keep up but not exceed the rate of inflation
Highway- State Funding	Maintain current funding levels to keep up but not exceed the rate of inflation
Highway- Local	Maintain current funding levels; primarily focused on maintenance
Bike/Ped- Federal Funding Programs (STBG, TAP)	Maintain current funding levels to keep up but not exceed the rate of inflation
Bike/Ped- State Funding	No state funding available for bike/ped
Bike/Ped- Local Funding	Local funding for bike/ped projects limited to Asheville, Hendersonville, Waynesville, and Black Mountain
Transit- Federal Funding (5307, 5310, JARC, 5339)	Maintain current funding levels to keep up but not exceed the rate of inflation
Transit- State Funding (ADTAP, ROAP)	Maintain current funding levels to keep up but not exceed the rate of inflation
Transit- Local Funding	Maintain current funding with expected expansions in Asheville
Aviation- Federal Funding	Maintain current funding levels to keep up but not exceed the rate of inflation
Aviation- State Funding	Maintain current funding levels to keep up but not exceed the rate of inflation
Aviation- Local Funding	Maintain current funding levels to keep up but not exceed the rate of inflation
Maintenance- Federal Funding (NHP, NHPP)	Maintain current funding levels to keep up but not exceed the rate of inflation
Maintenance- State Funding (including POWELL Bill)	Maintain current funding levels to keep up but not exceed the rate of inflation
Maintenance- Local Funding	Maintain current funding levels to keep up but not exceed the rate of inflation

Figure 4.1: Statewide Mobility Tier



Regional Impact

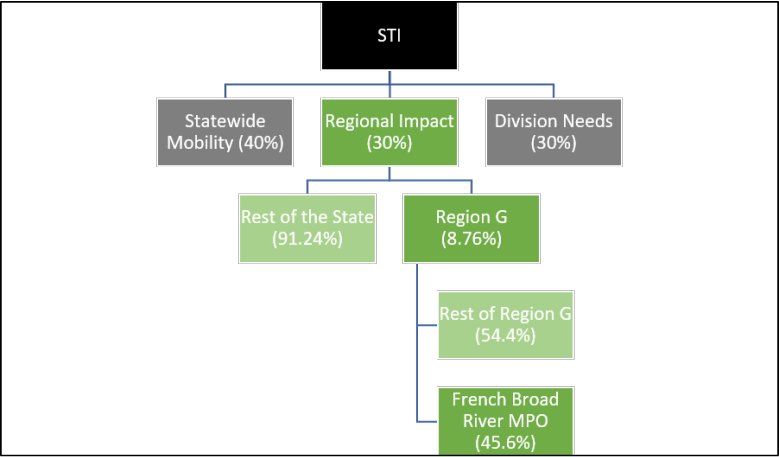
The Regional Impact tier makes up 30% of funding programmed through STI and is available for US and NC highways, transit facilities that serve multiple counties, and any project also eligible for the Statewide Mobility tier. Funding is divided among seven different regions in the State with each region's allocation being determined by population. The French Broad River MPO is in Region G which is made up of all the counties in NCDOT Divisions 13 and 14. Region G is the second least populated region in the state and therefore receives the second smallest amount of funding for this tier. Regional impact funding is determined by a mixture of quantitative data and local input points."

To project the amount of funding the French Broad River MPO will receive over 25 years, the French Broad River MPO assumes the MPO will receive a percentage of funding in-line with the French Broad River MPO's percentage of Region G population (45.6%). Other MPOs and RPOs in Region G (Land of Sky RPO, Isothermal RPO, Southwestern RPO, High Country RPO, and Hickory MPO) would be likely to receive the remaining percentage.

Division Needs

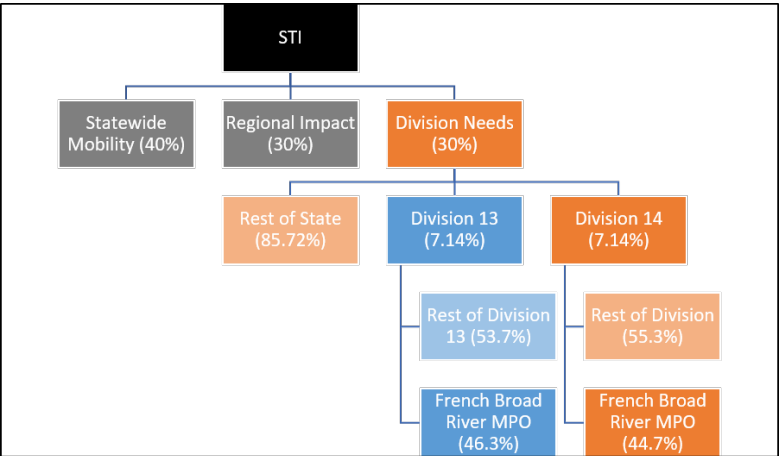
The Division Needs tier makes up 30% of funding programmed through STI, is determined by quantitative data and local input points, and is available for secondary roads, bike/ped projects, transit projects, and any projects also eligible in the Statewide Mobility and Regional Impact

Figure 4.2: Regional Impact Tier



tiers." Division Needs funds are split equally between the 14 NCDOT Divisions. Projects compete within each NCDOT Division. The French Broad River MPO lies partially within Divisions 13 and 14. To project the amount of funding in the Division Needs tier, two calculations have been done. One for Division 13, which projects the French Broad River MPO would receive 46.3% of the Division Needs funds in Division 13, based on the MPO's proportion of population within the Division. For Division 14, the French Broad River MPO is projected to receive 44.7% of the Division Needs funds in Division 14, based on the MPO's proportion of population within the Division.

Figure 4.3: Division Needs Tier



Bicycle and Pedestrian Funds

Funding for bicycle and pedestrian projects is considerably different than funding for highway projects. Not all bicycle and pedestrian projects are meant to or are going to be reflected in this section of the MTP- the primary focus is on larger bicycle and pedestrian projects that may require the application of state or federal funds or may play a significant role in changing mode choice for a large number of users and trips.

One important distinction for this section is that it only focuses on funding for stand-alone bicycle and pedestrian projects. This is an important distinction because bicycle and pedestrian improvements may also be planned and implemented as part of highway projects. Bicycle and pedestrian improvements made as part of highway projects would be budgeted under the highway financial plan. Bicycle and pedestrian improvements that are stand-alone (i.e. primarily not including vehicular improvements to the roadway) is what's considered in this section.

Bicycle and pedestrian funding being focused on in the MTP are funding opportunities that can be reasonably expected to continue and can be projected over twenty-five years. This primarily includes federal and local funds—North Carolina does not allow state funds to be applied towards stand-alone bicycle and pedestrian projects. The funds that are more irregular or do not follow FHWA guidance on being reasonably expected are not included in this financial plan, such as potential local bonds in the future, major private donations, and USDOT Build funds.

Federal funds are expected to come from three primary sources. The first, and most prominent source, is the MPO's Surface Transportation Block Grant- Direct Allotment (STBGDA) which has gone primarily towards bicycle and pedestrian projects since 2012. These are federal pass-through funds that are programmed by the MPO for eligible uses by member governments. Currently, the French Broad River MPO receives approximately \$4,250,000 of STBGDA funds per year. The second source is the MPO's Transportation Alternatives Program-Direct Allotment (TAPDA) which is very similar to STBGDA. These are funds programmed by the MPO; however, bicycle and pedestrian projects receive a considerably smaller amount receiving only \$330,000 per year. The third is federal funding that comes through the State's prioritization process for bicycle and pedestrian projects.

Bicycle and pedestrian projects are eligible at the Division Needs tier, the French Broad River MPO anticipates utilizing approximately four percent of anticipated Division Needs tier revenues for bicycle and pedestrian projects.

Figure 4.4: How is a Stand-Alone Bike/Ped Project Different from a Complete Streets Project?

Complete Streets

- **Primary Project Purpose:** Improve the Road for Vehicular Travel but Bike/Ped Improvements are To Be Considered
- **Local Match:** no match required, unless unplanned bike/ped improvements are requested

Stand-Alone Bike/Ped

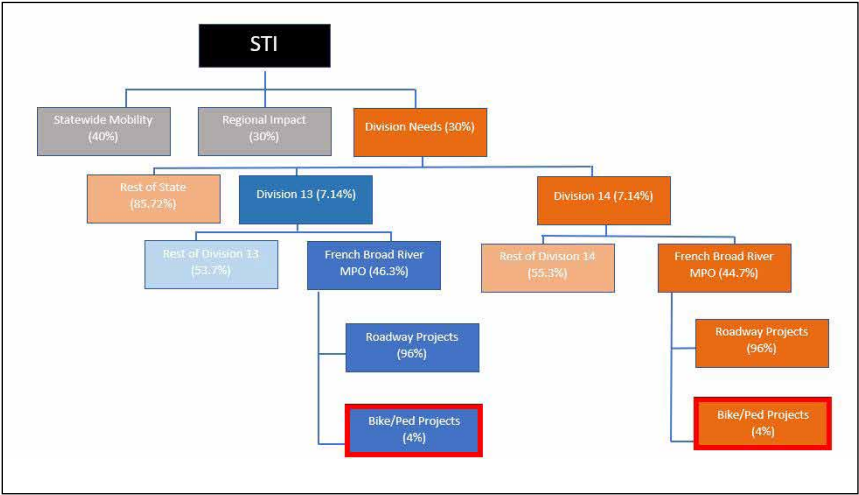
- **Primary Project Purpose:** Improve Bicycle and Pedestrian Travel but May Require Changes to Roadways
- **Local Match:** 20% of total project costs from non-federal sources

Local funds also play a significant role in funding bicycle and pedestrian projects. This includes funding from local governments, TDAs, and other non-federal sources. Local funding is necessary in order for federal funds to be utilized in our region and some local governments have taken on major bicycle and pedestrian projects without the use of other sources- including sections of the Richland Creek Greenway by the Town of Waynesville, improvements to Main Street by the Town of Canton, sidewalk projects by the Cities of Asheville and Hendersonville, and sections of trail and sidewalk by the Town of Black Mountain. However, for this MTP's financial plan local funding will be considered broadly as local match for federal funds. Currently there are no local bond referendums planned for the ballot and no dedicated local funds for bicycle and pedestrian improvements by the local government. We do anticipate that local investments will continue- and likely continue to increase- but those investments are not considered to be reasonably anticipated, based on FHWA guidance.

Transit Funds

All financial data in this section is presented in Year 2020 constant dollars, meaning that the values indicate what it would cost to build the system if all projects were paid for and built today. Projects will be built over 25 years and the connected costs will be affected by inflation.

Figure 4.5: Bike/Ped Projects in the Division Needs Tier



The 2045 MTP divides funding into five (5) time periods for projection:

- 2021-2025
- 2026-2030
- 2031-2035
- 2036-2040
- 2041-2045

Federal Funding. The FTA administers several programs funding public transportation services within the French Broad River MPO area. It is assumed that the cost of providing the current levels of public transportation services is expected to rise moderately due to inflation. Salaries and fringe benefits will continue to burden operating budgets for transit agencies. The demand for paratransit, as the elderly population grows, will create more pressure on regional operating budgets.

Figure 4.6: Total Transit Funding in FBRMPO Region (25 years)

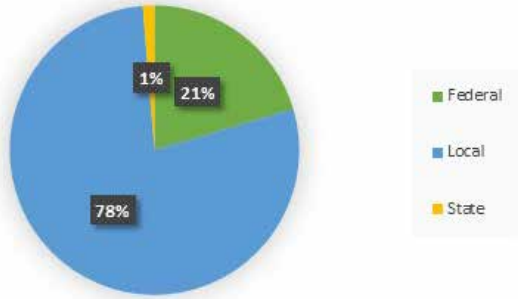
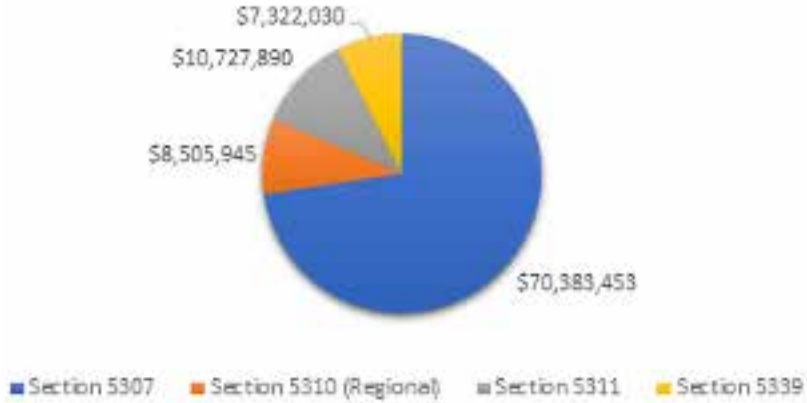


Table 4.6: Total Transit Funding in FBRMPO Region (25 years)

	Local	State	Federal
2021-2025	\$73,466,447	\$1,221,753	\$19,387,863
2026-2030	\$73,889,319	\$1,221,753	\$19,387,863
2031-2035	\$74,316,420	\$1,221,753	\$19,387,863
2036-2040	\$74,747,792	\$1,221,753	\$19,387,863
2041-2045	\$75,183,477	\$1,221,753	\$19,387,863
TOTAL	\$371,513,459	\$6,108,765	\$96,939,315

Figure 4.7: Federal Funding for Transit in FBRMPO Region (25 years)



Section 5307 Formula Grants provide funding to urbanized areas for public transportation capital, planning, job access and reverse commute projects, as well as transit operating assistance. For urbanized areas (greater than 50,000 in population) the funding formula is based on population, population density, and the number of low-income individuals.

5310 Enhanced Mobility of Seniors and Individuals with Disabilities provides funding for programs to service the special needs of transit-dependent populations beyond the traditional public transportation services or the complementary paratransit services of the Americans with Disabilities Act (ADA). Eligible activities include capital and operating projects that assist seniors and individuals with disabilities. Funds are apportioned for urbanized and rural areas based on the number of seniors and individuals with disabilities.

Section 5311 Formula Grants are available rural areas (less than 50,000 in population) for public transportation capital, planning, and operating assistance. A majority of the funding formula is based on land area and population in rural areas with a small percentage apportioned based on revenue vehicle miles and number of low-income individuals.

Section 5339 Bus and Bus Facilities allocates funding to states and subrecipients for capital funding to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities.

State Funding. The State of North Carolina provides funds for capital and operating assistance programs partially funded by FTA. Most funding levels are based on formulas that consider population and transit trips. Rural Operating Assistance Program (ROAP) and Elderly and Disabled Transportation Assistance Program (EDTAP) funds are only received by Henderson County and Madison County. State funds make up a significantly small portion of transit funding in the French Broad River MPO region. The systems that receive funding from the state are expected to continue receiving funding.

Local Funding. Local jurisdictions provide matching funds for capital and operating programs that are partially funded by federal and state transit monies. This local funding comes from the General Fund. Fare-box revenue and advertising displays on vehicles also provide additional financial support for transit revenue. The incremental increase in local funding seen in the charts and tables conform to Asheville's Transit Master Plan. Other local funding sources are forecasted to remain flat, keeping up with inflation but not exceeding it.

Maintenance Funding. The preservation and maintenance of the existing highway system is crucial for the safe and efficient movement of people and freight through the region. State and federal roadway

maintenance funds are set to equal expected expenditures in consideration of previous levels of revenues and expenses. The Highway Maintenance Improvement Program (HMIP) reflects state funding and provides anticipated cost for each maintenance project at the county level, and is available for fiscal years 2021-2025. Years 2021-2025 are detailed in HMIP Plans, with the remaining years (2026-2045) being based on the aforementioned assumption that funding will be maintained to keep up but not exceed the rate of inflation. This result means funding will remain flat, which is consistent with assumptions made for other funding sources. Since estimated costs are known at the county level, but not for specifically the MPO region, the amount reflects the percentage of roadway miles within the MPO for each county.

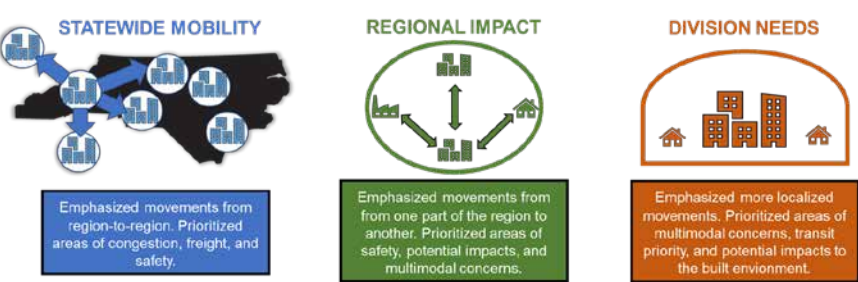
Federal funding for maintenance is made available through the National Highway Performance Interstate Maintenance (NHPIM) apportionment via the FAST Act. Additionally, bridge maintenance is covered under the National Highway Performance Program Bridge (NHPB). Funding estimates for these federal programs are listed in the TIP for fiscal years 2020-2023. The remaining years (2024-2045) are estimated based on the average of the known years. The federal maintenance funding is listed in the "Regionwide" column of the table. Local funds for roadway maintenance are reflected by what is distributed to local municipalities via Powell Bill funding. Additionally, on-road bicycle and pedestrian facility maintenance is reflected as part of federal and state road maintenance.

Based on this methodology, it is expected that over \$797 million in maintenance funding will come to the region between 2021 and 2045.

Table 4.7: Maintenance Funding:2021-2045

Maintenance Funding: 2021-2045 \$797,237,850			
Funding Type (Source)	Federal (NHPIM and NHPB)	State (HMIP)	Local (Powell Bill)
2021-2025	\$65,143,000	\$72,950,040	\$21,354,530
2026-2030	\$65,143,000	\$72,950,040	\$21,354,530
2031-2035	\$65,143,000	\$72,950,040	\$21,354,530
2036-2040	\$65,143,000	\$72,950,040	\$21,354,530
2041-2045	\$65,143,000	\$72,950,040	\$21,354,530
TOTAL	\$325,715,000	\$365,750,200	\$106,772,650

Figure 4.8: Project Prioritization Process



PROJECTS

The MTP is required to reflect projects that are already funded in the region and to reflect regional priorities that fit within expected revenues over the 25-year time horizon. Projects selected for the MTP were done so under the guidance of the MPO's steering committee with input provided from the public and the MPO's TCC and Board.

Projects for the MTP were selected over several months in late, 2019 and early, 2020, through a process with the steering committee. Candidate projects were drawn from the region's Comprehensive Transportation Plan, the Madison County Comprehensive Transportation Plan, locally-adopted bicycle and pedestrian plans, the regionally adopted Blue Ridge Bicycle Plan, and additional suggested projects from MPO TCC and Board members. Together, the full list of candidate projects comprised more than 350 potential projects around the region.

The next step was to prioritize projects based on both the MTP's goals as well as the financial constraints. The project prioritization process reflected the process which determines the majority of funding for transportation projects: the Strategic Transportation Investments (STI) Law of North Carolina. Each tier was provided with eligible projects and different needs were prioritized based on steering committee input and project eligibility.

This process reflects the financial opportunities and constraints under the current STI Law. Under the MTP 2045 financial projections, the French Broad River MPO would be expected to program more than \$2 billion in Statewide Mobility projects- a boon that, if realized, could only be applied to Interstates and US 23/74 (Great Smokey Mountains Expressway) in the region. Regional Impact funding, however, is divided at the state-level based on population- the region in which the French Broad River MPO falls is the second least populated in the state, meaning available funding is limited for Regional Impact projects. Division Needs is projected to be slightly more

Gaps Between MTP Recommendations and Projects

The French Broad River MPO MTP has a noted gap between recommendations and projects. While improving non-highway modes are clear priorities of the MTP, these priorities stand in contrast to the MTP's financial plan. The reason is that the goals and recommendations are more aspirational- a direction in which the region wants to move with planning activities that may help the MPO move in that direction.

The financial plan, however, reflects the current funding policies that impact our region. These funding policies are largely set at the state and federal levels and the MPO/region has minimal means for their alteration.

Current funding policies have programmed a substantial amount of funding towards highway improvements in our region. There are currently more than \$2 billion in highway investments planned with more than half of that programmed towards widenings and other improvements on I-26. These are not funds that can be easily moved to other activities within the current constraints of state and federal funding policies.

At the same time, it should be recognized that a blanket term of "highway improvements" does not necessarily account for everything being addressed through highway projects. Park and Ride lots may be added as part of the scope of projects, if deemed appropriate- a recommendation in the MTP. Bicycle and pedestrian facilities may be added as part of highway projects as well, per NCDOT's Complete Streets Policy. Projects such as Russ Avenue in Waynesville, NC 280 in Mills River, and Amboy/Meadow in Asheville are all programmed with the primary intent of addressing roadway/vehicular deficiencies but are being designed to include improvements for other modes as well.

In conclusion, while the gap may be somewhat less in reality than it may seem in this plan, it still very much exists and is worth acknowledging. Our region has a number of challenges and has access to limited resources, so the funding that is projected to come to our region based on current policies does not necessarily match the priorities set forth in this document. Providing a financial plan that reflects funding realities enables us to be better prepared for projects that are likely coming, plan for improvements that address deficiencies for more modes, and prioritize local and regional resources to better plan for these on-coming investments. This approach provides an opportunity to better examine how funding policies are expected to play out over the long-term and enable a discussion of their fit with our region. Projects are listed below by horizon year; roughly when projects are expected to be completed.

TOTAL HIGHWAY FUNDING IN MTP FINANCIAL PLAN: \$3,881,564,000
 TOTAL HIGHWAY PROJECT COSTS IN MTP: \$3,840,955,000
 TOTAL BIKE/PED FUNDING IN MTP FINANCIAL PLAN: \$200,000,000
 TOTAL BIKE/PED PROJECT COSTS IN MTP: \$199,722,000

Table 4.8: Horizon Year 2030 (Projects Committed in the TIP)

HORIZON YEAR 2030 (PROJECTS COMMITTED IN THE TIP)							
MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HS4501	I-4400B	I-26	US 25	US 64	\$82,152,000	Widening	Henderson
HR4514	I-4400C	I-26	NC 280	US 25	(Costs Accounted For Previously)	Widening	Henderson
HS4502	I-4700	I-26	I-40	NC 280	\$62,468,000	Widening	Buncombe
HS4505	I-2513B	I-26/I-240	Exit 25/NC 251	North of Haywood Road	\$644,505,000	Widen and Build New Bridges over the French Broad River	Buncombe
HS4506	I-2513C	I-26	I-40/I-240	-	\$217,602,000	Upgrade Interchange	Buncombe
HR4501	I-2513A	I-26/I-240	I-40	North of Haywood Road	\$163,690,000	Widening	Buncombe
HS4503	I-4759	I-40	Liberty Road	-	\$41,722,000	Convert Grade Separation to New Interchange	Buncombe
HS4504	I-4409	I-40	Blue Ridge Road	-	\$13,250,000	Convert Grade Separation to New Interchange	Buncombe
HR4502	A-0010AA	Future I-26	Exit 19 (Weaver Boulevard)	Exit 25 (NC 251)	\$116,900,000	Widening and Upgrade to Interstate Standards	Buncombe
HR4504	U-5783	US 64	Blythe Street	White Pine Drive	\$17,870,000	Widening with Complete Streets Improvements	Henderson
HR4505	U-6049	NC 225 (S Main Street)	S King Street	US 176 (Spartanburg Highway)	\$4,633,000	Bridge Widening	Henderson
HR4506	U-6124	NC 280	NC 191	NC 191	\$9,600,000	Access Management	Henderson
HR4507	U-3403B	NC 191	Ledbetter Road	Blue Ridge Parkway	\$13,464,000	Widening	Buncombe
HR4508	U-5781	US 25@ Edgewood Rd	-	-	\$1,003,000	Intersection Improvement	Buncombe
HR4509	U-2801A	US 25A	US 25	Rock Hill Road	\$39,000,000	Widening	Buncombe
HR4510	U-5972	NC 63	US 19/23	Newfound Road	\$28,400,000	Access Management	Buncombe
HR4511	U-5971	US 19 (Patton Avenue)	NC 63	-	\$2,700,000	Intersection Improvement	Buncombe
HR4512	U-5973	US 25	New Stock Road	-	\$1,300,000	Intersection Improvement	Buncombe

MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HR4513	AV-5735	Runway Construction	-	-	\$300,000	Runway Construction	Buncombe
HD134501	R-5779	Crossroads Parkway	Current limits of SR 1631	SR 1632	\$4,071,000	New Roadway	Madison
HD134502	U-5832	NC 81	Biltmore Avenue	S Tunnel Road	\$10,550,000	Widening	Buncombe
HD134503	U-5837	Riceville Road	US 70	Clear Vista Lane	\$2,000,000	Modernization	Buncombe
HD134504	U-6163	Mills Gap Road	Cane Creek Road	-	\$1,300,000	Intersection Improvement	Buncombe
HD134505	U-4739	Amboy/ Meadow Road	I-240	Biltmore Avenue	\$49,300,000	Modernization	Buncombe
HD134506	U-6230	New Access Road for Enka Commerce Park	US 19/23	NC 112	\$1,300,000	New Roadway	Buncombe
HD134507	U-5834	Mills Gap Road	US 25	Weston Road	\$15,333,000	Widening	Buncombe
HD134508	U-6162	N Louisiana Avenue	US 19/23	Emma Road	\$5,800,000	Modernization	Buncombe
HD134509	U-6046	NC 81 (Swannanoa River Road)	US 70	US 74A	\$23,302,000	Modernization	Buncombe
HD134510	U-6047	NC 112 (Sand Hill/Sardis Road)	NC 191	US 19/23	\$44,515,000	Widening	Buncombe
HD144501	U-6172	US 23/74	Balsam View Drive	Old Balsam Road	\$23,000,000	Modernization	Haywood, Jackson
HD144502	R-5921	US 276	US 19	I-40	\$20,700,000	Modernization	Haywood
HD144503	R-2588B	NC 191	Mountain Road	NC 280	\$79,700,000	Widening	Henderson
HD144504	R-5746	Kanuga Road	US 25B	Little River Road	\$13,050,000	Modernization	Henderson

MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HD144505	U-6048	US 19/23	Chestnut Mountain Road	Wiggins Road	\$4,535,000	Modernization	Buncombe, Haywood
HD144506	U-5888	US 23B	Walnut Street	-	\$3,450,000	Intersection Improvement	Haywood
HD144507	U-6159	US 276	US 23/74	US 19	\$13,600,000	Access Management	Haywood
HD144508	U-5839	US 276	US 23/74	US 23B	\$21,200,000	Access Management	Haywood
HD144509	U-6158	US 276	Crymes Cove Road	-	\$2,700,000	Intersection Improvement	Haywood
HD144510	U-5886	White Street	Willow Road	US 176	\$33,370,000	Roadway Realignment	Henderson
HD144511	U-5887	Highland Lake Road	NC 225	US 176	\$3,100,000	Modernization	Henderson
HD144512	U-5840	Old Airport Road	US 25	Mills Gap Road	\$8,785,000	Widening	Henderson
HD144513	U-4712	US 23B (South Main Street)	Hyatt Creek Road	US 276	\$50,540,000	Widening	Haywood
HD144514	U-5548	Brown Avenue	Boyd Avenue		\$500,000	Roadway Realignment	Haywood
HD134514	I-2513D	Riverside Drive	Hill Street	Broadway Avenue	\$9,500,000	Widening	Buncombe

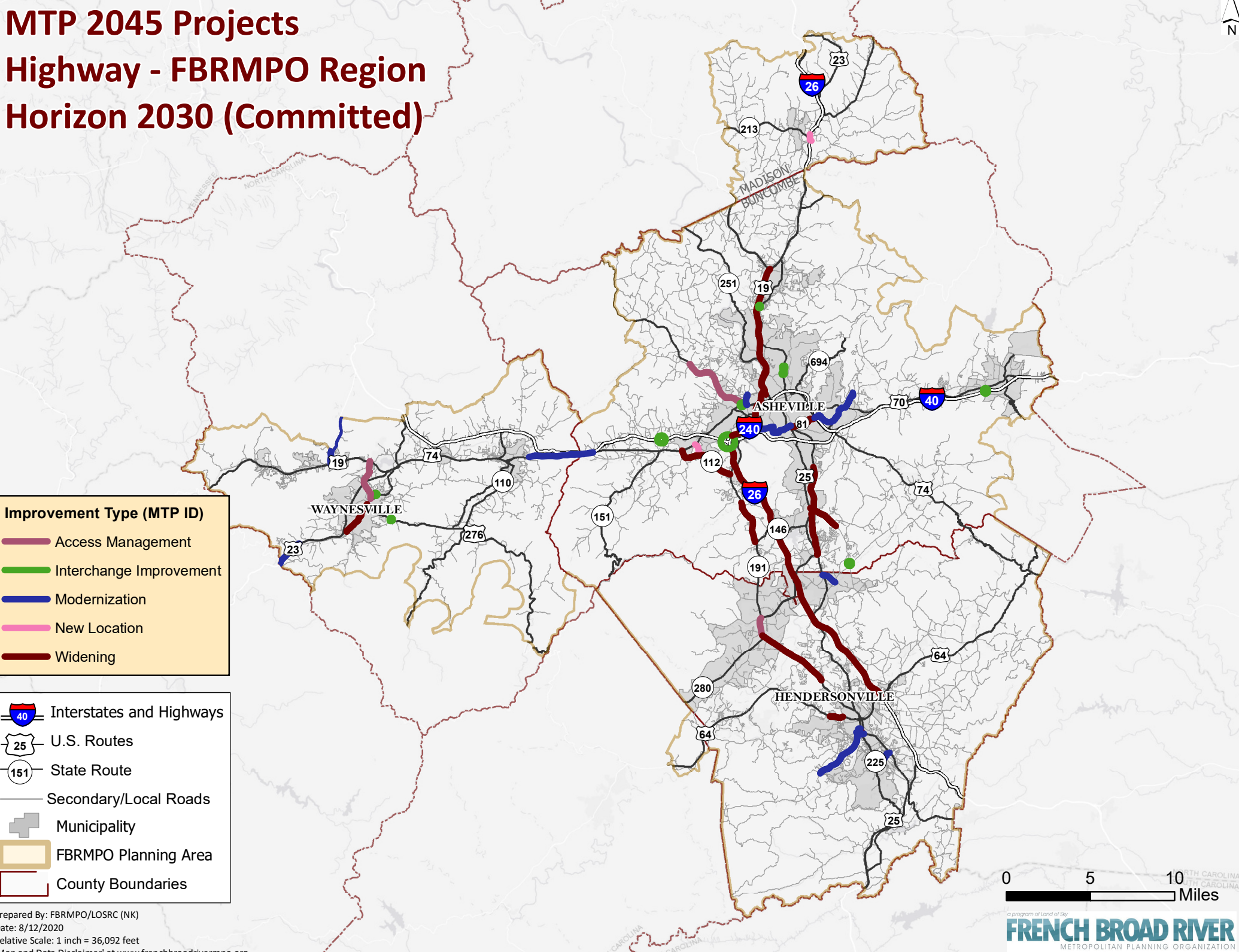
Table 4.9: Bicycle and Pedestrian Projects - Horizon Year 2030

BICYCLE AND PEDESTRIAN PROJECTS – HORIZON YEAR 2030							
MTP ID	TIP ID	Route	From	To	Cost	Improvement	County
BP134514	EB-5790	Asheville Greenway Connectors	River Arts District	Beaucatcher Greenway	\$1,146,000	Bike Improvements	Buncombe
BP144517	EB-5860	Blythe Streeet	US 64	NC 191	\$960,000	Sidewalks	Henderson
BP134505	EB-5965	Deaverview Road	Patton Avenue	Westmore Drive	\$3,205,000	Sidewalks	Buncombe
BP134519	EB-5824	Enka Heritage Trail	Sand Hill School Road	Enka High School	\$6,400,000	Multi-Use Path	Buncombe
BP134503	U-5019B	French Broad River West Greenway	Haywood Road	French Broad River Park	\$5,000,000	Multi-Use Path	Buncombe
BP144508	EB-5963	Grove Street	US 176	Barnwell Street	\$904,000	Sidewalks	Henderson
BP144520	EB-5859	Hazelwood Avenue	Plott Creek Road	Will Hyatt Road	\$183,000	Sidewalks	Haywood
BP134515	EB-5944	Johnston Boulevard	Patton Avenue	Iona Circle	\$2,350,000	Sidewalks	Buncombe
BP134521	EB-5919	McDowell Street/Choctaw Street	Southside Avenue	Biltmore Avenue	\$446,000	Pedestrian Improvements	Buncombe
BP134511	EB-5774	NC 251/Beaverdam Creek Greenway	Broadway	US 25	\$7,530,000	Multi-Use Path	Buncombe
BP134513	EB-5947	New Haw Creek Road	Beverly Road	Bell Road	\$2,375,000	Sidewalks	Buncombe
BP134506	EB-5822	North RAD Greenway	Hill Street	Broadway	\$3,179,000	Multi-Use Path	Buncombe
BP134516	EB-5948	Onteora Boulevard	Lincoln Avenue	Raleigh Road	\$1,140,000	Sidewalks	Buncombe
BP134507	EB-5547	Riverwalk Greenway	Flat Creek Greenway	Into the Oaks Trail	\$6,009,000	Multi-Use Path	Buncombe
BP134504	U-5019A	Town Branch Greenway	US 25	Depot Street	\$4,275,000	Multi-Use Path	Buncombe
BP144512	EB-5926	US 19 (Soco Road)	US 19	Soco Road	\$1,975,000	Complete Streets	Haywood

MTP 2045 Projects

Highway - FBRMPO Region

Horizon 2030 (Committed)





MTP 2045 Projects








Bicycle and Pedestrian - FBRMPO Region

Horizon 2030 (Committed)

BikePed

Improvement Type

-  Bike Improvements
-  Pedestrian Improvements

-  Interstates and Highways
-  U.S. Routes
-  State Route
-  Secondary/Local Roads
-  Municipality
-  FBRMPO Planning Area
-  County Boundaries

Prepared By: FBRMPO/LOSRC (NK)
Date: 8/13/2020
Relative Scale: 1 inch = 36,092 feet
'Map and Data Disclaimer' at www.frenchbroadrivermpo.org

Table 4.10: Horizon Year 2040 (Projects in the Prioritization Process from the MPO)

HORIZON YEAR 2040 (PROJECTS IN THE PRIORITIZATION PROCESS FROM THE MPO)							
MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HS4507	I-6018	I-40	I-240/US 74A	-	\$35,100,000	Interchange Improvement	Buncombe
HS4508	I-6021	I-40	Porter's Cove Road	-	\$7,200,000	Interchange Improvement	Buncombe
HS4509	I-4400A	I-26	US 25	US 64	\$80,000,000	Widening	Henderson
HS4510	I-6054C	I-40	Wiggins Road	Monte Vista Road	\$102,900,000	Widening	Buncombe
HS4511	I-6054A	I-40	US 74	NC 215	\$60,500,000	Widening	Haywood
HS4512	I-6054B	I-40	NC 215	Exit 37 (Wiggins Road)	\$169,500,000	Widening	Haywood
HS4513	A-0010AB	Future I-26	US 25	SR 2207	\$72,500,000	Interstate Modernization	Buncombe
HS4514	A-0010AC	Future I-26	SR 2207	South of SR 2148	\$27,500,000	Interstate Modernization	Buncombe
HR4515	U-3403A	NC 191	Ledbetter Road	NC 280 (Boylston Highway)	\$31,212,000	Widening with Complete Streets Improvements	Buncombe, Henderson
HR4516		US 25 (Hendersonville Road)	Blue Ridge Parkway	NC 146 (Long Shoals Road)	\$56,189,000	Access Management with Complete Streets Improvements	Buncombe
HR4517		US 25 (Hendersonville Road)	NC 146 (Long Shoals Road)	NC 280 (Airport Road)	\$40,859,000	Access Management with Complete Streets Improvements	Buncombe
HR4518		US 25A (Biltmore Avenue), US 25 (McDowell Street), Southside Avenue	Hilliard Avenue	All Souls Crescent	\$15,339,000	Roadway Upgrade to Improve Multimodal Accommodations	Buncombe
HR4519		US 25 (Merrimon Avenue)	Wembley Road	I-240	\$10,890,000	Road Diet	Buncombe
HR4520		US 23A (Haywood Road)	State Street, N Louisiana Avenue			Multiple Intersection Improvements with Complete Streets Improvements	Buncombe

MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HR4521		US 70 (Tunnel Road)/US 74A (South Tunnel Road)	I-240	Blue Ridge Parkway	\$37,900,000	Access Management with Complete Streets Improvements	Buncombe
HR4522		US 25/US 19/23B (Weaverville Highway)	Elkwood Avenue	Reems Creek Road	\$6,253,000	Access Management with Complete Streets Improvements	Buncombe
HR4523		New Clyde Highway	NC 215	Midway Crossings Drive	\$8,283,000	Access Management with Complete Streets Improvements	Haywood
HR4524		US 19 (Dellwood Road)	US 276 (Russ Avenue)	US 276 (Jonathan Creek Road)	\$15,987,000	Access Management with Complete Streets Improvements	Haywood
HR4525		US 25B (Asheville Highway)	North Main Street	-	\$2,952,000	Intersection Improvement with Complete Streets Improvements	Henderson
HR4526		US 19/23 (Smokey Park Highway)	I-40	NC 151	\$44,041,000	Access Management with Complete Streets Improvements	Buncombe
HD134511		Bruce Road	N Main Street	Bailey Street	\$2,914,000	Modernization with Complete Streets Improvements	Madison
HD134512		Blue Ridge Road	Blue Ridge Assembly Drive	NC 9	\$1,844,000	Modernization with Complete Streets Improvements	Buncombe
HD134513		Woodfin Street	Central Avenue	Lexington Avenue	\$5,000,000	Modernization with Complete Streets Improvements	Buncombe
HD134514		US 70	Blue Ridge Road	NC 9	\$13,106,000	Road Diet	Buncombe
HD134515		US 25A (Sweeten Creek Road)	I-40	US 25 (Biltmore Avenue)	\$3,838,000	Roadway Upgrade with Complete Streets Improvements	Buncombe
HD134516		US 70 (Tunnel Road)/US 74A (South Tunnel Road)	The Tunnel	NC 81 (Swannanoa River Road)	\$51,815,000	Access Management with Complete Streets Improvements	Buncombe
HD134517		US 25 (Hendersonville Road)	I-40	Blue Ridge Parkway	66,557,000	Access Management with Complete Streets Improvements	Buncombe

MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HD144533	U-6160	US 19 (Soco Road)	Fie Top Road	Blue Ridge Parkway	\$26,610,000	Modernization with Complete Streets Improvements	Haywood
HD144515		US 19/23	Chestnut Mountain Road	NC 215	\$6,475,000	Roadway Upgrade with Complete Streets Improvements	Haywood
HD144516		Fanning Bridge Road	US 25 (Hendersonville Road)	NC 280 (Airport Road)	\$6,628,000	Modernization with Complete Streets Improvements	Henderson
HD144517		White Pine/Hebron Road	US 64	Kanuga Road	\$17,875,000	Modernization with Complete Streets Improvements	Henderson
HD144518		Signal Hill/Thompson/Berkley	NUS 64 (Four Seasons Boulevard)	US 25B (Asheville Highway)	\$11,613,000	Modernization with Complete Streets Improvements	Henderson
HD144519		Blythe Street	NC 191	US 64	\$6,891,000	Modernization with Complete Streets Improvements	Henderson
HD144520		Butler Bridge Road	US 25B (Hendersonville Road)	NC 191 (Boylston Highway)	\$18,000,000	Modernization with Complete Streets Improvements	Henderson
HD144521		Duncan Hill Road	US 64 (Four Seasons Boulevard)	Signal Hill Road	\$5,650,000	Modernization with Complete Streets Improvements	Henderson

Table 4.11: Bicycle and Pedestrian Projects - Horizon Year 2040

BICYCLE AND PEDESTRIAN PROJECTS – HORIZON YEAR 2040							
MTP ID	TIP ID	Route	From	To	Cost	Improvement	County
BP134518	EB-5823	Bent Creek Greenway	Hominy Creek River Park	WNC Farmer's Market	\$4,000,000	Multi-Use Path	Buncombe
BP144502	EB-5945	Champion Drive	North Canton Road	Thickety Road	\$2,380,000	Sidewalks	Haywood
BP134509	EB-5831	Coxe Avenue	Patton Avenue	Short Coxe Avenue	\$5,250,000	Complete Streets	Buncombe
BP134510	EB-5830	Lexington Avenue	Patton Avenue	Southside Avenue	\$6,750,000	Complete Streets	Buncombe
BP144501	EB-5946	Mills River Valley Trail	French Broad River	NC 191	\$3,000,000	Multi-Use Path	Henderson

MTP ID	TIP ID	Route	From	To	Cost	Improvement	County
BP134522	EB-5821	Reems Creek Greenway	Western Weaverville Town Limits	Karpen Soccer Fields	\$6,000,000	Multi-Use Path	Buncombe
BP144533		Allen Branch Greenway	US 64	I-26	\$3,755,000	Multi-Use Path	Henderson
BP144531		Allen's Creek Road	Lickstone Road	Piney Mountain Road	\$590,000	Sidewalks	Haywood
BP134538		Bailey Street	Bearwood Drive	Forest Street	\$955,000	Sidewalks	Madison
BP134539		Banjo Branch Greenway	Hickory Drive	Banjo Branch Road	\$2,625,000	Multi-Use Path	Madison
BP144535		Brooklyn Avenue	NC 225	US 176	\$2,665,000	Sidewalks	Henderson
BP144529		Champion Drive	North Canton Road	Thickety Road	\$3,130,000	Bike Improvements	Haywood
BP144537		Ecusta Trail	Kanuga Road	Transylvania County Line	\$18,400,000	Multi-Use Path	Henderson
BP134523		Emma Road	North Louisiana Avenue	Boone Street	\$2,190,000	Sidewalks	Buncombe
BP134524		Fonta Flora Greenway	Yates Avenue	Black Mountain Town Limits	\$6,945,000	Multi-Use Path	Buncombe
BP134525		North Blue Ridge Road	US 70	Fortune Street	\$1,145,000	Sidewalks	Buncombe
BP144534		Oklawaha Greenway (Southern Extension)	Jackson Park	Blue Ridge Community College	\$4,535,000	Multi-Use Path	Henderson
BP144532		Old Clyde Highway	Blackwell Drive	Granberry Street	\$1,850,000	Sidewalks	Haywood
BP134528		Old Haywood Road	US 19/23 (Patton Avenue)	US 19/23 (Patton Avenue)	\$5,500,000	Sidewalks	Buncombe
BP134526		Reed Creek Greenway Connector	Reed Creek Greenway	Clingman Avenue	\$3,910,000	Bike Improvements	Buncombe
BP144530		Richland Creek Greenway	Waynesville Rec Park	Haywood High-Tech Center	\$3,570,000	Multi-Use Path	Haywood
BP134527		Riverside Drive	Hill Street	I-240	\$905,000	Bike Improvements	Buncombe
BP144536		US 64	Orrs Camp Road	Howard Gap Road	\$2,675,000	Sidewalks	Henderson

MTP 2045 Projects

Highway - FBRMPO Region

Horizon 2040 (SPOT)

Improvement Type (MTP ID)

- Access Management
- Intersection Improvements
- Modernization
- Road Diet
- Widening

- Interstates and Highways
- U.S. Routes
- State Route
- Secondary/Local Roads
- Municipality
- FBRMPO Planning Area
- County Boundaries

Prepared By: FBRMPO/LOSRC (NK)
Date: 8/12/2020
Relative Scale: 1 inch = 36,092 feet
'Map and Data Disclaimer' at www.frenchbroadrivermpo.org

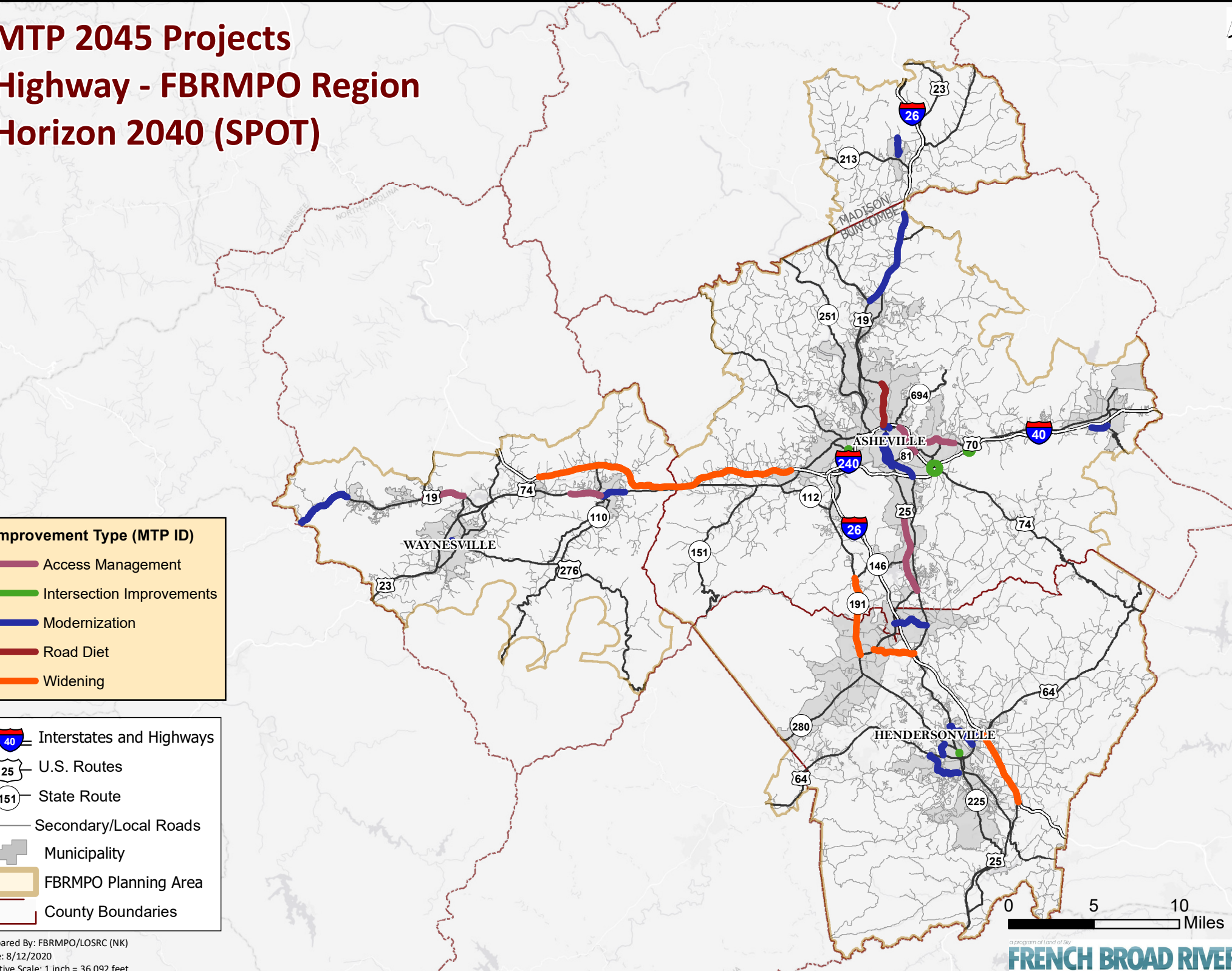


Table 4.12: Horizon Year 2045 (Longer-Term Priorities)

HORIZON YEAR 2045 (LONGER-TERM PRIORITIES)							
MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HS4515		I-240	Charlotte Street	-	\$9,225,000	Interchange Improvement	Buncombe
HS4516		I-240	Merrimon Avenue	-	\$26,986,000	Interchange Improvement	Buncombe
HS4517		US 23/74 (Great Smokey Mountains Expressway)	I-40	Blue Ridge Parkway	\$243,022,000	Access Management / Widening	Haywood
HS4518		I-40	US 25 (Hendersonville Road)	Patton Cove Road	\$177,285,000	Widening	Buncombe
HD144525		US 19 (Dellwood Road)	US 23/74 (Great Smokey Mountains Expressway)	US 276 (Russ Avenue)	\$19,094,000	Access Management with Complete Streets Improvements	Haywood
HD134518		US 19/23 (Patton Avenue/ Smokey Park Highway)	I-40	Haywood Road	\$55,764,000	Access Management with Complete Streets Improvements	Buncombe
HD134519		Rock Hill Road	US 25 (Hendersonville Road)	US 25A (Sweeten Creek Road)	\$2,817,000	Modernization with Complete Streets Improvements	Buncombe
HD134520		Haywood Road	Craven Street	US 19/23 (Patton Avenue)	\$15,441,000	Modernization with Complete Streets Improvements	Buncombe
HD134521		Broadway	Chestnut	I-240	\$13,366,000	Modernization with Complete Streets Improvements	Buncombe
HD134522		NC 280 (Airport Road)	US 25 (Hendersonville Road)	I-26	\$27,332,000	Access Management with Complete Streets Improvements	Buncombe
HD134523		Beaverdam Road	US 25 (Merrimon Avenue)	Webb Cove Road	\$7,714,000	Modernization with Complete Streets Improvements	Buncombe
HD134524		US 25A (Sweeten Creek Road)	I-40	Rock Hill Road	\$24,037,000	Access Management with Complete Streets Improvements	Buncombe
HD134525		New Location (Peachtree Road Extension)	US 25 (Hendersonville Road)	US 25A (Sweeten Creek Road)	\$22,063,000	New Roadway with Complete Streets Improvements	Buncombe
HD134526		US 74A (Fairview Road)	NC 81 (Swannanoa River Road)	Cedar Street	\$29,859,000	Access Management with Complete Streets Improvements	Buncombe

MTP ID	TIP ID	ROUTE	FROM	TO	COST	GENERAL IMPROVEMENT	COUNTY
HD134527		Elkwood Avenue	NC 251 (Riverside Drive)	US 25 (Merrimon Avenue)	\$7,451,000	Modernization with Complete Streets Improvements	Buncombe
HD134528		NC 280 (Airport Road)	I-26	French Broad River	\$29,831,000	Access Management with Complete Streets Improvements	Buncombe
HD144532		Dellwood Road	US 276 (Russ Avenue)	Miller Street	\$3,000,000	Modernization with Complete Streets Improvements	Haywood
HD144531		US 25B (Asheville Highway)	NC 191	I-26	\$53,363,000	Access Management with Complete Streets Improvements	Henderson
HD144522		Walnut Street	US 276	N Main Street	\$6,000,000	Modernization with Complete Streets Improvements	Haywood
HD144523		US 64	Howard Gap Road	Fruitland Road	\$12,068,000	Access Management with Complete Streets Improvements	Henderson
HD144524		Sulphur Springs/Smathers Street	Hazelwood Avenue	Miller Street	\$7,818,000	Multiple Intersection Improvements with Complete Streets Improvements	Haywood
HD144526		Brown Avenue	Belle Meade Avenue	Hazelwood Avenue	\$3,000,000	Modernization with Complete Streets Improvements	Haywood
HD144527		US 64	Fruitland Road	Gilliam Road	\$11,944,000	Modernization with Complete Streets Improvements	Henderson
HD144528		Elysinia Avenue	US 23/74 (Great Smokey Mountains Expressway)	Hazelwood Avenue	\$2,500,000	Modernization with Complete Streets Improvements	Haywood
HD144529		US 176 (Spartanburg Highway)	NC 225	Upward Road	\$40,701,000	Access Management with Complete Streets Improvements	Henderson
HD144530		Shepherd Street/Airport Road	NC 225	Tracey Grove Road	\$11,798,000	Modernization with Complete Streets Improvements	Henderson

Table 4.13: Bicycle and Pedestrian Projects - Horizon Year 2045

BICYCLE AND PEDESTRIAN PROJECTS – HORIZON YEAR 2045						
MTP ID	Route	From	To	Cost	Improvement	County
BP144551	Balsam Drive Sidewalks	Browne Ave	S Main	\$1,425,000	Sidewalks	Haywood
BP134554	Caribou Rd Sidewalks	Sweeten Creek Rd	Shiloh Rd	\$1,405,000	Sidewalks	Buncombe
BP134541	Depot St Connector	-	-	\$2,000,000	Multi-Use Path	Buncombe
BP144543	Greenville Highway (NC 225) Sidewalks	Spartanburg Hwy	Brooklyn Ave	\$1,405,000	Sidewalks	Henderson
BP134550	Lake Julian Greenway	I-26	Lake Julian Park	\$4,525,000	Multi-Use Path	Buncombe
BP134542	Montford Greenway	French Broad River	Montford Ave/ Riverside	\$4,020,000	Multi-Use Path	Buncombe
BP134546	Owen Spur Greenway Alternate - River	Brock Park	Owen HS	\$11,595,000	Multi-Use Path	Buncombe
BP144545	Richland Creek Greenway	Rec Park	Hyatt Creek Rd	\$10,885,000	Multi-Use Path	Haywood
BP134555	Rock Hill Road Sidewalks	Ridgelawn Rd	Edgewood Dr	\$1,010,000	Sidewalks	Buncombe
BP134552	Smoky Park Highway - South of I-40	I-40	Sand Hill Rd	\$3,125,000	Sidewalks	Buncombe
BP134553	Smoky Park Highway Sidewalks - North of I-40	Old Haywood Rd	I-40	\$2,445,000	Sidewalks	Buncombe
BP144548	Vance St Sidewalks	W Marshall/Walnut St	Waynesville Rec Park	\$1,030,000	Sidewalks	Haywood
BP144556	Wall Street Sidewalks	US 276/Pigeon St	N Main St/ Assembly St	\$870,000	Sidewalks	Haywood
BP134547	West Asheville Rails to Trails - Enka Section	Buncombe County Sports Park	Old Haywood Rd	\$6,245,000	Multi-Use Path	Buncombe
BP134540	West Asheville Rails to Trails - West Asheville Section	Old Haywood Rd	Emma Greenway	\$8,200,000	Multi-Use Path	Buncombe

MTP 2045 Projects

Highway - FBRMPO Region

Horizon 2045 (Long-Term Priorities)

Improvement Type (MTP ID)

- Access Management
- Intersection Improvements
- Modernization
- New Location
- Road Diet
- Widening

Interstates and Highways

U.S. Routes

State Route

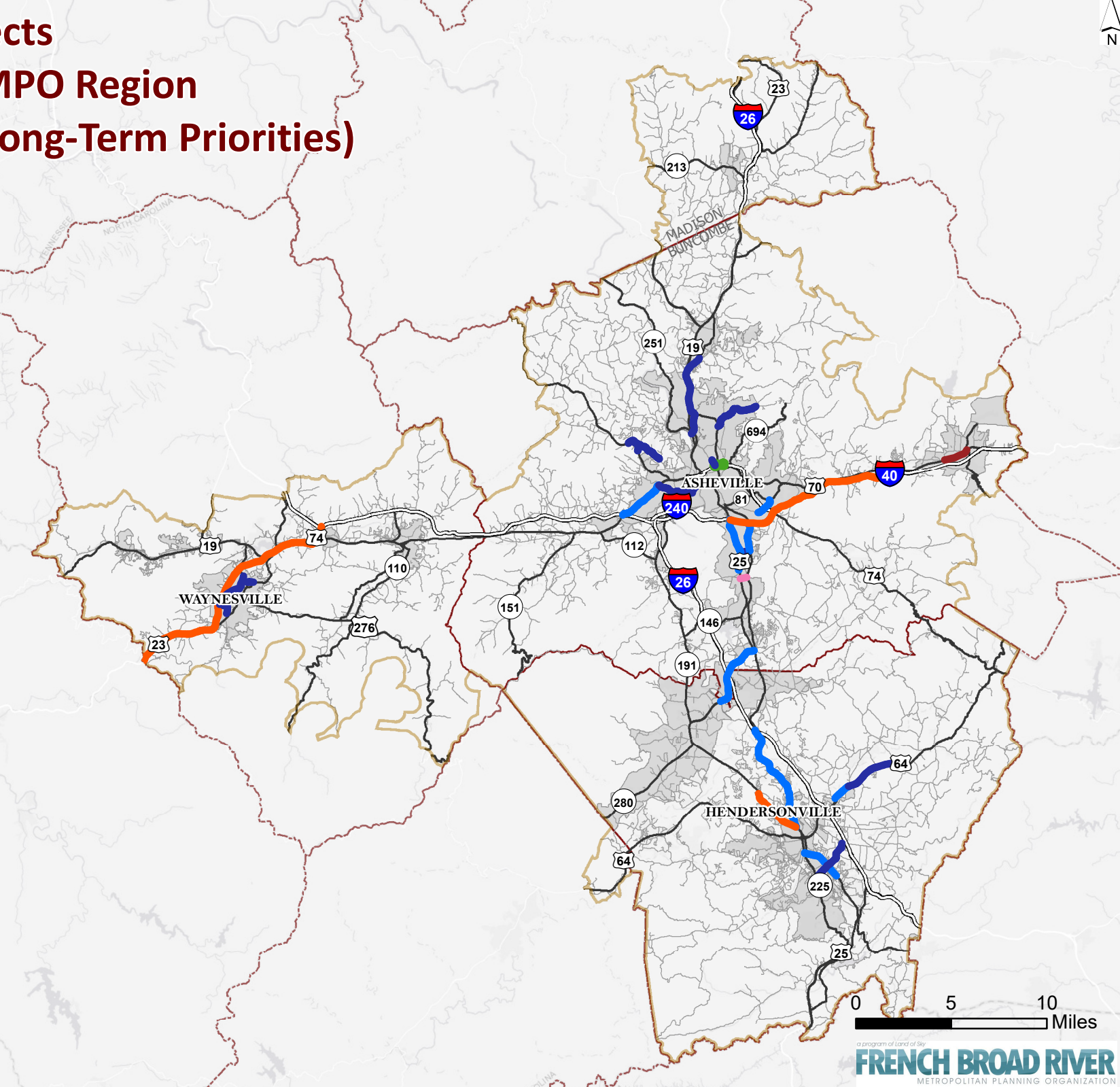
Secondary/Local Roads

Municipality

FBRMPO Planning Area

County Boundaries

Prepared By: FBRMPO/LOSRC (NK)
Date: 8/12/2020
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MTP 2045 Projects








Bicycle and Pedestrian - FBRMPO Region

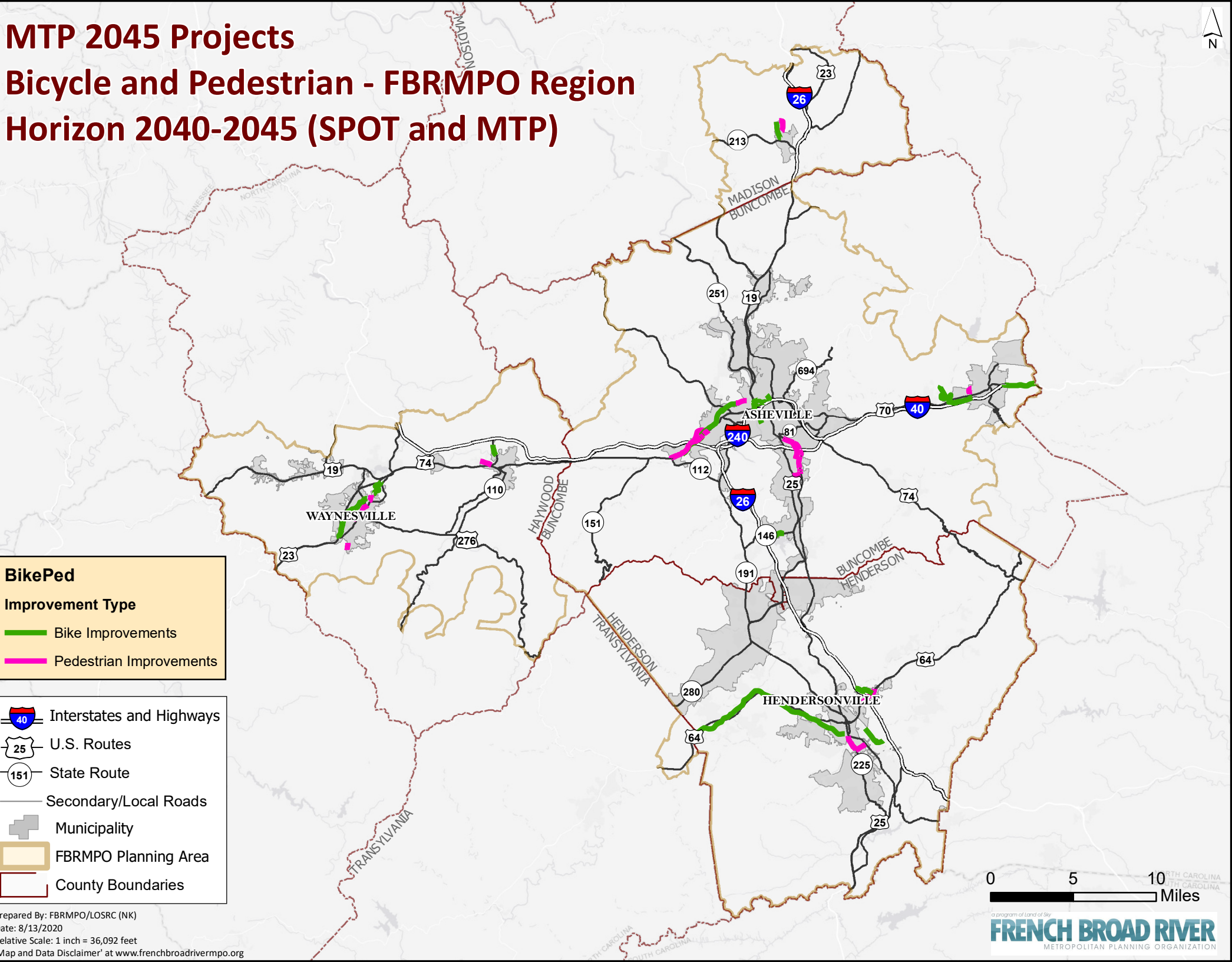
Horizon 2040-2045 (SPOT and MTP)

BikePed

Improvement Type

- Bike Improvements
- Pedestrian Improvements

-  Interstates and Highways
-  U.S. Routes
-  State Route
-  Secondary/Local Roads
-  Municipality
-  FBRMPO Planning Area
-  County Boundaries



A Note on Projects Deemed Not (Currently) Financially Feasible

Several projects were suggested by members of the public, local government staff, or elected officials that do not fit into the MTP's financial plan but may be pursued at some level through additional study. The MTP's financial plan requires looking at reliable revenue streams that can be used for distinct purposes (i.e. funding that is specifically available for one purpose (ex. Interstates) should not be applied for MTP projects that don't meet that purpose (ex. Light Rail.) Certain projects that would require major investments to realize do not have reliable revenue streams currently, but that does not mean funding streams won't become available in the future. The following projects have been noted as suggestions that were not evaluated for the MTP due to financial considerations, but may merit further study:

Passenger Rail to Western North Carolina - Passenger rail service used to be provided to Asheville until the 1970s, but several groups have been working to revive the service and some local plans note potential locations for passenger rail stations in Black Mountain and Asheville. The primary route identified would be between Salisbury and Asheville, likely connecting to Greensboro and Raleigh. This recommendation also appears in the North Carolina Statewide Rail Plan. To provide this service, there would likely be considerable capital costs, including upgrading the rail to safely accommodate both passenger and freight service. This project is planned to be submitted by the Hickory MPO for prioritization considerations in P 6.0, with French Broad River MPO support, however the funding mechanisms in-place would likely make funding the project unfeasible with state limits on non-highway spending. This project should merit further study and coordination with French Broad River MPO staff, but funding the project under current financial policies is very unlikely.

Asheville Streetcar - The City of Asheville once had one of the most extensive streetcar systems in the southeast but was slowly dismantled over the early 20th century. Given the City and Region's numerous historical assets, a streetcar may be culturally appropriate and attractive for visitors and residents. However, installation of streetcars requires lots of capital funding, which like Passenger Rail, is not readily available based on current financial policies, and is not reflected as a priority in the Asheville Transit Master Plan.

Light Rail - MPO staff received a suggestion of providing passenger light rail between Downtown Asheville and South Asheville/Arden. South Asheville's increasing population density could potentially be connected to Biltmore Village and the River Arts District with existing rail lines. However, these rail lines are still active and would likely require considerable study to determine feasibility and work required to accomplish. Like previous studies, funding for light rail in the state is limited and requires considerable local contributions. Light rail is also not reflected as a priority in the Asheville Transit Master Plan.

Hendersonville-Asheville Passenger Rail - A group working on reviving rail priorities in the region has proposed reviving passenger rail service between Hendersonville and Asheville, potentially as a recreational and entertainment experience. An existing rail line exists but is still active and would require further study to consider implementation.

ENVIRONMENTAL JUSTICE / TITLE VI

Environmental Justice (EJ), as defined by the EPA, is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.⁸⁴ In the transportation decision making process, it is important to understand the needs, perspectives, and limitations of all populations that may be affected by transportation projects since the projects produce long-lasting effects on communities. In 1994, the Presidential Executive Order 12898 directed every Federal agency to make Environmental Justice part of its mission. The United States Department of Transportation, North Carolina Department of Transportation, and French Broad River MPO are committed to a comprehensive, inclusive, and equitable approach to transportation planning and development, aiming to achieve environmental justice.

Environmental Justice Fundamental Principles

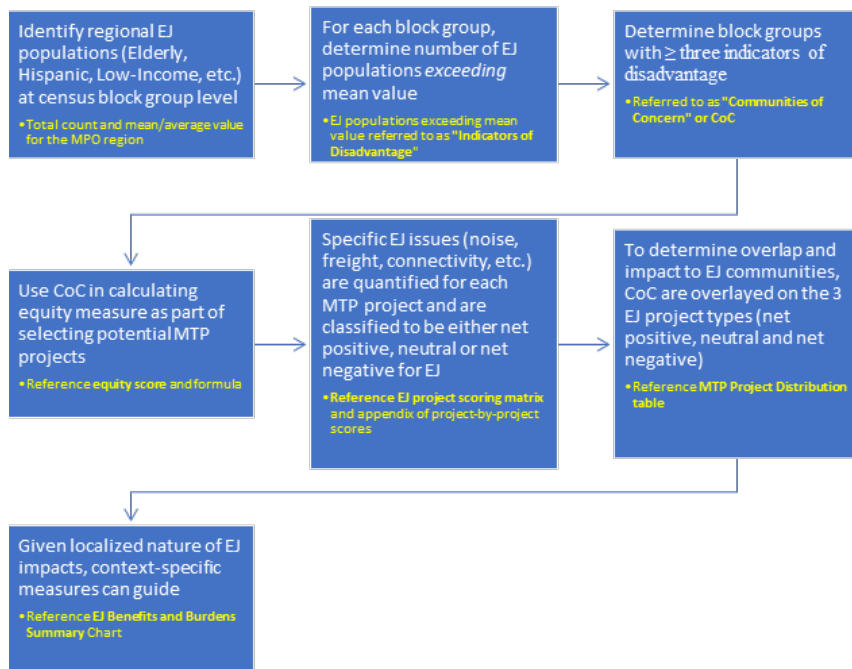
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;
- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority or low-income population; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority or low-income populations.⁸⁵

EJ underscores the importance of utilizing existing laws-including National Environmental Policy Act (NEPA) and Title VI of the Civil Rights Act of 1964 to ensure that all persons live in a safe and healthy environment. Specifically, Title VI prohibits discrimination on the basis of race, color, or national origin in programs or activities receiving federal financial assistance.

The French Broad River MPO has a Title VI Program Plan⁸⁶, initially adopted in 2011 and updated in June 2019, to ensure that disadvantaged persons, as characterized in federal regulations, do not suffer discrimination in the transportation planning and implementation process. The following sections describe the environmental justice activities that occurred as part of the 2045 MTP.

The flowchart below displays the Environmental Justice scoring and calculation process:

Figure 4.9: Environmental Justice Scoring and Calculation Process



Adverse Impacts

Investments in transportation infrastructure have a wide range of impacts that both positively and negatively impact affected populations. In the planning process, it is important to consider not only the regional need for a project, but the local impacts that may result from the project. For example, while road widening projects may increase overall mobility, the residents near the project may be impacted by increased traffic through their neighborhoods, increased vehicle speeds, land acquired for necessary right-of-way, a change in neighborhood character and land uses, etc. A roadway expansion can either create barriers to walking and biking or incorporate multimodal infrastructure through context sensitive design. Unfortunately, a project's perception differs across populations and its net impact is not always clear. Adverse impacts include the totality of significant individual or cumulative human health and/or environmental effects, including interrelated social and economic effects that may include, but are not limited to:

- Bodily impairment, infirmity, illness or death
- Air, noise, water pollution and soil contamination
- Destruction or disruption of man-made or natural resources
- Destruction or diminution of aesthetic values
- Destruction or disruption of community cohesion or a community's economic vitality
- Destruction or disruption of the availability of public and private facilities and services.
- Vibration
- Adverse employment effects
- Displacement of persons, businesses, farms or nonprofit organizations
- Increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community
- The denial of, reduction in or significant delay in the receipt of benefits of Federal Highway Administration (FHWA)/Department of Transportation (DOT) programs, policies or activities.

Affected Communities Addressed by Title VI and Environmental Justice Guidelines

In order to further understand what communities are being impacted, the MPO explored different methods to approach the fundamental question, "What is a community of concern?" Through its Title VI and Environmental Justice program, the MPO identifies six demographically based EJ populations in the planning area. These populations include:

- **Minority Populations (non-Hispanic or Latino)** – People who are African-American, Asian American, American Indian and Alaskan Native, and Native Hawaiian and other Pacific Islander. Excludes Hispanic and Latinos.
- **Hispanic or Latino Populations** – People who are of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
- **Elderly Populations** – Individuals aged 65 and over.
- **Limited English Proficiency (LEP)** – the Census Bureau has a range of four classifications of how well people speak English. The classifications are 'very well', 'well', 'not well', and 'not at all'. For analysis purposes, we are considering people that speak English 'not well' or 'not at all' as Limited English Proficient persons.
- **Low-Income Populations** - a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines.
- **Zero-Vehicle Households** – Households where no cars, vans, pickups, or trucks are owned and available to be used by household members."

Maps of the region's Title VI populations are included in the Appendix XX

These communities were identified using Census and American Community Survey data at the Census Block Group level. This level of geography provides a reasonably accurate scale to measure and observe trends in localized communities. Block groups generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. It is also the smallest geographical unit for which the Census Bureau publishes sample data, which is collected from a fraction of all households.

Table 4.14: Regional Thresholds for EJ Populations

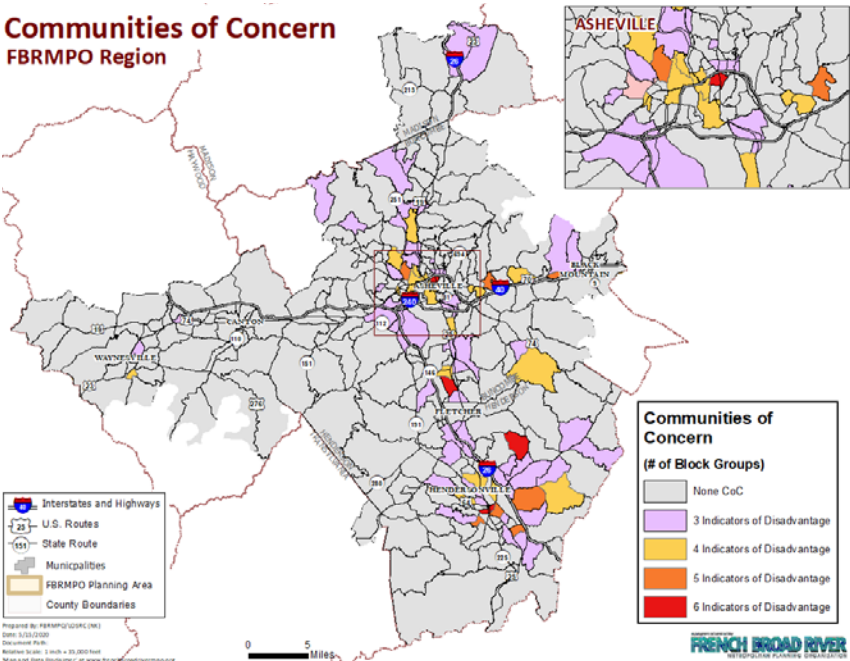
Regional Thresholds for EJ Populations	Total Value (French Broad River MPO Region)	Regional Threshold %	Total # Block Groups Over Regional Threshold
Total Population	445,625	N/A	N/A
Total Number of Households	187,845	N/A	N/A
Total Number of Block Groups	315	N/A	X / 315
Racial Minority Population	63,819	14.32%	105
Hispanic/ Latino Population	30,180	6.77%	97
Elderly Population	92,774	20.82%	145
Limited English Proficiency Households	4,181	2.23%	69
Low-Income Block Groups (< \$26,015)	22	6.90%	140
Zero-Vehicle Households	9,376	4.99%	100

In considering populations evaluated, it is important to note that some exclusions took place. Even though gender is a protected class, the nearly even distribution of men and women does not make it a useful measure for transportation analysis. The same is true for persons with disabilities, and it was determined that zero-vehicle households

is a more useful surrogate measure. Regardless, regional-scale level proxies for actual EJ communities means this analysis is just a screening tool to begin identification of the actual communities.

Based on analysis methods used in the French Broad River MPO MTP 2040 and on the Research Triangle Regions 2045 Metropolitan Transportation Plans, the following approach was taken. Using the six identified EJ population groups, the total number of people in these populations was summarized as a percentage of all persons within a block group. Census block groups with EJ populations exceeding the planning area mean/average based on each of the six criteria are flagged as a "Indicator of Potential Disadvantage". An assessment scale was applied to block groups that have three or more overlapping indicators of potential disadvantage and those block groups are referred to as "Community of Concern"(CoC). Map 4.1 shows the indicators of potential disadvantage by block group. Given this methodology, communities shown in blue, pink or red are considered communities of concern.

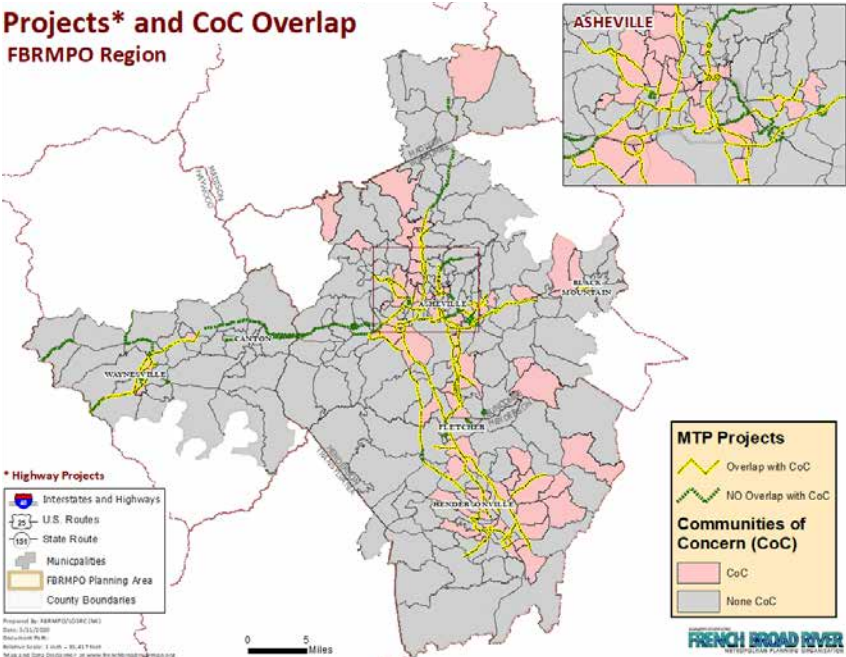
Map 4.1: Communities of Concern



Out of the 315 block groups in the French Broad River MPO region, a total of 77 are designated as **Communities of Concern (CoC)**. 45 CoC are in Buncombe County, 3 CoC are in Haywood County, 28 CoC are in Henderson County and 1 CoC is in Madison County. Looking at specific indicators that trigger disadvantage, age tends to appear in many places where other issues like race and limited English proficiency do not. Age/elderly population triggers the greatest amount of block groups in the region, and commonly overlaps with low-income block groups.

Of the 105 highway projects programmed in the MTP, 70 of them intersect or are adjacent to a CoC, as shown in map 4.2. Bicycle and pedestrian projects are not displayed on this map. For understanding benefits and burdens of projects, further analysis needs to take place.

Map 4.2: Projects and CoC Overlap



Environmental Justice Analysis

Although it is difficult to assess the overall impact of the highway projects included in the 2045 MTP at a regional level, MPO staff devised a method to analyze the potential impacts (positive, negative, or neutral) that projects may have on affected communities. By taking a preliminary look at project impacts on communities, it can be theorized if the benefits and burdens from the projects are equitably distributed.

When prioritizing and scoring projects for inclusion in the MTP, projects in all three "tiers" of statewide, regional and division were given an "equity" score that relates to environmental justice measures. The equity metric is in addition to consideration of fixed-route transit availability (for regional and division projects) which intrinsically has an environment justice component. Other measures included volume, AADT, freight volumes, crash rate, crash severity, water quality, biodiversity, wildlife, historical impact and walkability. The equity score is formulated below and utilized the "Communities of Concern" (CoC) block group indicators.

$$\Sigma = [(x/145)/(y/28) \times 100] + z$$

x = sum of EJ CoC intersected or adjacent to project (145 denotes sum of all projects)

y = sum of EJ CoC with 3+ variables triggered (28 denotes sum of block groups with 3+ indicators)

z = project impact type (1=road diet, 2=modernization or intersection improvement, 3= access management, 4= widening, 5=new location)

Using this score provided an initial look if projects may overlap with EJ communities or not. However, individual projects in the 2045 MTP may have unforeseen impacts that will be studied in-depth and mitigated during project development and design. This scoring does not substitute that need for individual project analysis during its development. This assessment and understanding of regional impacts is based on initial work done by DCHC MPO in their 2014 Environmental Justice Report. The following summary chart looks at a variety of project types and weighs the tradeoffs regarding benefits, burdens and what measures can be taken to mitigate adverse effects.

The indicators that were measured and affect the y-value in the Environmental Justice Score formula are displayed in the chart below:

When considering adverse impacts, one way to analyze communities impacted is using available data to understand where problematic health, social or economic indicators may be occurring. Map 4.3 shows data from the EPA's National Air Toxics Assessment at the block group level representing particulate matter from diesel exhaust. Each block group is shown as a percentile versus other block groups across North Carolina, with higher percentages correlating to higher amounts of diesel particulate matter. The data shows a concentration of particulate matter in the urban areas, particularly in Asheville and Hendersonville. There is more local and inter-local freight traffic in these areas, equating to higher emissions. Block groups adjacent to interstate corridors such as I-26 and I-40 appear to be in the 50th percentile and below, indicating that diesel particulate matter is not especially high in these areas. However, this is just one measure of a pollutant and other air, noise, water issues may exist in these areas. For these reasons, it is important to take a larger look at how projects may impact communities.

Map 4.3: Diesel Particulate Matter

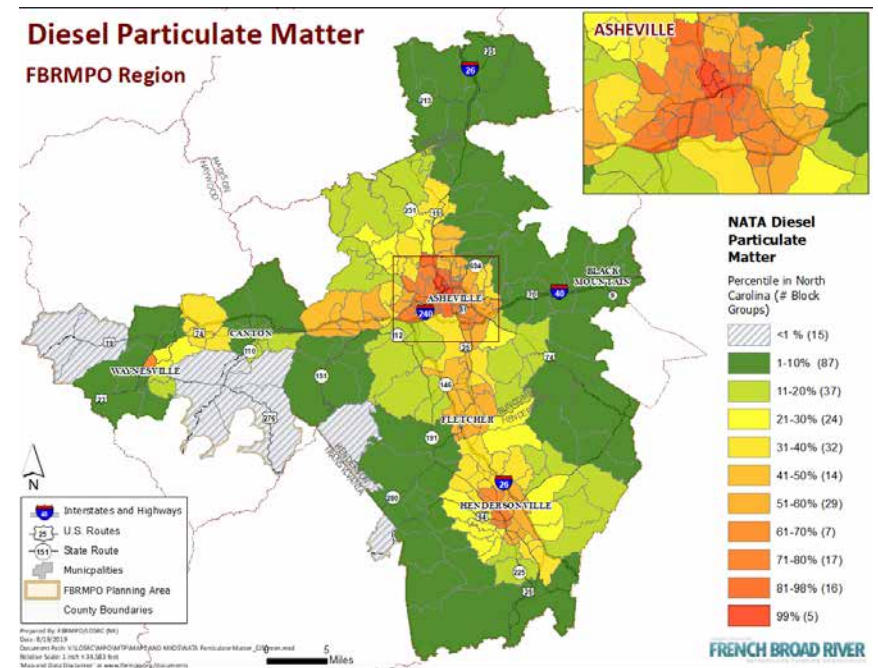


Table 4.15: 2045 MPT - Environmental Justice Qualitative Analysis Matrix

2045 MTP - Environmental Justice Qualitative Analysis Matrix			
Qualitative Performance Measure: Will This Project Contribute to or Detract from:	Sub-Category	What is the rule that we use to determine impact of a specific project?	Measure
Acessibility (-2 to +2)	Improves or impairs transit travel times and quality of service	Improves transit travel times (e.g. improving traffic flow in corridor=travel time savings for bus route; improving a transit center=improving quality of service)	-1 Decrease travel time/decreases quality service 0 No change to travel time +1 Improves (decreases) travel time/improves quality service
	Connectivity of network including access to amenities and bike/ped connections	Any new link including new transportation link or improved service to regional amenities (medical, social, employment etc.)- positive; cutting off local link (i.e. with interstate)-negative). Bike/Ped improvement type improves connection	-1 Removes one or more existing connections or links 0 No change +1 Creates one or more new connections or links
Safety (-2 to +2)	Project addresses high automobile and/or bike/ped crash locations	Project is on a 2014-2018 HSIP segment (>66.7 "High"), 2014-2018 HSIP intersection (>30 crashes or >= 1 FATAL) includes bike/ped elements on a SPOT Bike/Ped crash score segment > 45.0 (MPO region mean 42.8)	-1 Creates/exacerbates potential safety issues 0 No change +1 Improves/removes potential safety issues
	Does project add shoulder (usable by bike/ped) width or bike lanes/sidewalks/ MUP	Adding infrastructure to benefit pedestrians and bicyclists. Adding shoulder to allow safer passing or separating vunerable users from traffic is a benefit, removal or reduction of those facilites is detrimental	-1 Removes/downgrades existing bike/ped 0 No change +1 Creates/Improves bike/ped facilities
Environmental Health (-2 to +2)	Air Quality	If VPD increase of 5,000 veh/day and at least 10% increase within 500 ft buffer -1; If ITS, Access Mgt, Intersection Improvements, or CMP +1	-1 Predicted AAQ worsens 0 No change +1 Predicted AAQ improves
	Noise	This is a multi-faceted measure that differs between facility types based on speed and volume: if traffic volumes increase by 5,000 veh/day and within 500 ft of EJ -1, no change 0, decrease by same +1; for corridors with posted speeds 40 mph+ if traffic speeds increase and within 500 ft of EJ -1 (Neutral if noise wall included), no change 0, if traffic speeds decrease and within 500 ft of EJ +1; for corridors with posted speeds less than 40, if stop-and-go traffic traffic decreases +1, no change 0, increases -1	Sum of noise criteria scores (left) will sum to a +1, 0, or -1 (net positive, neutral, or negative impact)
Social Equity (-2 to +2)	Does project disproportionately affect the space where EJ populations live, work, recreate or spend a lot of time?	Context-specific decision. Consider corridor, surrounding land uses, purposes of project, users of project etc. Bike/Ped projects within 100ft an EJ community (>= 3 CoC) +1 for potential improvement	+1 For potential improvement to EJ neighborhood 0 No Disproportionate Effect -1 Disruption of EJ population
	Does this project increase freight and/ or traffic volumes in EJ Neighborhoods?	Negative if freight volumes increase, neutral = 0, positive if freight volumes reduced or shifted away from EJ neighborhood beyon 500' buffer **	+1 Reduced/shifted away 0 No change -1 Increased

EJ Impact

The next step in the EJ analysis was scoring the MTP projects based on their potential EJ impact. (Spreadsheet xx /appendix?) explains the data and scoring criteria used with a complete project by project list following on page xx. There were a total of 8 categories used including measures for transit, connectivity, crash locations, bike/ped infrastructure, air quality, noise, EJ resident/business impact and freight volumes. For each category, projects scored either a -1, 0 or +1 based on the criteria as listed. The composite "score" of these projects were summed up and they fell between -4 to +4.

For categorical purposes, projects were separated into net negative (-4 to -1), neutral (0) and net positive (+1 to +4) categories. Of the 161 projects in the MTP, including bicycle and pedestrian, 120 were considered a net positive, 18 were neutral and 23 were net negative. For purposes of this analysis, transit projects have not been mapped or included.

Table 4.16 breaks out the overlap between the three scoring categories and the number of CoC indicators that they overlap with. For determining overlap, it was considered where the majority (>50% by mileage) of the project was located. For example, the I-26 widening project, MTP ID: HS4508, crosses six block groups but the majority of it is located in or adjacent to two CoC block groups.

Table 4.16: Overlap Between Three Scoring Categories and the Number of CoC Indicators

	Net Negative Projects Intersecting	Neutral Projects Intersecting	Net Positive Projects Intersecting
Number of CoC Indicators	x/23 Negative Projects	x/18 Neutral Projects	x/120 Positive Projects
0 – 2 (Low Concern – Not designated CoC)	22	15	105
3 – 4 (CoC, Medium Concern)	13	10	74
5 – 6 (CoC, High Concern)	1	5	21

When considering impacts, it is important to consider what impact previous and ongoing projects have had to EJ communities. While the ranking of projects into positive, neutral and negative categories relies on subjective criteria, it is worth considering the geographic and historical spread of impacts. One way of understanding this is looking at where the net negative projects are located.

Map 4.4 shows the location of the 23 net negative projects and how they overlap with the CoC. Geographically, 13 are in Buncombe County, 6 are in Haywood County and 5 are in Henderson County. All the projects receiving net negative scores were highway projects, with a majority being widening and modernizations, and a few being new location and intersection improvements. As previously mentioned, it is important to consider what projects have already been programmed for in the TIP or are under construction. 12 of the 23 net negative projects are committed in the STIP, 8 have been submitted in the most recent round of Prioritization (P6.0), and 4 of them are considered long-term project ideas in the MTP.

Table 4.17: Project Distribution Impact of Communities of Concern (CoC)

MTP Project Distribution	Region Total Miles	Region Miles in CoC	Percent Investment in CoC	Total Investment*	Total Investment in CoC
Net Negative Projects (23 total)	94	64	68 %	\$1,785,113,000	\$759,183,000
Net Neutral Projects (18 total)	39	25	64 %	\$725,578,000	\$186,542,000
Net Positive Projects (120 total)	191	137	72 %	\$1,413,028,000	\$941,376,000
Bicycle and Pedestrian Projects**	83	59	71 %	\$139,802,000	\$91,127,000

*Cost is an estimate and may include or exclude projects that are part of segmented projects (I.E. TIP ID I-2513A, I-2513B, I-2513C)

**Bicycle and Pedestrian cost estimate not available for all projects

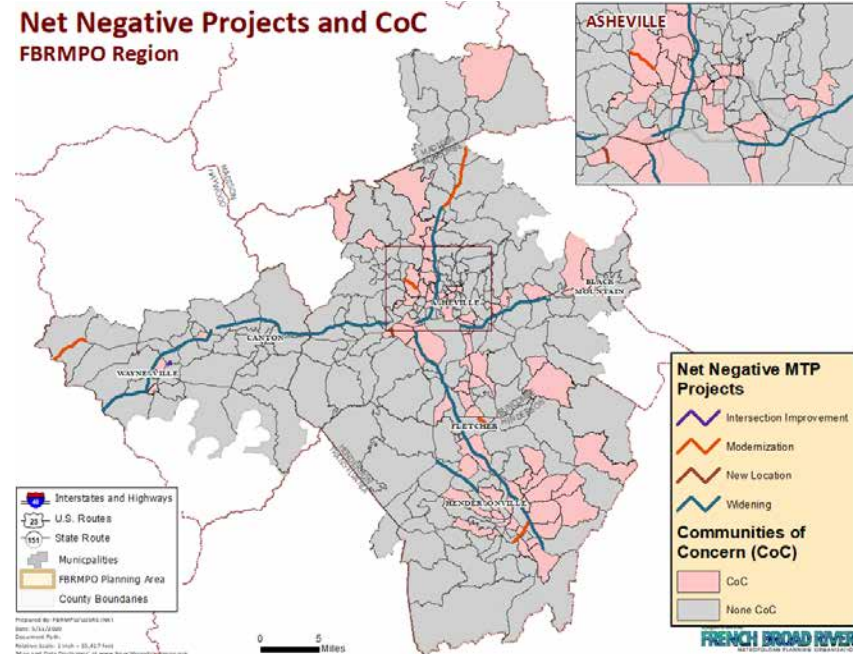
Table 4.17 summarizes the distribution of the net positive, neutral and negative projects. There is a similar distribution of overlap within CoCs ranging from 64% to 72% between the three project types. Net negative projects fall near the middle of positive and neutral investment at 68% within or adjacent to CoCs. Overall, the spread of projects to EJ communities throughout the region is well-distributed. Since the way benefits and burdens are applied uniquely to each project, it is difficult to assess the regional perspective but some patterns can be discerned from this information.

As previously mentioned, the majority of net negative projects are widening and modernization and make up the bulk of project miles in the region as shown in Map 4.4. There are some caveats to interpreting this data and the assumptions made in this chapter. When categorizing projects, what one individual may perceive as a burden could be seen by another individual as a benefit. For example, a resident in the Swannanoa EJ community that commutes on I-40 may not perceive the burdens of higher freight volumes and noise as negatives given that the I-40 widening could improve their daily commute. Similarly, the benefit of a project providing bike lanes and sidewalks may not be viewed as a benefit to a business owner in an EJ community who would potentially lose right-of-way due to these amenities. Also, bicycle and pedestrian projects tend to be in and near the urban-cores and are likely contained within one block-group given their shorter length.

Recommendations

- The French Broad River MPO shall continue to practice Environmental Justice principles to benefit minority, low-income, and older populations.
- Seek out Environmental Justice grants that support solutions to local environmental and public health issues.
- Conduct targeted public outreach for future planning efforts and during the NEPA process.
- Conduct meetings that are in places that are convenient and easily accessible to Title VI and Environmental Justice populations.
- Develop a practice of connecting with key community leaders, organizations, and institutions within minority and low-income communities to ensure effective public outreach in those communities.

Map 4.4: Net Negative Projects and CoC



- Where feasible and as funding allows, evaluate enhanced transit options to low income residents in the French Broad River MPO region and to residents in rural areas.
- Increase the bicycle and pedestrian infrastructure for a more interconnected network in low-income and minority communities.

⁸⁴ Epa.gov/environmentaljustice

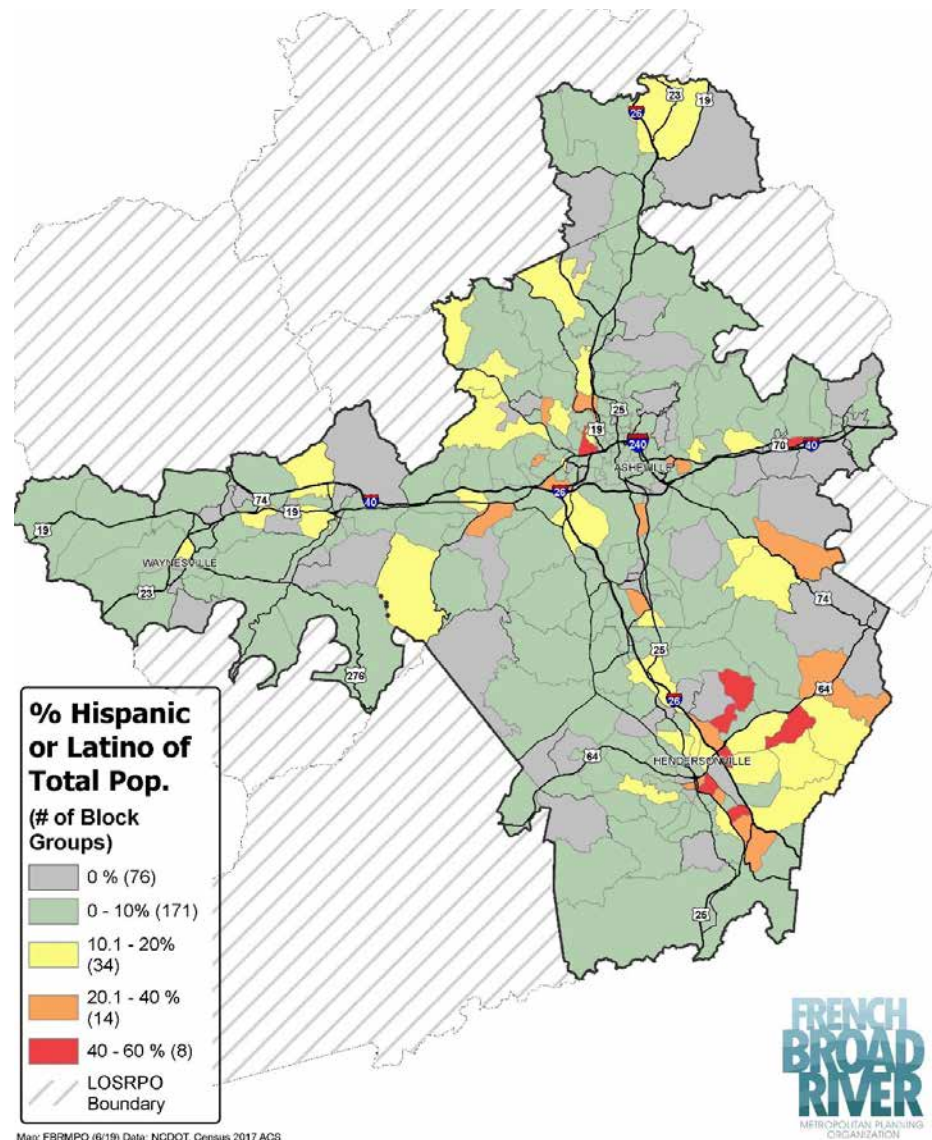
⁸⁵ Transportation.gov/transportation-policy/environmental-justice/environmental-justice-strategy

⁸⁶ http://frenchbroadrivermpo.org/wp-content/uploads/2019/10/French-Broad-River-MPO_TitleVI_June2019Update.pdf

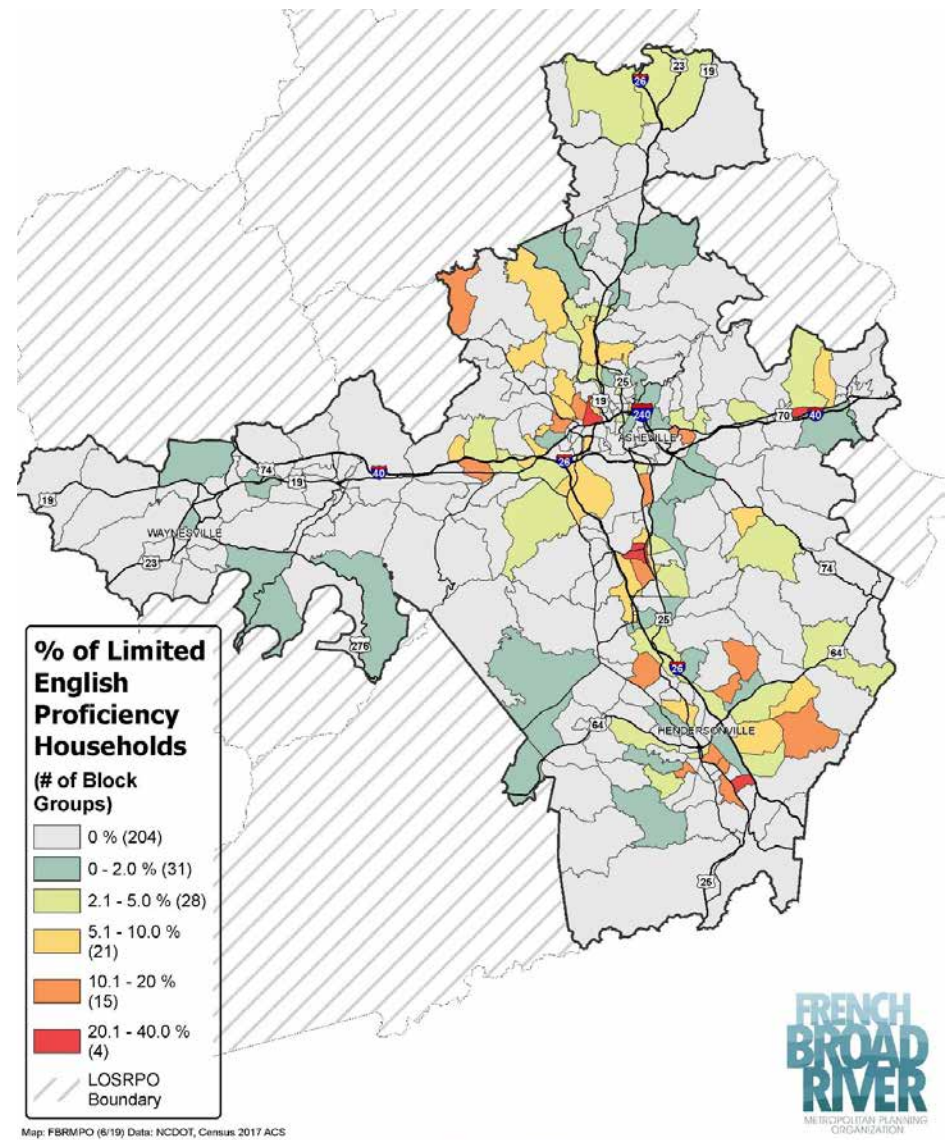
Table 4.18: Potential EJ Benefits and Burdens Summary Chart

PROJECT TYPE/GROUPING	POTENTIAL BENEFITS	POTENTIAL BURDENS	MITIGATION STRATEGY(IES)
Bicycle and pedestrian infrastructure (Bike Lanes, Multi-Use Paths, Sidewalks, Crossings)	<ul style="list-style-type: none"> Reduced Emissions Community Health Improvements Safety Improvements Reduced Parking 	<ul style="list-style-type: none"> Impact to motor vehicle capacity and travel times Additional conflicts at intersections Need for additional right-of-way (particularly in EJ areas) 	<ul style="list-style-type: none"> Grade separate bike and pedestrian crossings/conflicts where feasible Adding pedestrian-crossing time to signal; add bike boxes or separate bike signals for cycletracks Utilize context-sensitive designs to select alternatives with the least EJ impact
Widening or new location roadway	<ul style="list-style-type: none"> Increased connectivity and mobility Increased network redundancy thus reduced travel time Freight efficiency and economic incentive 	<ul style="list-style-type: none"> Additional Vehicle Miles Traveled (VMT) Noise and emissions to existing land uses New traffic patterns can shift congestion to new locations 	<ul style="list-style-type: none"> Include bike/ped accommodations to encourage short trips Reduce speeds and minimize signalized intersections for idle reduction Identify and plan for related new location congestion in MTP model
Intersection/roadway improvements	<ul style="list-style-type: none"> Reduce number and/or severity of crashes Increase operational efficiency Reduced travel time 	<ul style="list-style-type: none"> Increased congestion/access issues to adjacent business during construction Increased corridor width (impinging on adjacent property) Adjustment period for new traffic pattern (roundabouts, DDIs, etc.) 	<ul style="list-style-type: none"> Limit closures to nights and weekends Use of curb and gutter over open swale to reduce footprints Education and outreach efforts
Access Management	<ul style="list-style-type: none"> Improved travel times Reduced conflict points/increased safety 	<ul style="list-style-type: none"> Decreased access for pedestrians and bicyclists Support from adjacent businesses 	<ul style="list-style-type: none"> Incorporation of pedestrian and bicycle infrastructure (crossings, signalized crosswalks) Education and outreach
Road diet/roadway reconfiguration	<ul style="list-style-type: none"> Increased connectivity for pedestrians and bicycles Improved safety for all roadway users 	<ul style="list-style-type: none"> Increased travel times for motorists Conflict between motorists and bicycles/pedestrians 	<ul style="list-style-type: none"> Proper allocation of reclaimed space for context-sensitive features (refuge islands, parking, bus pullouts, etc.) Protected pedestrian/bicycle infrastructure to reduce conflict (bike boxes, refuge islands)

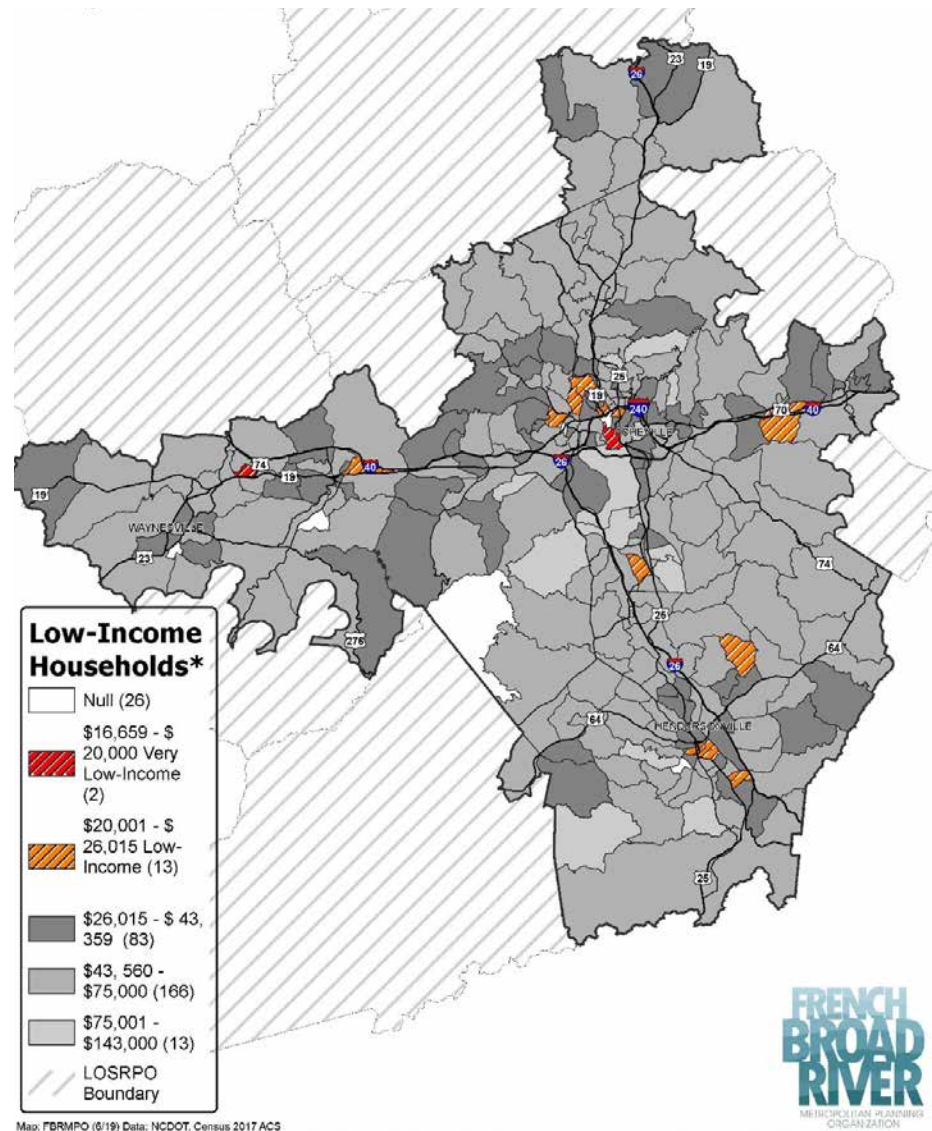
Map 4.5: Percentage of Population: Hispanic or Latino Ethnicity Origin



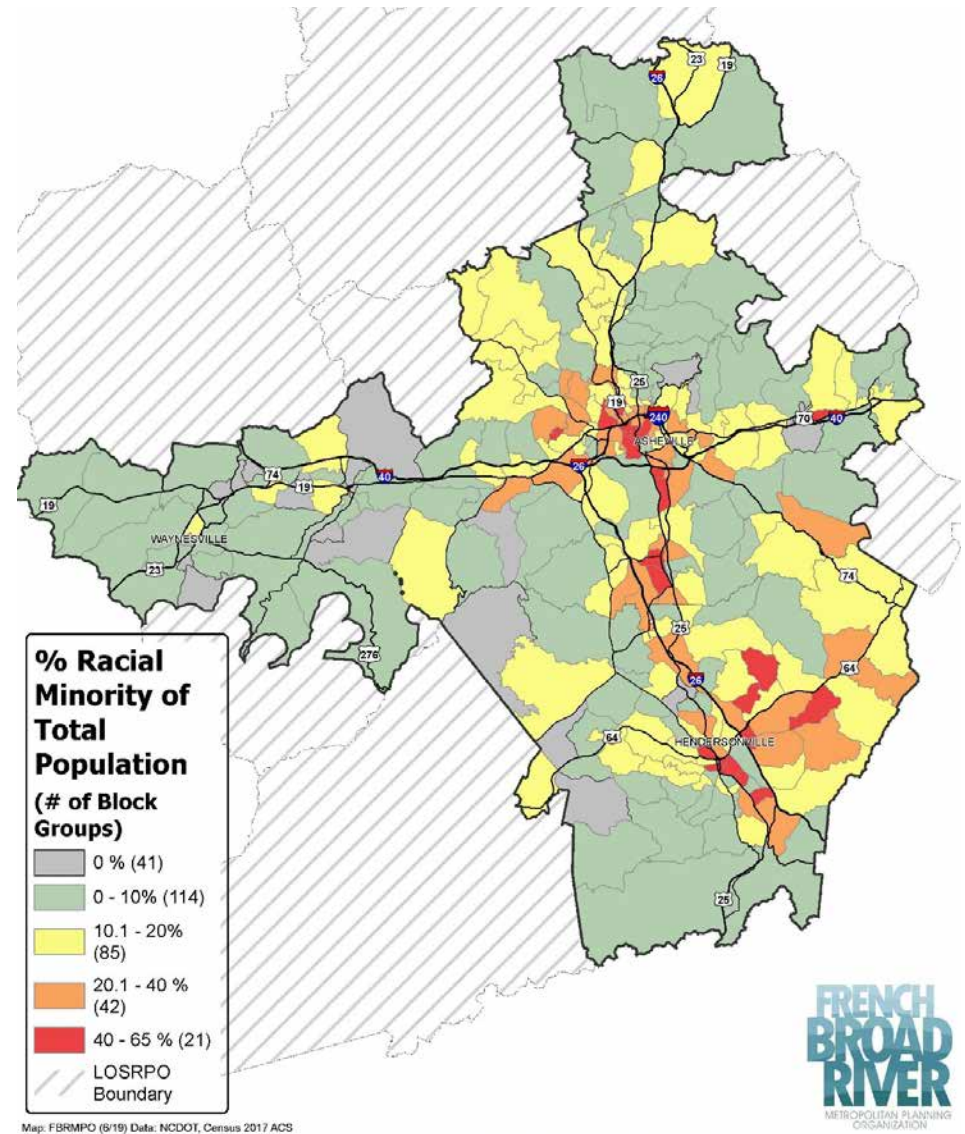
Map 4.6: Limited English Proficiency



Map 4.7: Low-Income and Extremely Low-Income Households
*Average Household Income: \$43, 359



Map 4.8: Percentage of Population: Racial Minority





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