2019 Mitchell County
Comprehensive Transportation Plan

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Comprehensive Transportation Plan

Prepared by: Pam R. Cook, PE, Project Engineer
James Upchurch, Mountains Planning Group Supervisor
Transportation Planning Branch
N.C. Department of Transportation

In Cooperation with: Mitchell County
Town of Bakersville
Town of Spruce Pine
High Country Rural Planning Organization

Published: October 2019

Pam R. Cook

Pam R. Cook, P.E.
Transportation Planning Engineer

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Executive Summary

In August of 2018, the Transportation Planning Division of the North Carolina Department of Transportation (NCDOT) met with the Mitchell County Manager, Bakersville Mayor, and Spruce Pine Town Manager to initiate a study to cooperatively develop the Mitchell County Comprehensive Transportation Plan (CTP), which includes the towns of Spruce Pine and Bakersville. This is a long range multi-modal transportation plan that covers transportation needs through 2045. Modes of transportation evaluated as part of this plan include: highway, public transportation and rail, bicycle, and pedestrian. This plan does not cover routine maintenance or minor operations issues. Refer to Appendix A for contact information on these types of issues.

Findings of this CTP study were based on an analysis of the transportation system, environmental screening and public input, which are detailed in Chapter 1. Figure 1 shows the CTP maps, which were mutually adopted by NCDOT in 2019. Descriptive information and definitions for designations depicted on the CTP maps can be found in Appendix B. Implementation of the plan is the responsibility of the county, its municipalities, and NCDOT. Refer to Chapter 2 for information on the implementation process.

This report documents the recommendations for improvements that are included in the Mitchell County CTP. The major recommendations for improvements are listed below. More detailed information about these and other recommendations can be found in Chapter 2.

HIGHWAY

- **US 19E, TIP No. R-2519B/R-2520A, & MITC0001:** Widen to a multi-lane boulevard with bicycle accommodations from Yancey County to Avery County and include sidewalk accommodations within Spruce Pine town limits.

- **NC 226, R-5804:** Widen to a three-lane facility from Blue Ridge Parkway to Summit Avenue (SR 1274).

- **NC 80** and **NC 261:** Recommended for modernization. See Chapter 2 for a complete list of facilities recommended for modernization throughout the county to serve auto, truck, and bicycle traffic.

PUBLIC TRANSPORTATION and RAIL

- **Four Park and Ride lots are recommended:**
  - ❖ NC 226 at the old Food Lion grocery store in Spruce Pine.
  - ❖ The northeast quadrant of the intersection of NC 226 and Penland Road.
  - ❖ NC 226 just to the south of Bear Creek Church Road to serve the Bakersville area.

- ❖ Across from the intersection of US 19E and Penland Road in the space between US 19E and Old US 19E.

BICYCLES and PEDESTRIANS

- **A multi-use path** is recommended for pedestrians and bicyclists from the existing off-road pedestrian facility at Riverside Park following the North Toe River and Creed Pitman Road.

- **A multi-use path** is also recommended along US 226 from Summit Avenue (SR 1297) to the Blue Ridge Parkway.

- Bicycle tourism is growing in the area so a minimum of 4-foot paved shoulders are recommended on **US 19E**, **NC 261,** and **Altapass Highway (SR 1121)** from Spruce Pine to the Blue Ridge Parkway. See Chapter 2 for a complete list of recommendations.

- In Bakersville, it is recommended to fill gaps between existing sidewalks along **S Mitchell Avenue (SR 1260)** and **N Mitchell Avenue (SR 1211)**

- In Spruce Pine, sidewalks are recommended along **US 19E**.

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Adopted by:

Mitchell County
Date: September 3, 2019

Bakersville
Date: July 29, 2019

Spruce Pine
Date: September 9, 2019

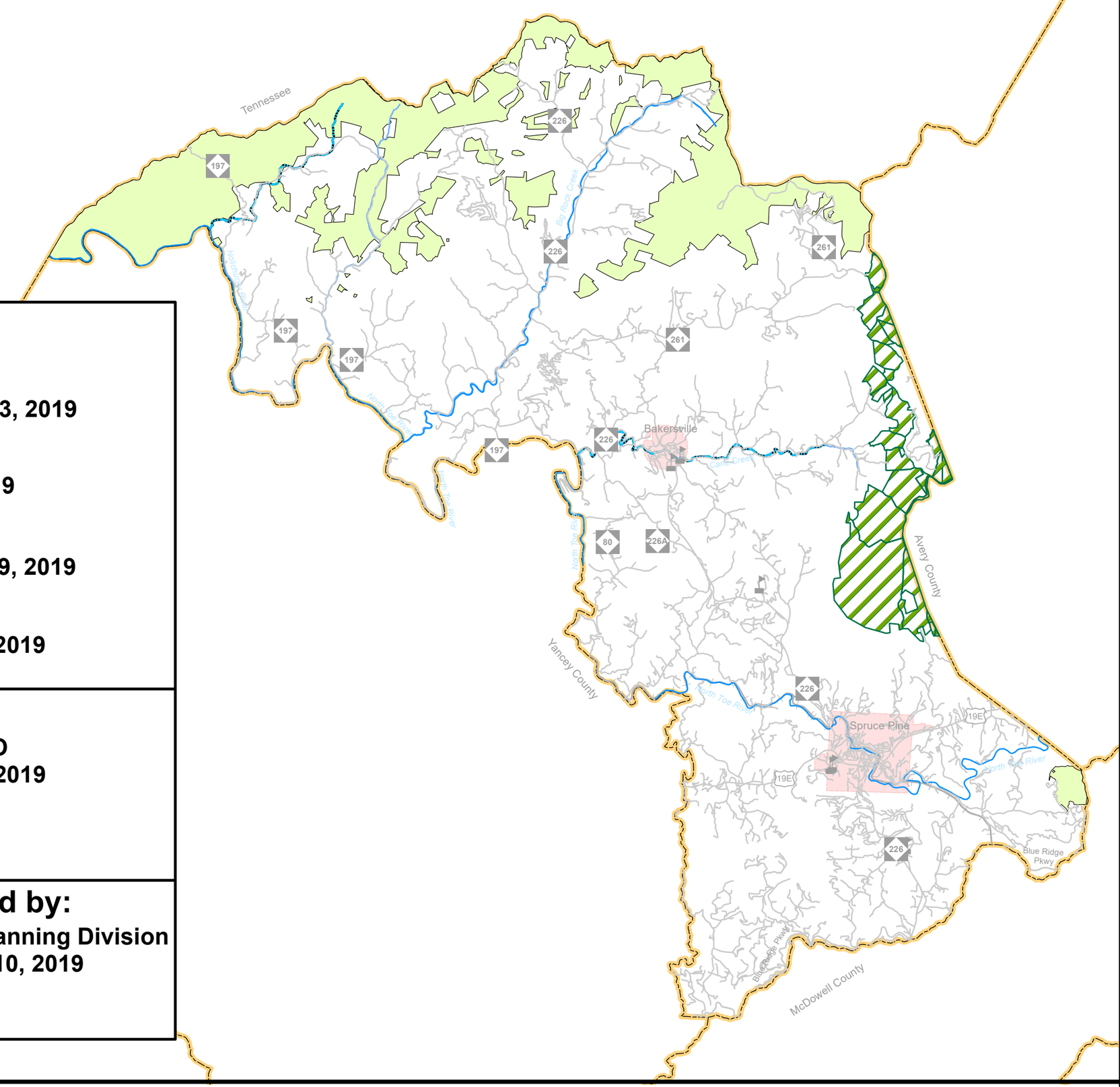
NCDOT
Date: October 3, 2019

Endorsed by:

High Country RPO
Date: August 21, 2019

Recommended by:

Transportation Planning Division
Date: September 10, 2019



Adoption Sheet

Mitchell County

Comprehensive Transportation Plan

Plan date:

Legend

- Roads
- Rivers and Streams
- Railroads
- Game Lands
- State Parks
- County Boundary
- Municipal Boundery

0 0.5 1 2 3 Miles

Sheet 1 of 5

N W E S

Base map date: October 25, 2017

Refer to CTP document for more details

Highway Map

Mitchell County

Comprehensive Transportation Plan

Plan date: June 12, 2019

Freeways
- Existing
- Needs Improvement
- Recommended

Expressways
- Existing
- Needs Improvement
- Recommended

Boulevards
- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares
- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares
- Existing
- Needs Improvement
- Recommended

- Existing Interchange
- Proposed Interchange
- Interchange Needs Improvement
- Existing Grade Separation
- Proposed Grade Separation

Miles
0 0.5 1 2 3

N W E S

Sheet 2 of 5

Base map date: October 25, 2017

Refer to CTP document for more details

Tennessee

Yancey County

Avery County

McDowell County

Inset B

Southern Mitchell County

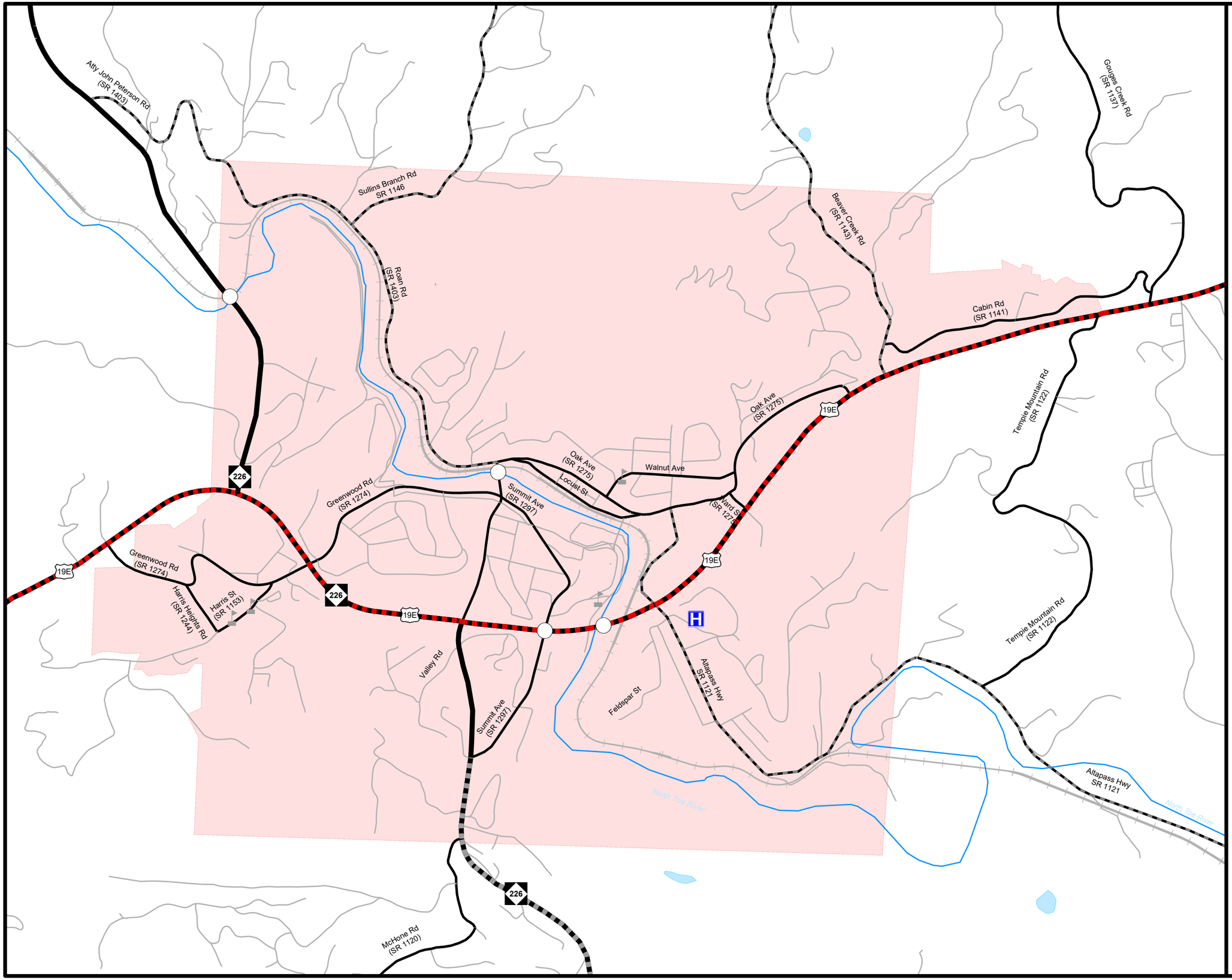
Inset A

Bakersville

Inset C

Spruce Pine

Miles
0 0.075 0.15 0.3 0.45



Highway Map

Mitchell County

Comprehensive Transportation Plan

Inset C: Town of Spruce Pine

Plan date: June 12, 2019

Freeways
- Existing
- Needs Improvement
- Recommended

Expressways
- Existing
- Needs Improvement
- Recommended

Boulevards
- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares
- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares
- Existing
- Needs Improvement
- Recommended

- Existing Interchange
- Proposed Interchange
- Interchange Needs Improvement
- Existing Grade Separation
- Proposed Grade Separation

0 0.05 0.1 0.2 0.3 Miles

N W E S

Sheet 2A of 5

Base map date: October 25, 2017

Refer to CTP document for more details

Public Transportation and Rail Map

Mitchell County

Comprehensive Transportation Plan

Plan date: June 12, 2019

Bus Routes
- Existing
- Needs Improvement
- Recommended

Fixed Guideway
- Existing
- Needs Improvement
- Recommended

Operational Strategies
- Existing
- Needs Improvement
- Recommended

Rail Corridor
- Active
- Inactive
- Recommended

High Speed Rail Corridor
- Existing
- Recommended

Multirmodal Connector
- Existing
- Recommended

Park and Ride Lot
- Existing
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

0 0.5 1 2 3 Miles

N W E S

Sheet 3 of 5

Base map date: October 25, 2017

Refer to CTP document for more details

Tennessee

Yancey County

Avery County

McDowell County

Inset A
Spruce Pine

Inset A
Spruce Pine

0 0.15 0.3 0.6 0.9 1.2 Miles

Bicycle Map

Mitchell County

Comprehensive Transportation Plan

Plan date: June 12, 2019

Tennessee

Yancey County

Avery County

McDowell County

Bakersville

Spruce Pine

Harrell Hill Rd (SR 1307)

Fork Mountain Rd (SR 1338)

Hughes Gap Rd (SR 1330)

Whitson Branch Rd (SR 1305)

Cub Creek Rd (SR 1300)

Green Young Cemetary Rd (SR 1217)

Cane Creek Rd (SR 1211)

Slagle Rd (SR 1170)

Ledger School Rd (SR 1193)

Wing Rd (SR 1167)

Conley Ridge Rd (SR 1164)

Snow Creek Rd (SR 1170)

Penland Rd (SR 1162)

Dale Rd (SR 1106)

Lynn Gap Rd (SR 1106)

Dula Rd (SR 1111)

Humpback Mountain Rd (SR 1128)

Halltown Rd (SR 1114)

Blue Ridge Pkwy

Toe Cane Rd

Roan Mtn Rd

Redwood Rd (SR 1217)

Mckinney Cove Rd (SR 1217)

Maple St

Laurel St

N Mitchell Ave (SR 1211)

S Mitchell Ave (SR 1260)

Inset A

Inset B

Inset C

Tom Bell Rd

Swafford Rd (SR 1113)

Old NC 226 (SR 1112)

Southern Mitchell County

Miles

0 0.5 1 2

Miles

0 0.075 0.15 0.3 0.45

Miles

0 0.5 1 2 3

On-road

- Existing
- Needs Improvement
- Recommended

Off-road

- Existing
- Needs Improvement
- Recommended

Multi-Use Paths

- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Sheet 4 of 5

Base map date: October 25, 2017

Refer to CTP document for more details

Bicycle Map

Mitchell County

Comprehensive Transportation Plan

Inset C: Town of Spruce Pine
Plan date: June 12, 2019

On-road
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Sheet 4A of 5

0 0.05 0.1 0.2 0.3 Miles

Base map date: October 25, 2017

Refer to CTP document for more details

Pedestrian Map

Mitchell County

Comprehensive Transportation Plan

date: June 12, 2019

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Sheet 5 of 5

0 0.5 1 2 3 Miles

N W E S

Base map date: October 25, 2017

Refer to CTP document for more details

Inset B

Southern Mitchell County

0 0.175 0.35 0.7 Miles

Inset A

Bakersville

0 0.1 0.2 0.4 0.6 Miles

Pedestrian Map

Mitchell County

Comprehensive Transportation Plan

Inset C: Town of Spruce Pine

Plan date: June 12, 2019

Sidewalks
- Existing
- Needs Improvement
- Recommended

Off-road
- Existing
- Needs Improvement
- Recommended

Multi-Use Paths
- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Sheet 5A of 5

0 0.05 0.1 0.2 0.3 Miles

Base map date: October 25, 2017

Refer to CTP document for more details

1. Analysis of the Existing and Future Transportation System

A Comprehensive Transportation Plan (CTP) is developed to ensure that the transportation system will meet the needs of the region for the planning period. The CTP serves as an official guide to provide a well-coordinated, efficient, and economical transportation system for the future of the region. This document should be utilized by the local officials to ensure that planned transportation facilities reflect the needs of the public, while minimizing the disruption to local residents, businesses and environmental resources.

In order to develop a CTP, the following are considered:

- Analysis of the transportation system, including any local and statewide initiatives;
- Impacts to the natural and human environment, including natural resources, historic resources, homes, and businesses;
- Public input, including community vision, goals and objectives.

1.1 Analysis Methodology and Data Requirements

Reliable forecasts of future travel patterns must be estimated in order to analyze the ability of the transportation system to meet future travel demand. These forecasts depend on careful analysis of the character and intensity of existing and future land use and travel patterns.

An analysis of the transportation system looks at both current and future travel patterns and identifies existing and anticipated deficiencies. This is usually accomplished through a capacity deficiency analysis, a traffic crash analysis, and a system deficiency analysis. This information, along with population growth, economic development potential, and land use trends, is used to determine the potential impacts on the future transportation system.

Roadway System Analysis

An important stage in the development of a CTP is the analysis of the existing transportation system and its ability to serve the area's current and future travel demand. Emphasis is placed not only on detecting the existing deficiencies, but also on understanding the causes of these deficiencies. Roadway deficiencies may result from inadequacies in pavement widths, intersection geometry, or intersection controls. System deficiencies may result from missing travel links, bypass routes, loop facilities, or radial routes; or improvements needed to meet statewide initiatives.

One of those statewide initiatives is the Strategic Transportation Corridors (STC)[1] adopted by the Board of Transportation on March 4, 2015.

[1] *For more information on the STC, go to:*
https://connect.ncdot.gov/projects/planning/Pages/NCTransportationNetwork.aspx

The STC is an initiative to protect and maximize the mobility and connectivity on a critical set of transportation corridors throughout North Carolina, while promoting environmental stewardship through maximizing the use of existing facilities to the extent possible and fostering economic prosperity through the quick and efficient movement of people and goods.

The primary purpose of the STC is to provide a network of core multimodal transportation corridors that move most of North Carolina's freight and people, link critical centers of economic activity to international air and seaports, and support interstate commerce. The primary goal to support this purpose is to create a greater consensus towards the development of a genuine vision for each corridor. Individual CTPs shall establish a vision for each corridor that preserves the inter-regional, long-distance travel needs into and through the study region. There are no highway facilities in Mitchell County identified as a statewide strategic transportation corridor, but the CSX rail line that goes through Mitchell County is identified as a statewide strategic transportation corridor.

In the development of this plan, travel demand was projected from 2016 to 2045 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1993 to 2016. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. After review of the population and employment past trends, low, medium, and high growth rates were established by the CTP Steering Committee. When calculated growth rates along facilities were 0% or negative, a conservative rate of 0.1% was applied unless the facility is one that goes through an area defined in the *2016 Mitchell Works: An Economic Development Strategic Plan*[2] as an area of anticipated development growth. Then a growth rate of 0.6% was used. The established future growth rates were endorsed by the Mitchell County Commissioners (November 19, 2018), Bakersville Town Council (October 29, 2018), and Spruce Pine Town Council (November 26, 2018). In addition, the following facilities used a higher growth rate to reflect the impact of seasonal increase of traffic:

- US 19E
- NC 221
- NC 226
- NC 261
- Penland Road (SR 1162)

Refer to Appendix G for more detailed information on growth expectations and the socio-economic data forecasting methodology.

Existing and future travel demand is compared to existing roadway capacities. Capacity deficiencies occur when the traffic volume of a roadway exceeds the roadway's capacity. Roadways are considered near capacity when the traffic volume is at least eighty percent of the capacity. Refer to Figures 2 and 3 for existing and future capacity

[2] https://mitchellcountyedc.org/wp-content/uploads/2017/12/MitchellCountyWorks-AnEconomicDevelopmentStrategicPlan.pdf

deficiencies. The 2045 traffic volumes in Figure 3 are an estimate of the traffic volume in 2045 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in the 2018 – 2027 Transportation Improvement Program[3] (TIP):

1. R-2519B; US 19E: From NC 80 in Yancey County to multi-lanes west of Spruce Pine in Mitchell County – Widen to multi-lanes (Under construction)
2. R-5804; NC 226: From Blue Ridge Parkway to SR 1274 (Summit Avenue) – Widen to 3-lanes (Right-of-Way in 2021, and construction in 2023)
3. R-5528; New Route: Construct access road off SR 1129 (Henredon Road) – Under Construction. Part Complete.
4. B-6013; Lynn Gap Road (SR 1106): Replace bridge 600207 over Grassy Creek (Right of Way and construction in 2019-2020)

R-2520A; US 19E: From multi-lanes east of Spruce Pine to SR 1106 – Widen to multi-lanes (Right of Way in 2023, and construction in 2025) was not considered as part of the committed projects because it is part of the 2nd 5 years of the STIP so no funding is committed to it at this time.

Capacity is the maximum number of vehicles which have a "reasonable expectation" of passing over a given section of roadway during a given time period under prevailing roadway and traffic conditions. Many factors contribute to the capacity of a roadway including the following:

- Geometry of the road (including number of lanes), horizontal and vertical alignment, and proximity of perceived obstructions to safe travel along the road;
- Typical users of the road, such as commuters, recreational travelers, and truck traffic;
- Access control, including streets and driveways, or lack thereof, along the roadway;
- Development along the road, including residential, commercial, agricultural, and industrial developments;
- Number of traffic signals along the route;
- Peaking characteristics of the traffic on the road;
- Characteristics of side-roads feeding into the road; and
- Directional split of traffic or the percentages of vehicles traveling in each direction along a road at any given time.

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

[3] *For more information on the TIP, go to:* https://connect.ncdot.gov/projects/planning/Pages/default.aspx

LOS D indicates “practical capacity” of a roadway, or the capacity at which the public begins to experience delay. The practical capacity for each roadway was developed based on the 2010 Highway Capacity Manual using the Transportation Planning Division’s *LOS D Standards for Systems Level Planning*. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C for new facilities. Refer to Appendix E for detailed information on LOS.

Traffic Crash Assessment

Traffic crashes are often used as an indicator for locating congestion and roadway problems. Crash patterns obtained from an analysis of crash data can lead to the identification of improvements that will reduce the number of crashes. The Traffic Safety Unit of NCDOT’s Transportation Mobility and Safety Division identifies high frequency crashes at intersections and along roadway sections during a five-year period. The high frequency crash locations examined during the development of the Mitchell County CTP occurred between January 1, 2011 and December 31, 2015. During this period, a total of 20 intersections and 62 roadway sections were identified as having a high frequency of crashes as illustrated in Figure 4. Contact information for the Transportation Mobility and Safety Division can be found in Appendix A.

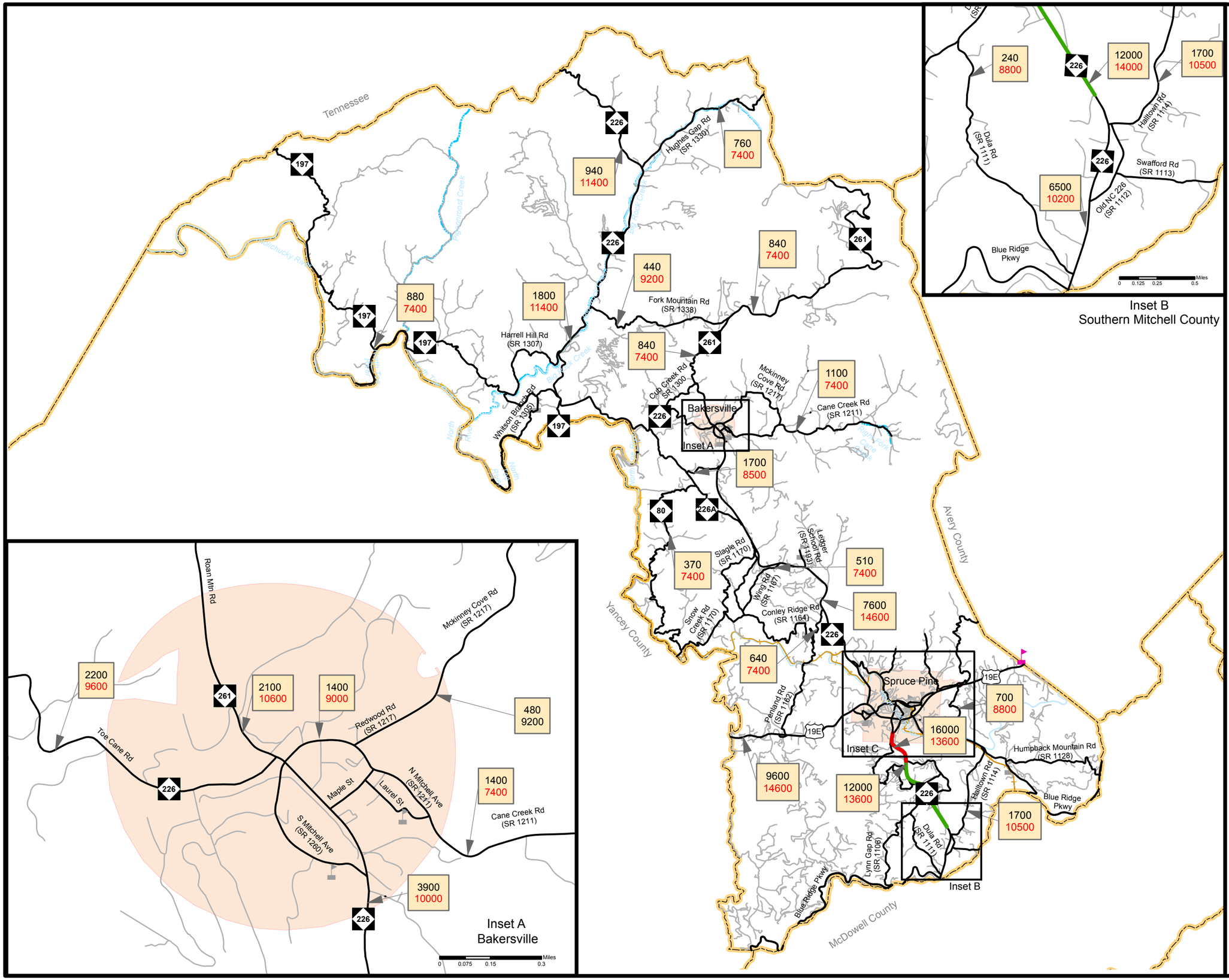
The NCDOT is actively involved with investigating and improving many of these locations. To request a more detailed analysis for any of these locations, or other intersections of concern, contact the Division Traffic Engineer (see Appendix A).

Bridge Deficiency Assessment

Bridges are a vital element of a highway system. First, they represent the highest unit investment of all elements of the system. Second, any inadequacy or deficiency in a bridge reduces the value of the total investment. Third, a bridge presents the greatest opportunity of all potential highway failures for disruption of community welfare. Finally, and most importantly, a bridge represents the greatest opportunity of all highway failures for loss of life. For these reasons, it is imperative that bridges be constructed to the same design standards as the system of which they are a part.

The NCDOT Structures Management Unit inspects all bridges in North Carolina at least once every two years. Bridges having the highest priority are replaced as federal and state funds become available. Twenty-two deficient bridges were identified on roads evaluated as part of the CTP and are illustrated in Figure 5. None of these bridges are scheduled for replacement in the 2018 – 2027 TIP. There are also three federal bridges along the Blue Ridge Parkway that cross study roads in Mitchell County that are functionally obsolete. In addition, there is a pedestrian bridge over the North Toe River between Yancey County and Mitchell County near Whitson Branch Rd (SR 1305). As deficient bridges are replaced, every consideration should be given to proposed CTP recommendation and cross section associated with the recommendation. Table 3 in Appendix F gives a listing of the deficient bridges identified in the CTP and the ID number associated with CTP project proposal. Refer to Appendix F for more detailed bridge deficiency information.

2016
Volume to Capacity Deficiencies
Mitchell County
Comprehensive Transportation Plan



Legend

2016 Volume
2016 Capacity

- Near Capacity
- Over Capacity
- Network Roads
- Municipal Boundary
- County Boundary
- Rivers and Streams
- Study Roads
- Schools

FIGURE 2

N W E S

0 0.0750.15 0.3 0.45 Miles

Sheet 1 of 2

Base map date: October 1, 2018

2016 Spruce Pine Volume to Capacity Deficiencies Inset C

Mitchell County
Comprehensive Transportation Plan

Legend

2016 Volume
2016 Capacity

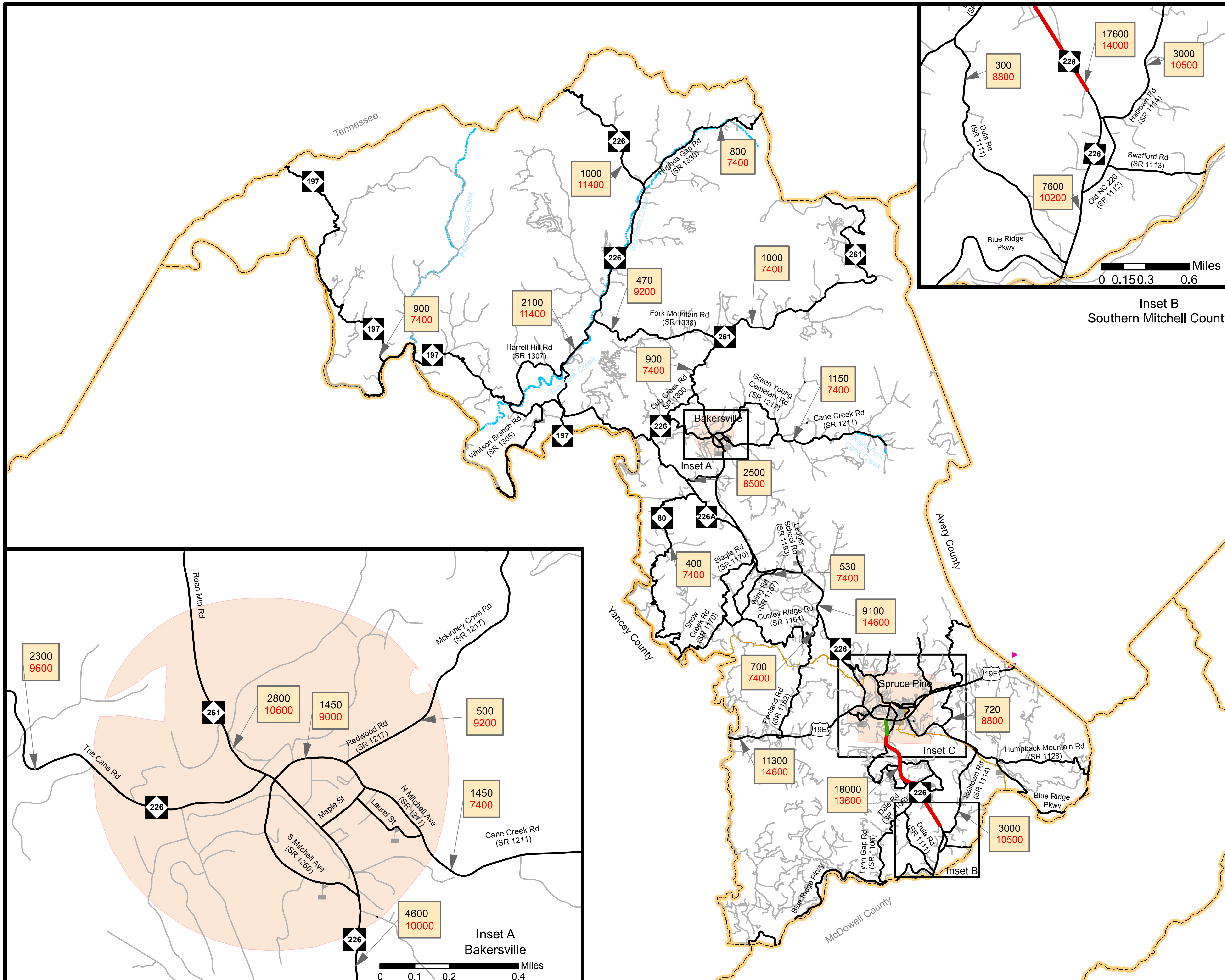
- Near Capacity
- Over Capacity
- Network Roads
- Municipal Boundary
- County Boundary
- Rivers and Streams
- Study Roads
- Schools

N
W E
S

FIGURE 2

0 0.05 0.1 0.2 0.3 Miles

Sheet 2 of 2
Base map date: October 25, 2017



2045 Volume to Capacity Deficiencies

Mitchell County

Comprehensive Transportation Plan

Legend

2045 Volume
2016 Capacity

Near Capacity

Over Capacity

Network Roads

Municipal Boundary

County Boundary

Rivers and Streams

Study Roads

Schools

FIGURE 3

N W E S

Miles
0 0.075 0.15 0.3 0.45

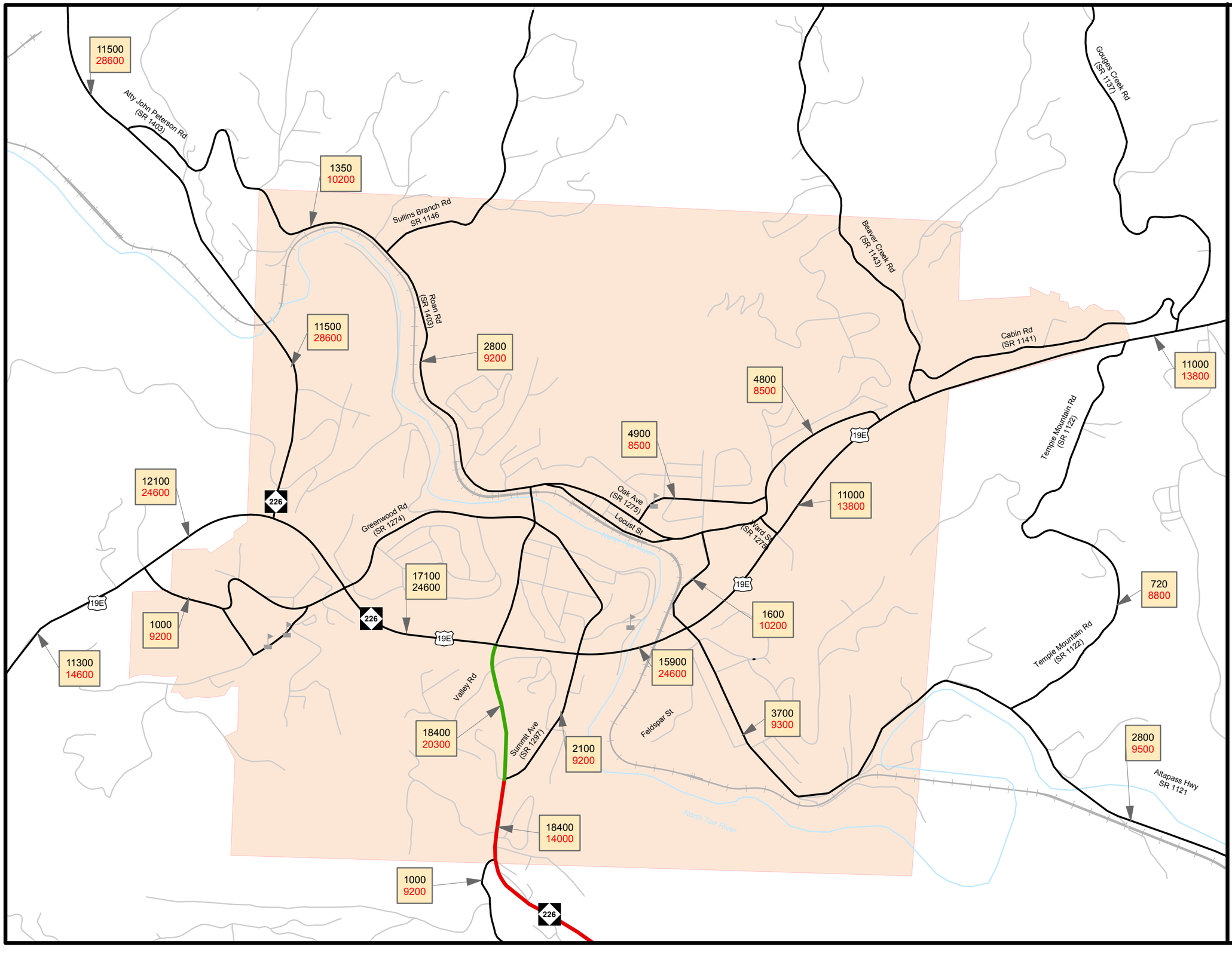
Sheet 1 of 2

Base map date: October 1, 2018

2045 Spruce Pine Volume to Capacity Deficiencies Inset C

Mitchell County

Comprehensive Transportation Plan



Legend

- 2045 Volume / 2016 Capacity
- Near Capacity
- Over Capacity
- Network Roads
- Municipal Boundary
- County Boundary
- Rivers and Streams
- Study Roads
- Schools

FIGURE 3

N
W E
S

Miles
0 0.05 0.1 0.2 0.3

Sheet 2 of 2

Base map date: October 25, 2017

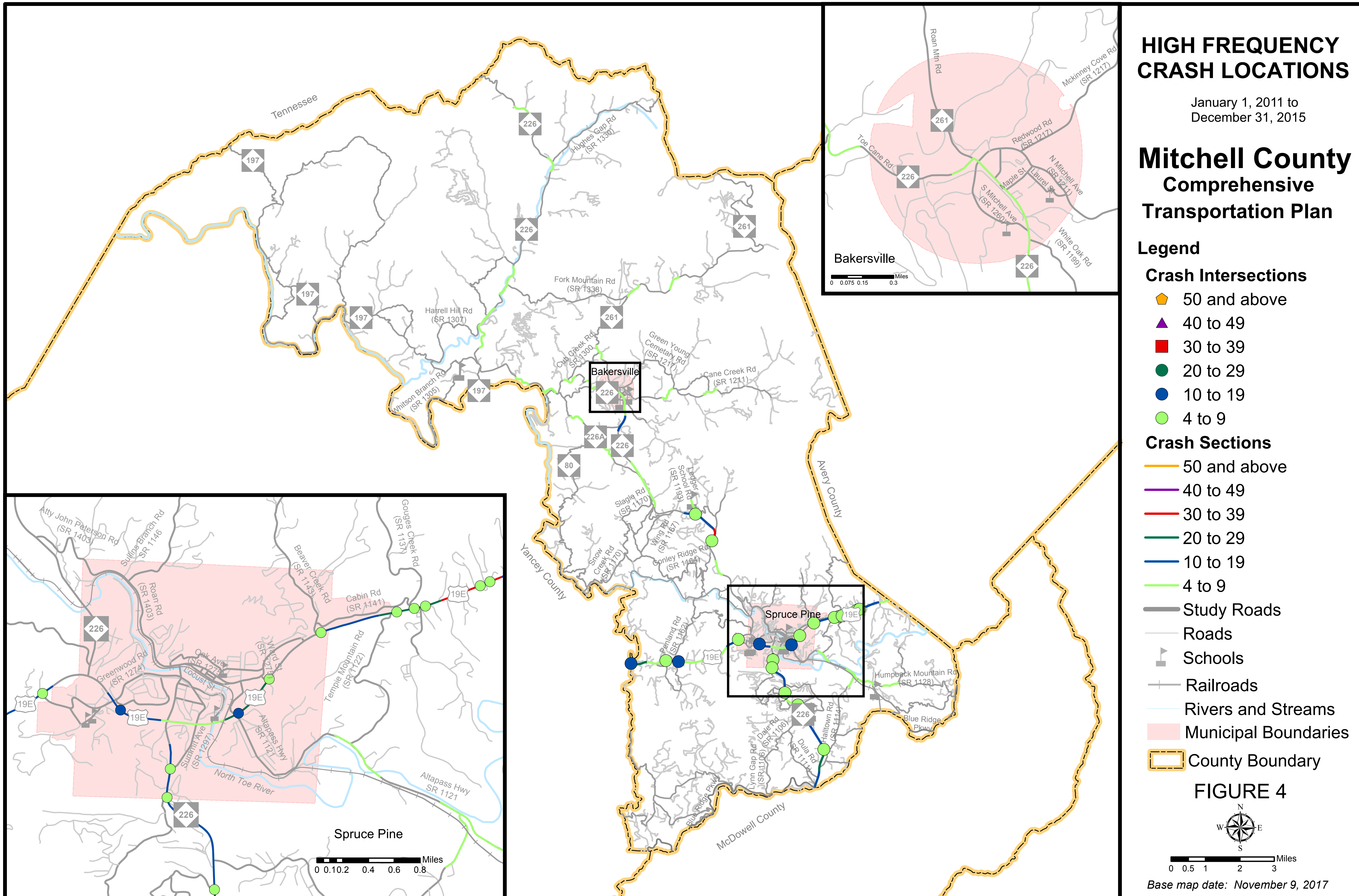
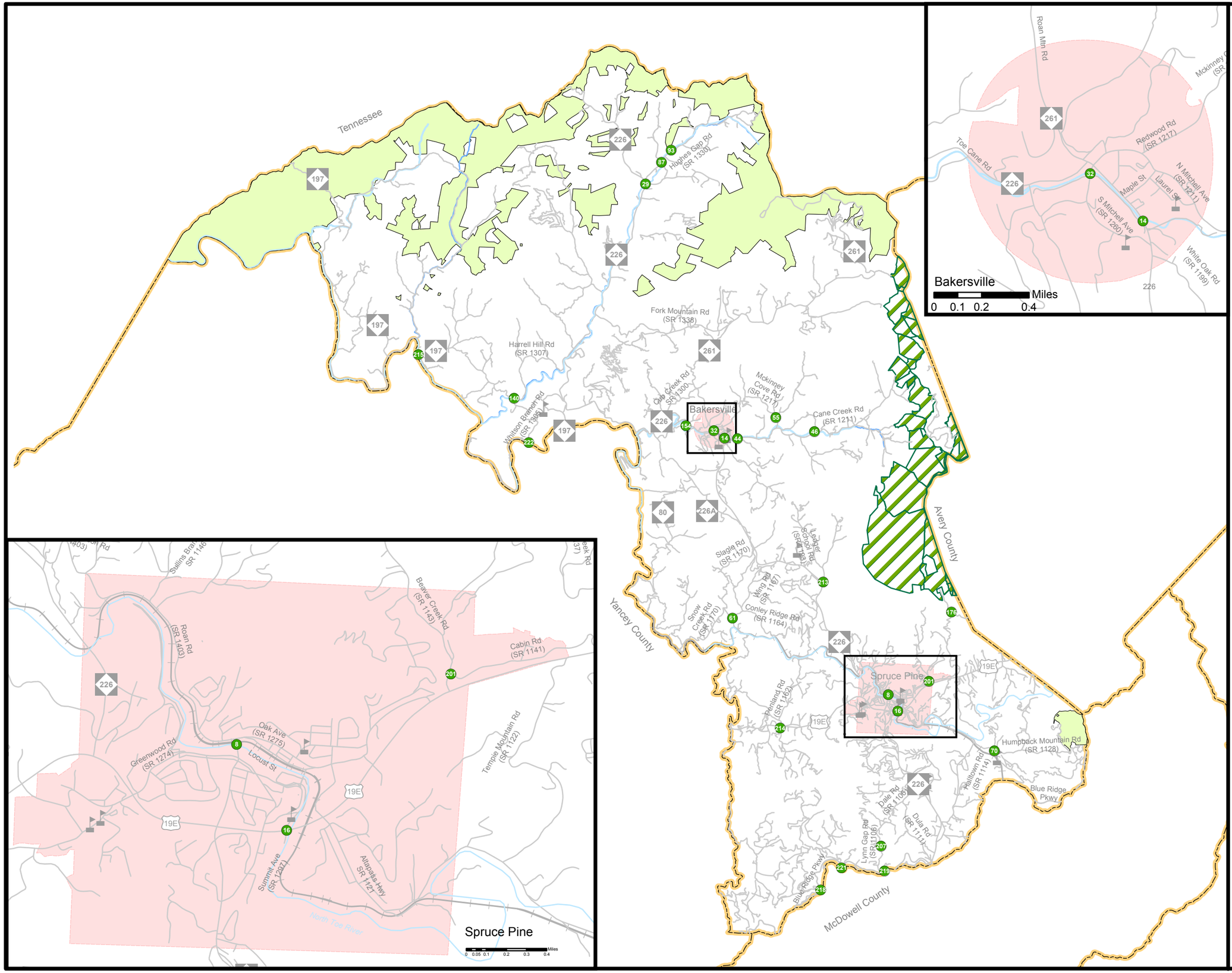

HIGH FREQUENCY CRASH LOCATIONS
January 1, 2011 to December 31, 2015
Mitchell County
Comprehensive Transportation Plan
Legend
Crash Intersections
50 and above
40 to 49
30 to 39
20 to 29
10 to 19
4 to 9
Crash Sections
50 and above
40 to 49
30 to 39
20 to 29
10 to 19
4 to 9
Study Roads
Roads
Schools
Railroads
Rivers and Streams
Municipal Boundaries
County Boundary
FIGURE 4
Miles
0 0.5 1 2 3
Base map date: November 9, 2017
Tennessee
Avery County
Yancey County
McDowell County
Bakersville
Spruce Pine
Fork Mountain Rd (SR 1338)
Harrell Hill Rd (SR 1307)
Cane Creek Rd (SR 1211)
Humpback Mountain Rd (SR 1128)
North Toe River
Altapass Hwy SR 1121
Cabin Rd (SR 1141)
Roan Mtn Rd
Toe Cane Rd
Redwood Rd (SR 1217)
Mckinney Cove Rd (SR 1217)
White Oak Rd (SR 1199)

FIGURE 4

DEFICIENT BRIDGE LOCATIONS

Mitchell County

Comprehensive Transportation Plan



Legend

- Deficient Bridge (# Bridge Number)
- Schools
- Roads
- Rivers and Streams
- Railroads
- Game Lands
- State Parks
- County Boundary
- Municipal Boundery

FIGURE 5

N W E S

Miles
0 0.5 1 2 3

Base map date: October 25, 2017

Refer to Appendix F for more details

Public Transportation and Rail

Public transportation and rail are vital modes of transportation that give alternatives for transporting people and goods from one place to another.

Public Transportation

North Carolina's public transportation systems serve more than 50 million passengers each year. Five categories define North Carolina's public transportation system: community, regional community, urban, regional urban and intercity.

- Community Transportation - Local transportation efforts formerly centered on assisting clients of human service agencies. Today, the vast majority of rural systems serve the general public as well as those clients.
- Regional Community Transportation - Regional community transportation systems are composed of two or more contiguous counties providing coordinated / consolidated service. Although such systems are not new, single-county systems are encouraged to consider mergers to form more regional systems.
- Urban Transportation – There are currently nineteen urban transit systems operating in North Carolina, from locations such as Asheville and Hendersonville in the west to Jacksonville and Wilmington in the east. In addition, small urban systems provide service in three areas of the state. Consolidated urban-community transportation exists in five areas of the state. In those systems, one transportation system provides both urban and rural transportation within the county.
- Regional Urban Transportation - Regional urban transit systems currently operate in three areas of the state. These systems connect multiple municipalities and counties.
- Intercity Transportation - Intercity bus service is one of a few remaining examples of privately owned and operated public transportation in North Carolina. Intercity buses serve many cities and towns throughout the state and provide connections to locations in neighboring states, Amtrak passenger station and throughout the United States and Canada. Greyhound and Amtrak Thruway service operate in North Carolina. However, community, urban and regional transportation systems are providing increasing intercity service in North Carolina.

An inventory of existing and planned fixed public transportation routes for the planning area is presented on Sheet 3 of Figure 1. The Mitchell County Transportation Authority (MCTA) provides community transit service for county residents through an on-demand service. In addition to providing service within the county to work sites, shopping, and medical services, it also provides service to out-of-county medical appointments in Asheville, Boone, Charlotte, Durham, Hickory, Kingsport (Tennessee), Johnson City (TN), McDowell County, Raleigh, and Winston-Salem. It also provides service to airports in Charlotte and Asheville. MCTA provides transportation services by contract to other human service agencies, i.e. the Senior Center, day care centers, social services, and pre-school centers. In 2015, 61,000 trips were provided through MCTA.

All recommendations for public transportation were coordinated with the local governments and the Public Transportation Division of NCDOT. Refer to Appendix A for contact information for the Public Transportation Division.

Rail

Today North Carolina has 3,245 miles of railroad tracks throughout the state. There are two types of trains that operate in the state, passenger trains and freight trains.

Intercity passenger service is provided by Amtrak which currently operates six passenger services daily in or through North Carolina serving 16 cities across the state. Five of the services are interstate (Crescent, Palmetto, Silver Meteor, Silver Star, and Carolinian passenger trains) and one service (Piedmont passenger train) operates exclusively within North Carolina. In addition to the six passenger services mentioned, Amtrak also operates its Auto Train service which passes through North Carolina but does not make any stops. Amtrak ridership demand has been on the rise in the state. In 2010 ridership was 840,000 and increased to 975,645 passengers in 2013.

The North Carolina Department of Transportation sponsors two passenger trains, the Carolinian and Piedmont. The Carolinian runs between Charlotte and New York City, while the Piedmont train carries passengers from Raleigh to Charlotte and back every day. However, no passenger trains operate over the rail line from High Point that dead ends at Asheboro or over the rail line that runs from Gulf, NC to Greensboro. Combined, the Carolinian and Piedmont carry more than 300,000 passengers each year.

There are two major freight railroad companies that operate in North Carolina, CSX Transportation and Norfolk Southern Corporation. Also, there are more than 17 smaller freight railroads, known as shortlines.

An inventory of existing and planned rail facilities for the planning area is presented on Sheet 3 of Figure 1. There are 49 miles of track through Mitchell County. CSX rail line through Mitchell County is an identified Strategic Transportation Corridor.[4] In 2018, there were approximately 14 freight trains per day along this line with a maximum train speed of 25 mph. There are no passenger trains in operation within the study area. There are 22 open or inactive public crossings and 41 open or inactive private crossings. Below are the top 5 highest 2014 AADT (Average Annual Daily Traffic) roads with railroad crossings.

[4] https://connect.ncdot.gov/projects/planning/pages/NCTransportationNetwork.aspx

1.) Halltown Road
- 4 Day Thru
- 3 Night Thru
- 2 Switching Trains

2.) NC 197
- 4 Day Thru
- 3 Night Thru
- 1 Switching Train

3.) NC 197
- 4 Day Thru
- 3 Night Thru
- 1 Switching Train

4.) Toe River Road
- 4 Day Thru
- 3 Night Thru
- 1 Switching Train

5) Mica Street
- 4 Day Thru
- 3 Night Thru
- 2 Switching Train

Refer to Appendix A for contact information for the Rail Division.

Bicycles & Pedestrians

Bicyclists and pedestrians are a growing part of the transportation system in North Carolina. Many communities are working to improve mobility for both cyclists and pedestrians.

NCDOT's Bicycle Policy, updated in 1991, clarifies responsibilities regarding the provision of bicycle facilities along the 77,000-mile state-maintained highway system. The policy details guidelines for planning, design, construction, maintenance, and operations pertaining to bicycle facilities and accommodations. All bicycle improvements undertaken by NCDOT are based upon this policy.

The 2000 NCDOT Pedestrian Policy Guidelines specifies that NCDOT will participate with localities in the construction of sidewalks as incidental features of highway improvement projects. At the request of a locality, state funds for a sidewalk are made available if matched by the requesting locality, using a sliding scale based on population.

NCDOT's administrative guidelines, adopted in 1994, ensure that greenways and greenway crossings are considered during the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction.

Inventories of existing and planned bicycle and pedestrian facilities for the planning area are presented on Sheets 4 and 5 of Figure 1. The 2014 High Country Bike Plan, Mitchell County Economic Development Strategic Plan, and the High Country Regional Trail Plan were utilized in the development of these elements of the CTP. The Appalachian Trail runs along the northern edge of Mitchell County. The NC 2 Mountains to Sea route and the NC 11 The Overmountain Victory National Historic Trail (OVT) that commemorates the 1780 march of the patriot militia through Virginia, Tennessee, North Carolina, and South Carolina goes through Mitchell County. All

recommendations for bicycle and pedestrian facilities were coordinated with the local governments and the NCDOT Division of Bicycle and Pedestrian Transportation. Refer to Appendix A for contact information for the Division of Bicycle and Pedestrian Transportation.

Land Use

G.S. §136-66.2 requires that local areas have a current (less than five years old) land development plan prior to adoption of the CTP. For this CTP, the 2016 *Mitchell Works: An Economic Development Strategic Plan* (refer to Appendix H) was used to meet this requirement.

Land use refers to the physical patterns of activities and functions within an area. Traffic demand in a given area is, in part, attributed to adjacent land use. For example, a large shopping center typically generates higher traffic volumes than a residential area. The spatial distribution of different types of land uses is a predominant determinant of when, where, and to what extent traffic congestion occurs. The travel demand between different land uses and the resulting impact on traffic conditions varies depending on the size, type, intensity, and spatial separation of development. Additionally, traffic volumes have different peaks based on the time of day and the day of the week. For transportation planning purposes, land use is divided into the following categories:

- Residential: Land devoted to the housing of people, with the exception of hotels and motels which are considered commercial.
- Commercial: Land devoted to retail trade including consumer and business services and their offices; this may be further stratified into retail and special retail classifications. Special retail would include high-traffic establishments, such as fast food restaurants and service stations; all other commercial establishments would be considered retail.
- Industrial: Land devoted to the manufacturing, storage, warehousing, and transportation of products.
- Public: Land devoted to social, religious, educational, cultural, and political activities; this would include the office and service employment establishments.
- Agricultural: Land devoted to the use of buildings or structures for the raising of non-domestic animals and/or growing of plants for food and other production.
- Mixed Use: Land devoted to a combination of any of the categories above.

Anticipated future land development is, in general, a logical extension of the present spatial land use distribution. Locations and types of expected growth within the planning area help to determine the location and type of proposed transportation improvements.

Existing commercial land uses in Mitchell County are mainly along US 19E and NC 226, downtown Spruce Pine (Oak Avenue and Locust Street area), and Mitchell Avenue in Bakersville. Industrial areas (mining and manufacturing) are located along NC 226, US 19E, Altapass Hwy (SR 1121), and NC 197. The former Henredon Furniture property off Humpback Mountain Road (SR 1128) is a potential future industrial site. Blue Ridge Regional Hospital is located in Spruce Pine off Altapass Hwy (SR 1121).

Downtown Spruce Pine along Oak Avenue and Locust Street and downtown Bakersville along Mitchell Avenue have historic areas. Another draw to the area is the Penland School of Craft that is located between Bakersville and Spruce Pine. Each year approximately 1400 people come to Penland for instruction and another 14,000 pass through as visitors.

Mitchell County has one high school that serves the county. Mitchell High School is located off Ledger School Road. Spruce Pine has Deyton Elementary School and Harris Middle School located off Harris Street. Bakersville has Bowman Middle School located off S Mitchell Avenue and Gouge Elementary School off Laurel Street. Greenlee Primary School is located off NC 226 south of Spruce Pine. Mayland Early College and Community College is located off US 19E just over the Avery County line.

According to local emergency management officials, the Mitchell House (home for elderly with dementia and other ailments) located on NC 226 South near Spruce Pine has the highest medical response calls. There are concern for emergency response operations in the rural north end of Mitchell County near the Tennessee state line, especially the Poplar Creek Road (SR 1321) area. Bakersville Fire Department is located on Bakers Ln off NC 226. Spruce Pine Fire Department is located on Valley Road off NC 226. There is also the Buladean Volunteer Fire Department (Fire House Road off NC 226), Bradshaw Volunteer Fire Department (Pigeon Roost Rd off NC 197), Fork Mountain Volunteer Fire Department (Roy Greene Rd off Fork Mountain Road and NC 261), and Parkway Fire and Rescue (NC 226).

According to the Mitchell County Economic Development Strategic Plan higher anticipated commercial growth areas are primarily along US 19 E between Spruce Pine and Yancey County and NC 226 north and south of Spruce Pine. The Altapass Hwy (SR 1128), Henredon Rd (SR 1129), and Humpback Mountain Road (SR 1126) area is also expected to grow. Higher residential growth is expected to occur along NC 261 in the Glen Ayre area.

For more information on the existing population, community and land uses of Mitchell County refer to the Mitchell County Community Understanding Report [5] found online.

For detailed information on how land use and growth projections were developed for and applied in the CTP, refer to Appendix G.

[5] https://connect.ncdot.gov/projects/planning/Pages/CTP-Details.aspx?study_id=Mitchell County

Regional Connectivity

Regional connectivity is important to the support of economic growth and development. In rural areas, it is also a critical link to advanced health care.

Figure 6 shows key regional destinations. Some of the key regional destinations identified as part of this study.

- Medical services in Asheville, Winston-Salem, Charlotte, Boone and Johnson City (Tennessee)
- Interstates (I-40, I-26)
- Airports (Asheville, Charlotte, Johnson City (Tennessee))
- Outdoor recreation and tourists destinations, e.g. Roan Mountain State Park, Grandfather Mountain, Mount Mitchell State Park, and the Appalachian Trail.

Also, job commuting patterns were reviewed as part of the CTP. Figure 7 shows the commuting patterns between the surrounding area based on 2015 census data. The largest number of commuters are between Yancey County, McDowell County, Avery County, and Buncombe County. Roads that are especially critical to these commutes are US 19E, NC 226, and NC 197

In addition, truck movement is a critical element of regional connectivity especially due to the significant amount of mining in Mitchell County. Sibelco North America Incorporation has facilities off N 226 and US 19E. 2016 truck data was available on primary roads from NCDOT annual traffic counts. Figure 8 shows the percent of trucks of the total volume on major facilities. NC 226 north of Bakersville has the largest percent of trucks at 10% and has high truck volumes along the entire route through Mitchell County. US 19E has up to 8% trucks. Unimin Corporation Red Hill Plant is located off NC 197. While truck volumes were not available on other roads that provide access to mining operations, the CTP Steering Committee did identify other key truck routes: Altapass Hwy (SR 1121), Roan Road (SR 1403), and Sullins Branch Road (SR 1146). In the future, a quartz mine is expected to open at the end of Beaver Creek Road (SR 1143).

1.2 Consideration of Natural and Human Environment

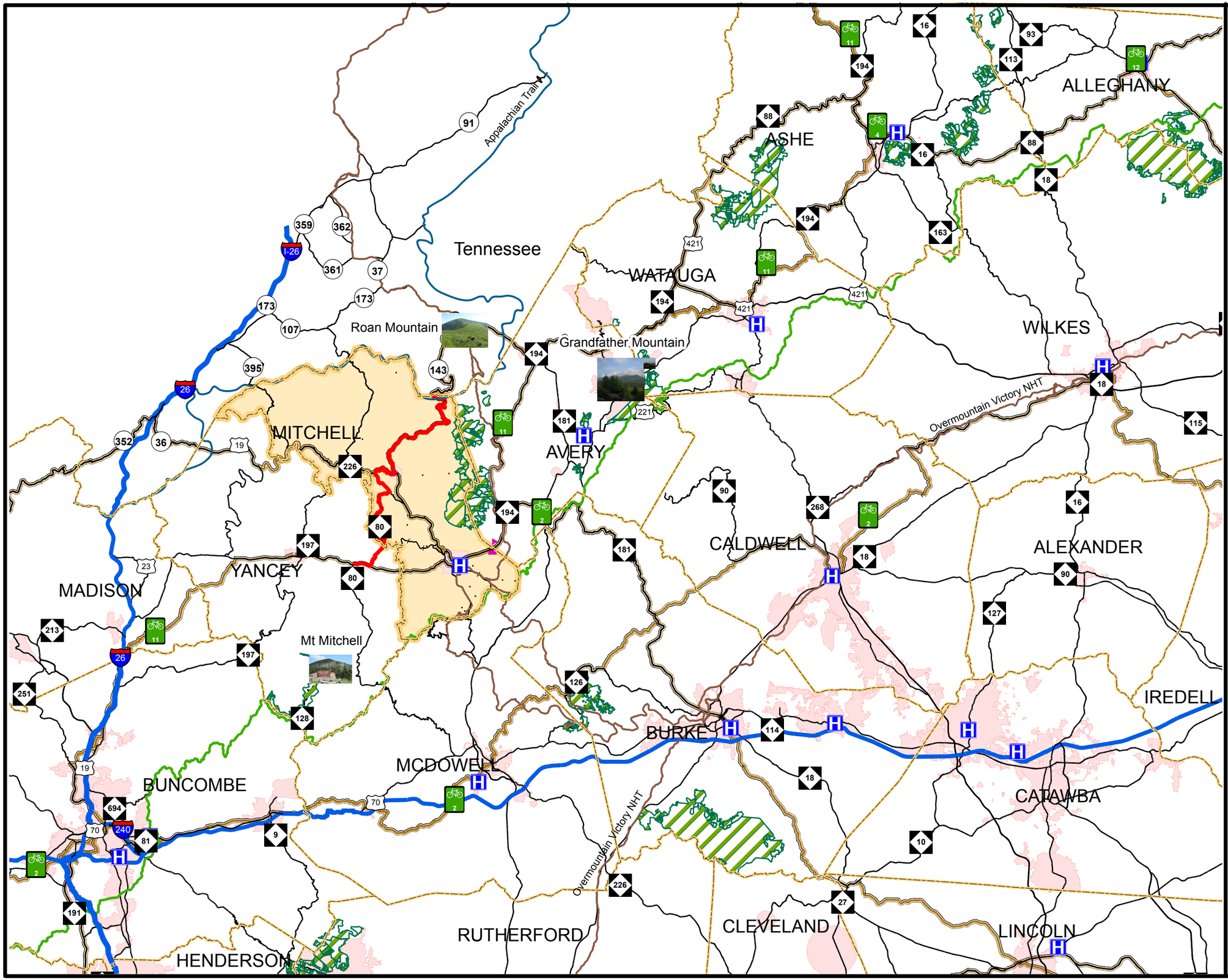
Environmental features are a key consideration in the transportation planning process. Section 102 of the National Environmental Policy Act[6] (NEPA) requires consideration of impacts on wetlands, wildlife, water quality, historic properties, and public lands. While a full NEPA evaluation was not conducted as part of the CTP, every effort was made to minimize potential impacts to these features utilizing the best available data. Any potential impacts to these resources were identified as a part of the project recommendations in Chapter 2 of this report. Prior to implementing transportation recommendations of the CTP, a more detailed environmental study would need to be completed in cooperation with the appropriate environmental resource agencies.

[6] *For more information on NEPA, go to:* https://ceq.doe.gov/.

Regional Destinations

Mitchell County

Comprehensive Transportation Plan



Legend

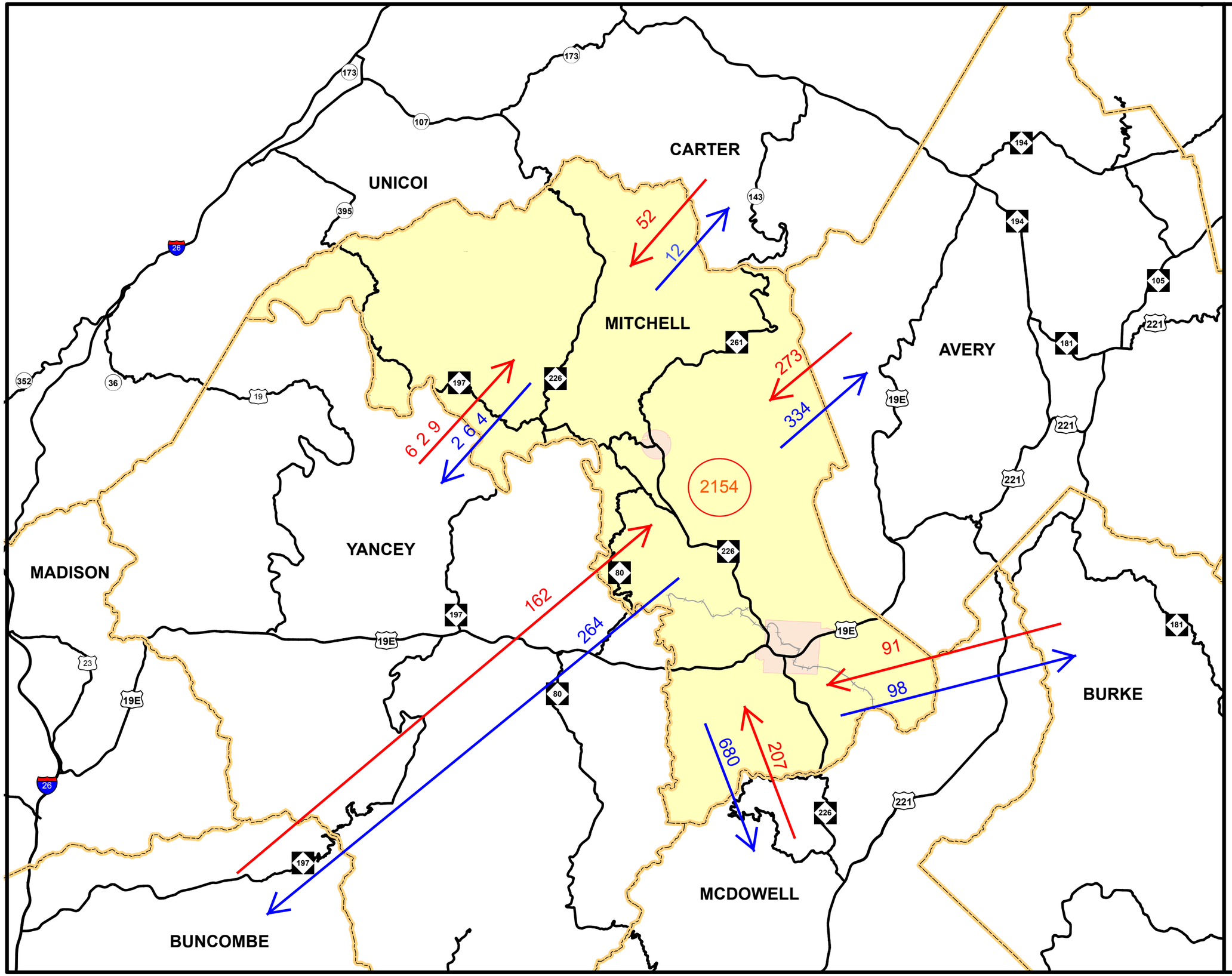
- Hospital
- Appalachian Trail
- BlueRidgePkwy
- Overmountain Victory NH Trail
- State Parks
- Highlands of the Roan Scenic Byway
- Mayland Community College
- Railroad
- MunicipalBoundaries
- County Boundary
- Interstates
- Major Routes
- NC Bike Routes

FIGURE 6

N W E S

0 1.5 3 6 9 12 Miles

Base map date: October 1, 2018



Commuting Patterns

2015 Employment Commuter Patterns

Mitchell County

Comprehensive Transportation Plan

# of Workers who live and work in Mitchell County

# of Workers coming into Mitchell County for work

# of Workers living in Mitchell County and working outside Mitchell County

Other Commutes outside Mitchell Co:
Catawba Co. 127 Destinations
Alexander Co. 87 Destinations
Watauga Co. 86 Destinations

Other Commutes into Mitchell Co:
Rutherford Co. - 66
Caldwell C. - 54
Madison Co. - 54
Watauga Co - 36

FIGURE 7

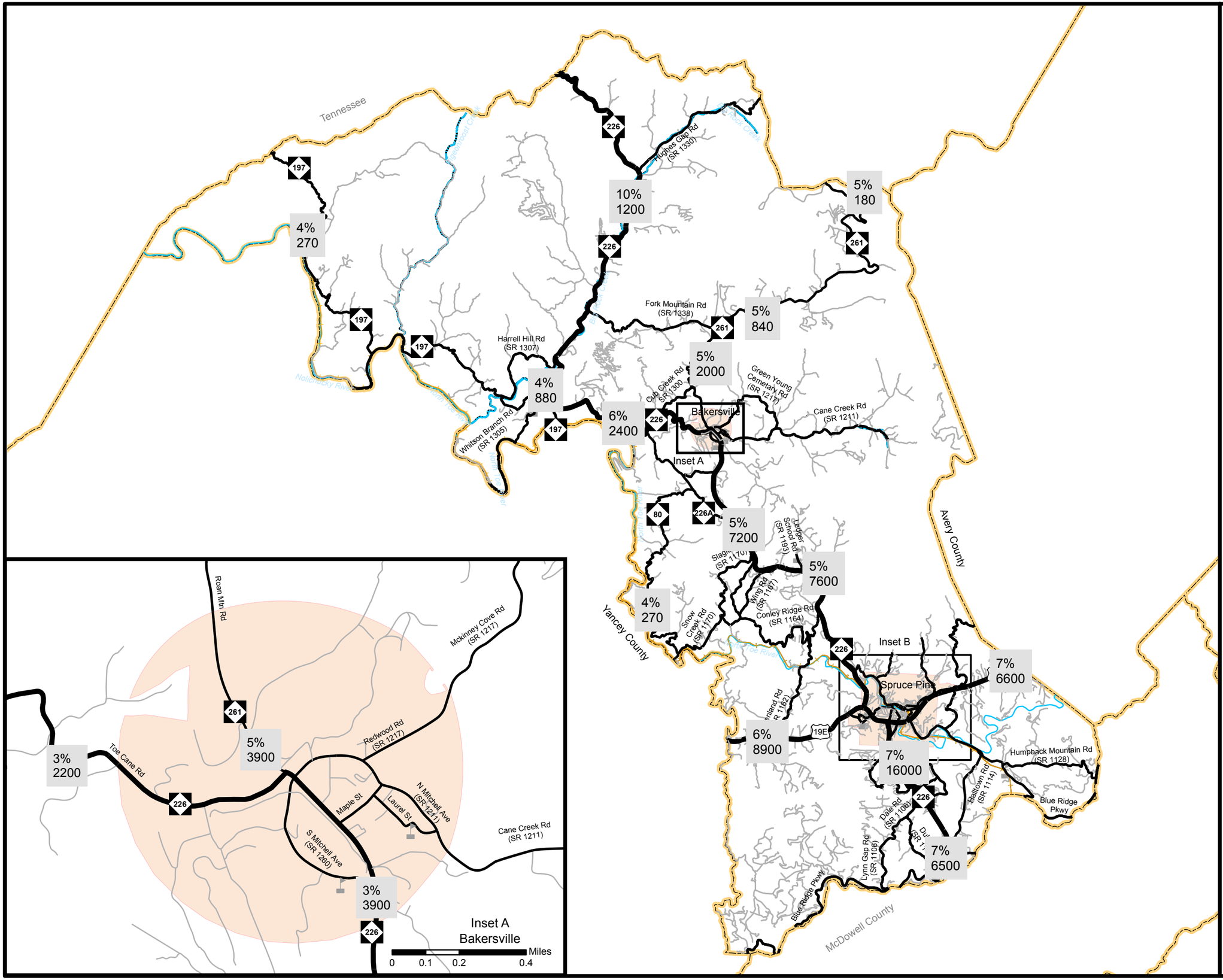
Source:accessed on 10/18/2018: https://onthemap.ces.census.gov/

0 1 2 4 6 Miles

Base map date: October 25, 2017

2016 Percent of Trucks

Mitchell County
Comprehensive Transportation Plan



Legend

- % Trucks 2016 AADT
- Major Thoroughfares
- Minor Thoroughfares
- Schools
- Mayland Community College
- Railroad
- County Boundary
- Municipal Boundary

FIGURE 8

N W E S

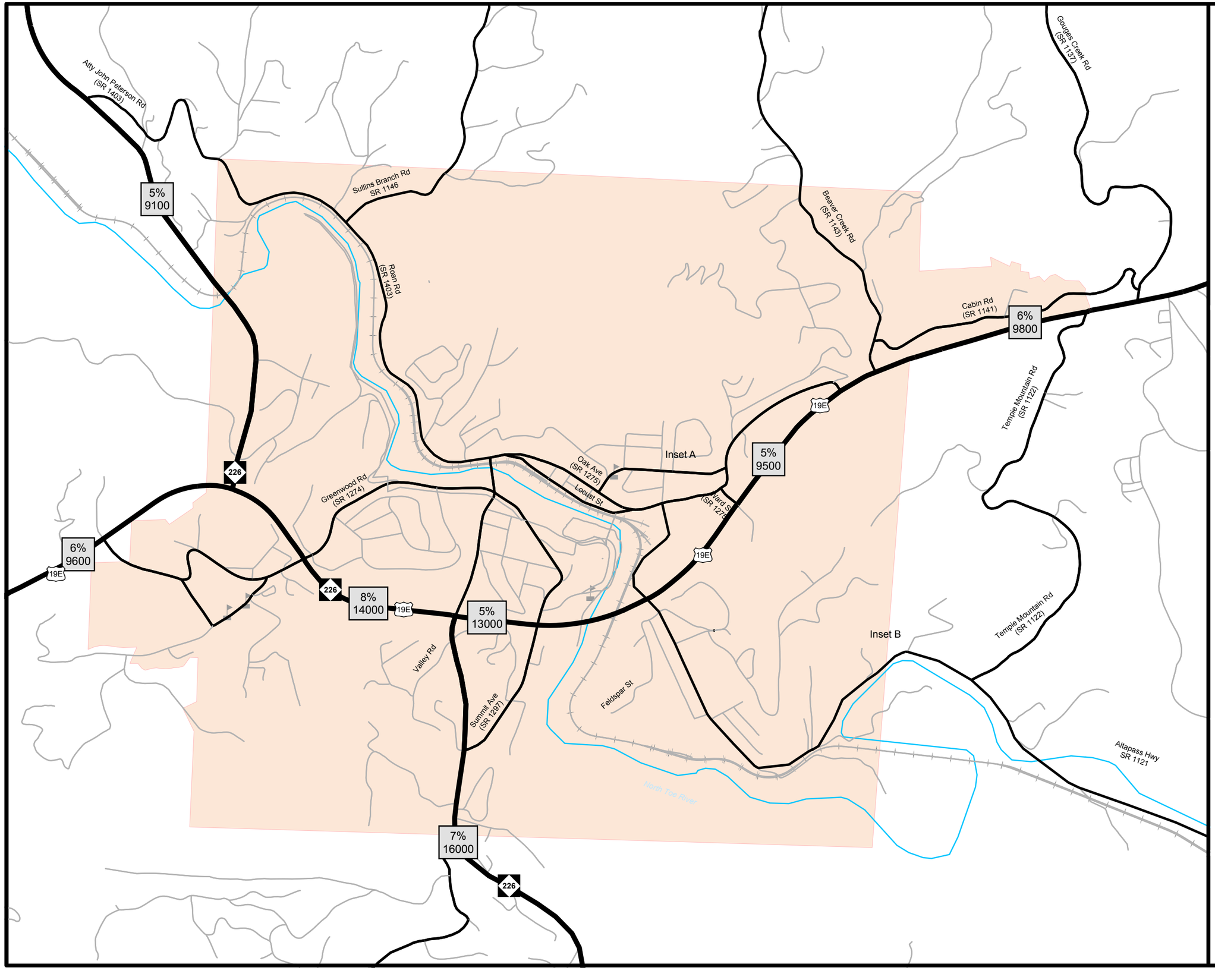
0 0.5 1 2 3 Miles

Sheet 1 of 2

Base map date: October 1, 2018

2016 Percent of Trucks
Spruce Pine
Inset B

Mitchell County
Comprehensive Transportation Plan



Legend

- % Trucks 2016 AADT
- Major Thoroughfares
- Minor Thoroughfares
- Schools
- Mayland Community College
- Railroad
- County Boundary
- Municipal Boundary

FIGURE 8

N W E S

0 0.075 0.15 0.3 0.45 Miles

Sheet 2 of 2

Base map date: October 1, 2018

A full listing of environmental features that are typically examined as a part of a CTP study is shown in the following tables. Environmental features occurring within Mitchell County are shown in Figure 9 and are shown in **bold text** in Table 1. All others were checked but do not occur in Mitchell County.

Table 1 – Environmental Features

- **24k Hydro Lines**
- **303D Streams**
- Airport Boundaries
- Anadromous Fish Spawning Areas
- APNEP - Submerged Aquatic Vegetation
- Beach and Waterfront Access
- Benthic Habitat
- **Bicycle Routes**
- Boating Access
- **Churches and Cemeteries**
- **Colleges and Universities (Points)**-Just east of Mitchell Countyline
- **Conservation Tax Credit Properties**
- Critical Habitat for Threatened and Endangered Species
- **Emergency Operation Centers**
- Fish Nursery Areas
- **Hazard Substance Disposal Sites (points & polygons)**
- Hazardous Waste Facilities
- **High Quality Waters and Outstanding Resource Water Management**
- **Historic Resources – National Register and Determined Eligible (points and polygons)**
- **Hospitals**
- **Hydrography - 1:24,000-scale (polygons)**
- **Landscape Habitat Indicator Guilds (LHIGs)Managed Areas**
- National Wetlands Inventory (polygons)
- **Natural Heritage Element Occurrences**
- NC-CREWS: N.C. Coastal Region Evaluation of Wetland Significance
- **NCDOT Maintained Mitigation Sites**
- **Railroads (1:24,000)**
- **Recreation Projects - Land and Water Conservation Fund**
- **Regional Trails**
- **Sanitary Sewer Systems - Treatment Plants**
- **Schools (Public & Non-Public)**
- **Significant Natural Heritage Areas**
- **State Natural and Scenic Rivers**
- **State Parks**
- **Target Local Watersheds - EEP**
- **Trout Streams (DWQ)**
- **Trout Waters WRC (arcs & polygons)**
- Unique Wetlands
- **Water Distribution Systems – Tanks & Treatment Plants**
- **Water Supply Watersheds**

Archaeological sites were also considered but are not mapped due to restrictions associated with the sensitivity of the data.

1.3 Public Involvement

Public involvement is a key element in the transportation planning process. Adequate documentation of this process is essential for a seamless transfer of information from systems planning to project planning and design.

A meeting was held with the Mitchell County Manager, the Spruce Pine Town Manager, and the mayor of Bakersville on October 3, 2017 to provide an overview of the transportation planning process, to gather input on area transportation needs, and to formally initiate the study.

Throughout the course of the study, the NCDOT Transportation Planning Branch cooperatively worked with the Mitchell County CTP Steering Committee which included a representative from each municipality, county staff, the RPO and others. The committee provided information on current local plans, developed transportation vision and goals, discussed population and employment projections, and developed proposed CTP recommendations. Refer to Appendix H for detailed information on the vision statement, the goals and objectives survey and a listing of committee members.

The public involvement process included holding three public drop-in sessions in Mitchell County to present the proposed CTP to the public and solicit comments. The first meeting was held on April 29, 2019 at the Buladean Community Foundation; the second meeting was held on April 30, 2019 at Bowman Middle School in Bakersville. The third meeting was held on May 1, 2019 at Harris Middle School in Spruce Pine. Each session was publicized in the local newspaper and was held from 5:00-7:00pm. Two comment forms were submitted during the session held on May 1, 2019. Refer to Appendix H for a summary of comments received through the public involvement process.

The CTP was adopted on July 29, 2019 during the Bakersville Town Council meeting. There was also an opportunity to discuss the plan recommendations.

The CTP was adopted on September 3, 2019 during the Mitchell County Commissioners meeting. There was also an opportunity to discuss the plan recommendations.

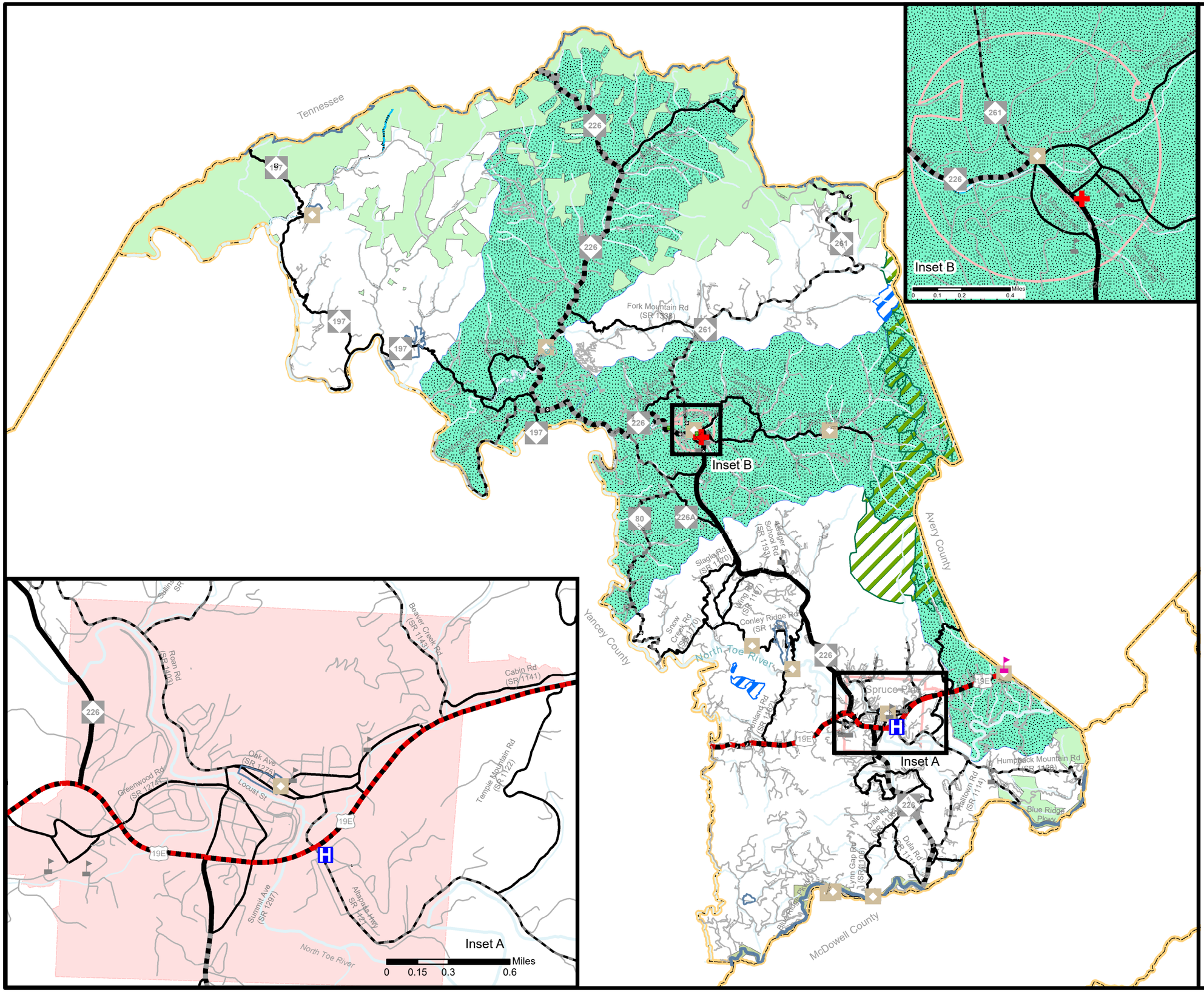
The CTP was adopted on September 9, 2019 during the Spruce Pine Town Council meeting. There was also an opportunity to discuss the plan recommendations.

The High Country RPO endorsed the CTP on August 21, 2019. The North Carolina Department of Transportation mutually adopted the Mitchell County CTP on October 3, 2019.

Environmental Features Map

Mitchell County

Comprehensive Transportation Plan



Legend

- Emergency Operation Center
- Schools
- Schools
- Hospital
- Historic Resources
- Historic Resources Areas
- Historic Resources - Other Categories
- ArtificialPath
- StreamRiver
- Conservation Tax Credit Properties
- StateParks_Mitchell
- NC National Parks
- Rivers and Streams
- 303D Streams
- US Forest Service Lands
- Targeted Local Watersheds
- Roads
- Municipal Boundary
- County Boundary

FIGURE 9

0 0.5 1 2 3 Miles

N W E S

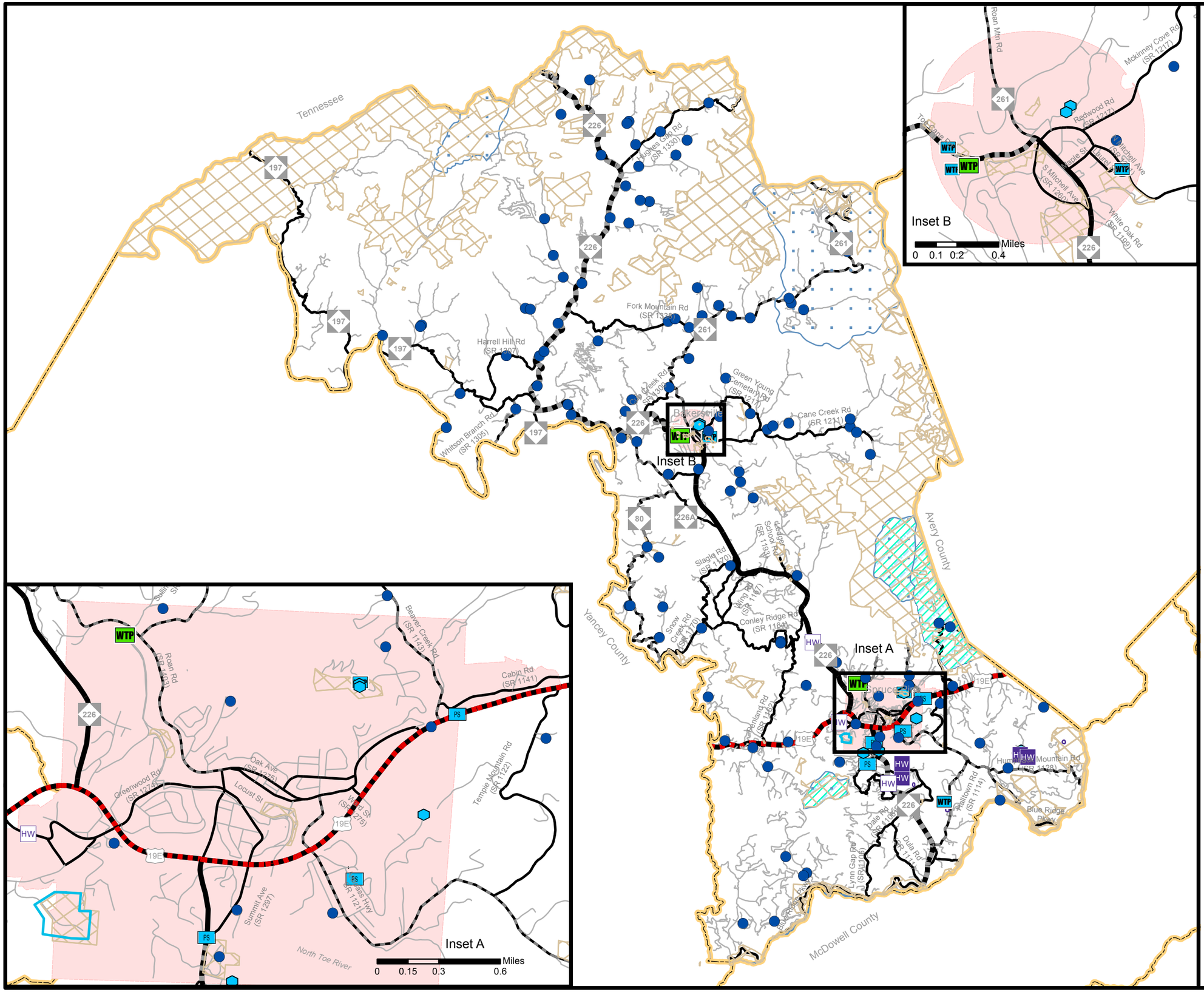
Sheet 1 of 4

Map Date: October 25, 2017

Environmental Features Map

Mitchell County

Comprehensive Transportation Plan



Legend

- Churches_and_Cemetery_Mitchell
- Land and Water Conservation Funds
- Managed Areas
- Hazard Substance Disposal Site
- Hazardous Waste Facility
- Sanitary Sewer System - Treatment Plant
- WaterTanks
- Water Distribution System - Treatment Plant
- Water System Pumps
- Hazard Substance Disposal Area
- High Quality Waters
- Water Supply Watershed
- County Boundary
- Roads
- Municipal Boundaries

FIGURE 9

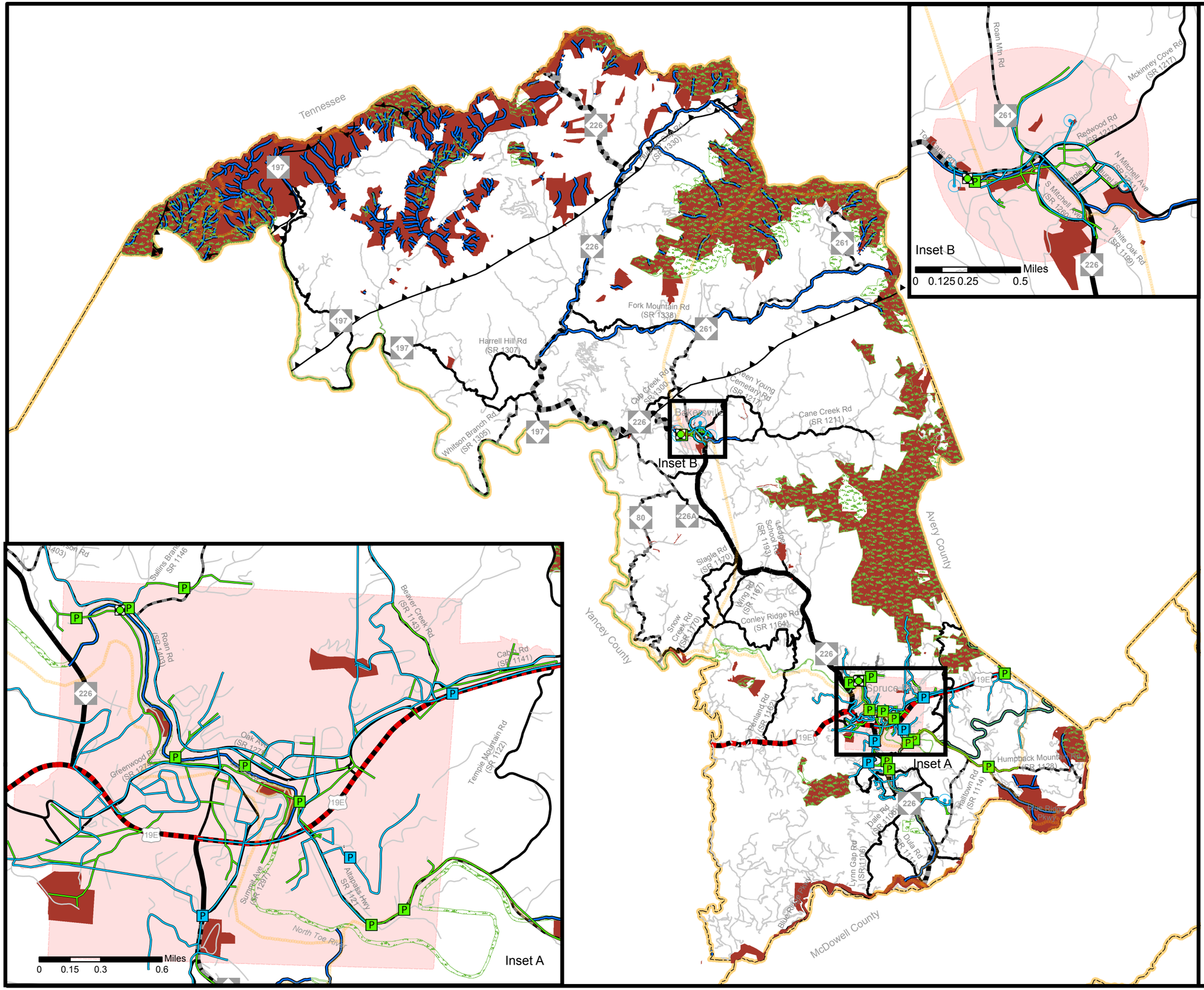
Sheet 2 of 4

Map Date: October 25, 2017

Environmental Features Map

Mitchell County

Comprehensive Transportation Plan



Legend

- Regional Trails
- Sanitary Sewer System - Discharges
- Sanitary Sewer System - Pump
- WaterPumps
- Water Distribution System - Well
- WaterPipes
- Sanitary Sewer System - Pipe
- Geologic Features - Faults
- Natural Heritage Significant Areas
- Trout Streams
- Managed Areas
- Roads
- County Boundary
- Municipal Boundaries

FIGURE 9

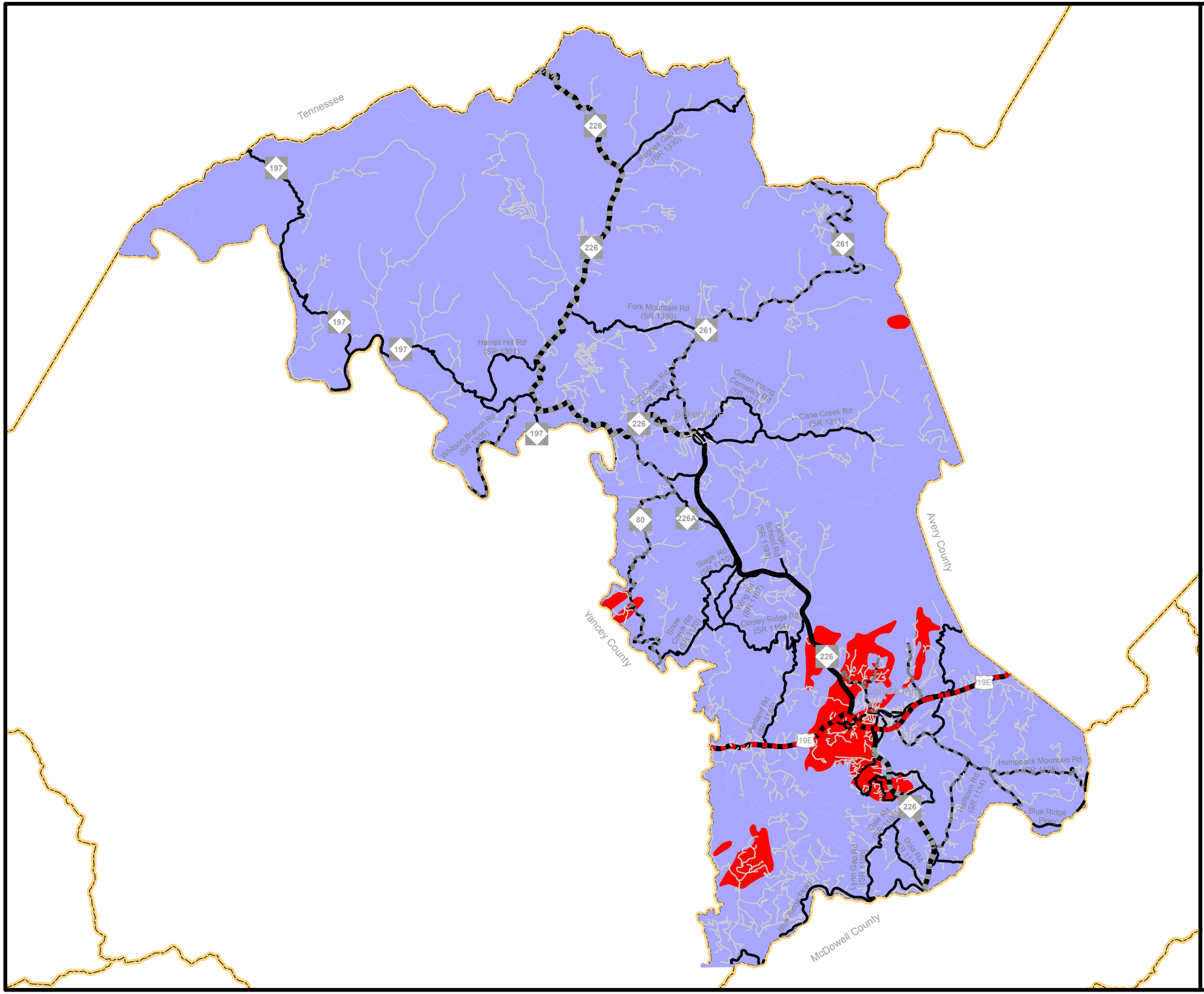
Sheet 3 of 4

Map Date: October 25, 2017

Environmental Features Map

Mitchell County

Comprehensive Transportation Plan



Legend

Geology

- Intrusive Rocks
- Metamorphic Rocks; Metamorphic rocks
- Sedimentary Rocks
- Sedimentary and Metamorphic Rocks
- Surficial deposits
- Roads
- Municipal Boundaries
- County Boundary

FIGURE 9

0 0.5 1 2 3 Miles

Sheet 4 of 4

Map Date: October 25, 2017

N W E S

2. Recommendations

This chapter presents recommendations for each mode of transportation in the 2019 Mitchell County CTP as shown in Figure 1. More detailed information on each recommendation is tabulated in Appendix C.

NCDOT adopted a "Complete Streets[1]" policy in July 2009. The policy directs the Department to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure. Under this policy, the Department will collaborate with cities, towns and communities during the planning and design phases of projects. Together, they will decide how to provide the transportation options needed to serve the community and complement the context of the area. The benefits of this approach include:

- making it easier for travelers to get where they need to go;
- encouraging the use of alternative forms of transportation;
- building more sustainable communities;
- increasing connectivity between neighborhoods, streets, and transit systems;
- improving safety for pedestrians, cyclists, and motorists.

Complete streets are streets designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists and individuals of all ages and capabilities. These streets generally include sidewalks, appropriate bicycle facilities, transit stops, right-sized street widths, context-based traffic speeds, and are well-integrated with surrounding land uses. The complete street policy and concepts were utilized in the development of the CTP. The CTP proposes projects that include multi-modal project recommendations as documented in the problem statements within this chapter. Refer to Appendix C for recommended cross sections for all project proposals and Appendix D for more detailed information on the typical cross sections.

2.1 Unaddressed Deficiencies

The following deficiency was identified during the development of the CTP but remains unaddressed. NC 226 from Tom Bell Road to 0.2 miles north of Summit Avenue is projected to be over capacity by 2045. Currently the widening of NC 226 to three lanes, from the Blue Ridge Parkway to Summit Avenue (SR 1274), is programmed in the 2018-2027 State Transportation Improvement Program (STIP) as project R-5804. The additional lane will help with mobility throughout the corridor, but future volumes may exceed the additional capacity. See the problem statement below for NC 226 (R-5804) for more information.

2.2 Implementation

The CTP is based on the projected growth for the planning area. It is possible that actual growth patterns will differ from those logically anticipated. As a result, it may be necessary to accelerate or delay the implementation of some recommendations found within this plan. Some portions of the plan may require revisions in order to

[1] *For more information on Complete Streets, go to: http://www.completestreetsnc.org/*

accommodate unexpected changes in development. Therefore, any changes made to one element of the CTP should be consistent with the other elements.

Initiative for implementing the CTP rests predominately with the policy boards and citizens of the county and its municipalities. As transportation needs throughout the state exceed available funding, it is imperative that the local planning area aggressively pursue funding for priority projects. Projects should be prioritized locally and submitted to the High Country RPO for regional prioritization and submittal to NCDOT. Refer to Appendix A for contact information on regional prioritization and funding. Local governments may use the CTP to guide development and protect corridors for the recommended projects. It is critical that NCDOT and local governments coordinate on relevant land development reviews and all transportation projects to ensure proper implementation of the CTP. Local governments and NCDOT share the responsibility for access management and the planning, design and construction of the recommended projects.

Recommended improvements shown on the CTP map represents an agreement of identified transportation deficiencies and potential solutions to address the deficiencies. While the CTP does propose recommended solutions, it may not represent the final location or cross section associated with the improvement. All CTP recommendations are based on high level systems analyses that seek to minimize impacts to the natural and human environment. Prior to implementing projects from the CTP, additional analysis will be necessary to meet the National Environmental Policy Act (NEPA) or the North Carolina (or State) Environmental Policy Act[2] (SEPA). During the NEPA/SEPA process, the specific project location and cross section will be determined based on environmental analysis and public input. This CTP may be used to support transportation decision making and provide transportation planning data in the NEPA/SEPA process.

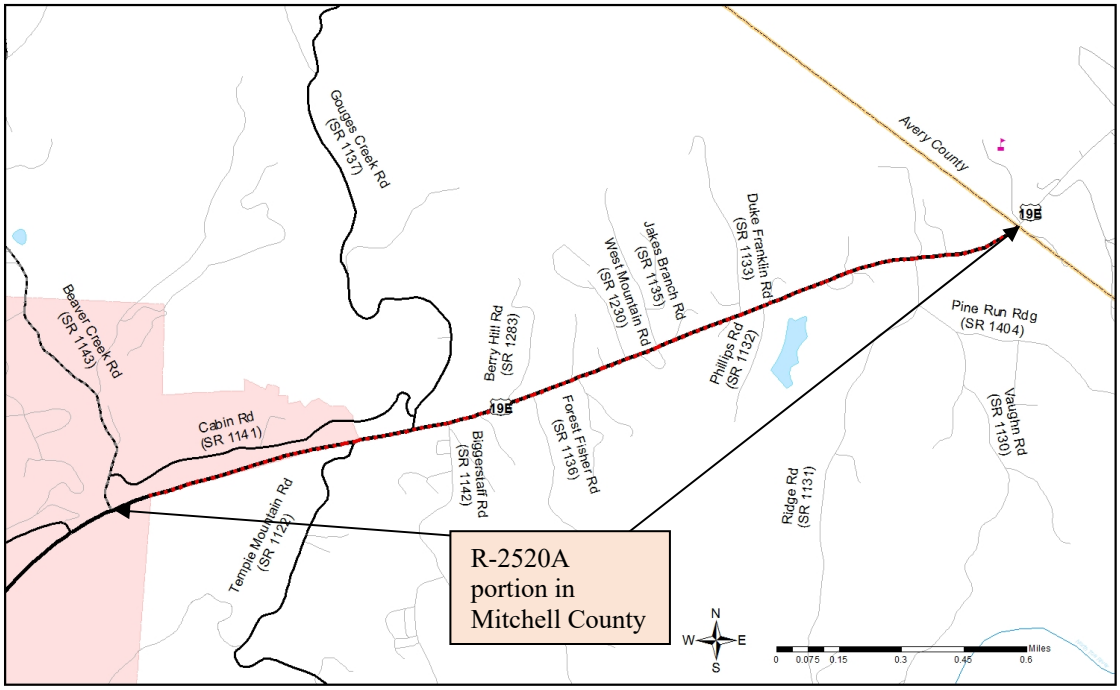
2.3 Problem Statements

The following pages contain problem statements for each recommendation, organized by CTP modal element. The information provided in the problem statement is intended to help support decisions made in the NEPA/SEPA process. A full, minimum or reference problem statement is presented for each recommendation, with full problem statements occurring first in each section. Full problem statements are denoted by a gray shaded box containing project information. Minimum problem statements are more concise and less detailed than full problem statements but include all known or readily available information. Reference problem statements are developed for TIP projects where the purpose and need for the project has already been established.

[2]*For more information on SEPA, go to: http://www.doa.nc.gov/clearing/faq.aspx.*

HIGHWAY

US 19E **Local ID: R-2520A**
Improvements from Beaver Creek Road (SR 1143) to Mullin Hill Road (SR 1106) in Avery County **Last Updated: 3/6/2019**



Identified Problem

US 19E is the primary east-west facility through Mitchell County that connects the county to an interstate facility (I-26) in Madison County to the west and to NC 194/US 221 to the east leading to Boone and US 421. Regional mobility along this facility needs to be improved. This project is currently programmed in the North Carolina 2020-2029 State Transportation Improvement Program (STIP).

Justification of Need

The westernmost section of US 19E from Beaver Creek Road (SR 1143) to Berry Hill Road (SR 1283) is a three-lane section with a center turn lane. The remainder of US 19E within Mitchell County and the project limits is a two-lane major thoroughfare with travel lanes that range from 10 to 12 feet in width serving primarily commercial and industrial businesses with some residences. 2016 Average Annual Daily Traffic (AADT) volumes ranged from 6,600 vehicles per day (vpd) to 9,800 vpd. Volumes are projected to range from 11,000 vpd to 7,400 vpd closer to Avery County in 2045. The daily capacity of the facility ranges from 13,800 to 14,600 vpd.

US 19E is classified as a principal arterial on the Federal Classification. Statewide facilities serve long distance trips, connect regional centers, have the highest usage,

and serve mobility.

2015 commuter patterns show that the largest number of commuters (893) are between Mitchell County and Yancey County, and there are 607 commuters between Mitchell County and Avery County. US 19E is the primary route connecting Spruce Pine and Burnsville, Yancey County and towns in Avery County. A significant number of commuters also use this route to go to Buncombe County. US 19E connects Mitchell County to the Mayland Community College and the Avery County Airport. With the large number of mining operations in Mitchell County, 6-8% of the traffic on US 19E is from trucks.

US 19E also helps provide connection to important regional destinations, i.e. Grandfather Mountain, Mayland Community College, medical treatment in Buncombe County and I-26.

Between Beaver Creek Road (SR 1143) and Avery County there are 6 sections on US 19E identified as high crash sections with 5 to 30 crashes recorded between January 1, 2011 and December 31, 2015. The highest number of crashes occurred in the section west of Temple Mountain Road (SR 1122). There are also six high crash intersections identified between Beaver Creek Road (SR 1143) and Avery County with 5 to 9 crashes:

- US 19E / West Mountain Road (SR 1230)
- US 19E / Jakes Branch Road (SR 1135)
- US 19E / Beaver Creek Road (SR 1143)
- US 19E / Gouges Creek Road (SR 1141)
- US 19E / Tempie Mountain Road (SR 1122)
- US 19E / Biggerstaff Road (SR 1142)

Community Vision and Problem History
The Mitchell County CTP Vision Statement includes a safe, multi-modal transportation system that connects the county to the surrounding region.

CTP Project Proposal

Project Description and Overview
US 19E from NC 80 in Yancey County to the multi-lane section west of Spruce Pine is currently under construction as project R-2519B. It is being widened to a 4-lane divided facility with bicycle accommodations. The R-2520A section is also recommended to be a four-lane divided facility with bicycle accommodations. NC Bicycle Routes 2 and 11 follow along this portion of US 19E. Bicycle accommodations are recommended. Sidewalks are recommended along the portion of US 19E within the town limits of Spruce Pine.

While a cross-section of 4A (See Appendix D) is recommended in the rural areas and 4C within Spruce Pine, the widening should follow a “best fit” alignment to minimize the impacts to the surrounding area.

Natural & Human Environmental Context
US 19E crosses the North Toe River and could potentially impact other natural resources including streams designated as trout waters, lands managed for conservation, wetlands associated with the North Toe River and rare aquatic and terrestrial species of animals and plants. Other resources in the area include a water supply intake for the town of Spruce Pine, properties eligible for listing in the National Register of Historic Places, private residences and commercial businesses.

Relationship to Land Use Plans
In the "*Mitchell Works: An Economic Development Strategic Plan for Mitchell County, NC"* [3] report of 2016, US 19E from the western limits of Spruce Pine to Yancey County is identified as an anticipated development growth area. Recommendations of that plan include advocation for the NC Department of Transportation to widen US 19E east of Spruce Pine.

Linkages to Other Plans and Proposed Project History
This project is in the State Transportation Improvement Program (STIP) as R-2520. It is broken into two segments with R-2520A including the Mitchell County portion of US 19E:

R-2520A: From Beaver Creek Road (SR 1143) to Mullin Hill Road (SR 1106) in Avery County

R-2520B: Mullin Hill Road (SR 1106) and NC 194 to US 221 in Avery County

R-2520A is scheduled for ROW acquisition to begin in State FY 2023 and construction to begin in 2025 in the 2020-2029 STIP. R-2520B is unfunded.

The High Country Bike Plan[4] of March 2014 shows US 19E as part of Route Segment #4 connecting Spruce Pine to Burnsville to the west and NC 80S to the east. US 19E from NC 197 to NC 80S is designated as NC Scenic Byway (Mount Mitchell Scenic Drive). The recommendation for Route Segment #4 is for 4 to 6-foot paved shoulders.

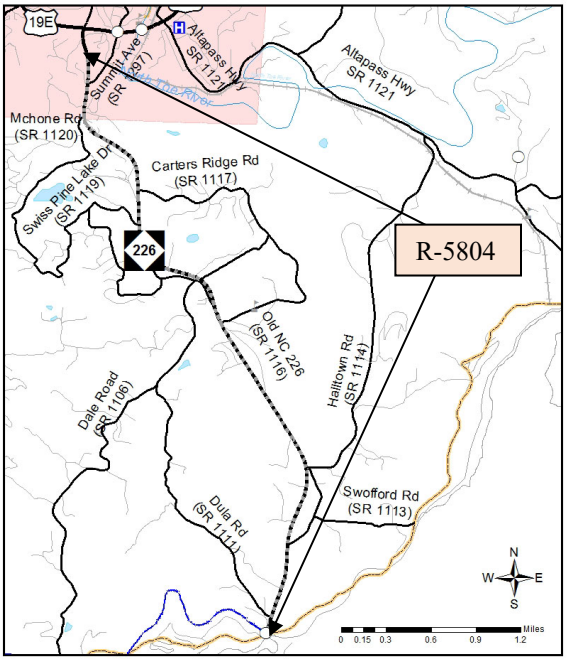
Multi-modal Considerations
Bicycle accommodations are recommended. Sidewalks are recommended along the portion of NC 19E within the town limits of Spruce Pine.

Public/ Stakeholder Involvement
A survey was conducted as part of the public outreach for the CTP. See Appendix H for a summary of the survey. When asked if there were any areas in Mitchell County that feel congested, US 19E was mentioned. Safety concerns along the route were also mentioned. Bicycle and pedestrian accommodations on US 19E were also listed in the survey. A comment that was received was for a connecting 4-lane road to Boone.

[3] https://mitchellcountyedc.org/wp-content/uploads/2017/12/MitchellCountyWorks-AnEconomicDevelopmentStrategicPlan.pdf
[4] http://www.regiond.org/Bike-Plan-2014-final.pdf

NC 226
Improvements from Blue Ridge Parkway to Summit Avenue (SR 1274)

Local ID: R-5804
Last Updated: 3/6/2019



Identified need

NC 226 is expected to be over capacity by 2045 from Tom Bell Road to 0.2 miles north of Summit Avenue (SR 1297) where the 4-lane section begins.

Justification of Need

NC 226 is a major route to regional destinations, i.e. the Blue Ridge Parkway, Mount Mitchell, and I-40. In 2016, the Average Annual Daily Traffic (AADT) ranged from 6,500 vehicles per day (vpd) near McDowell County to 16,000 vpd close to Spruce Pine. Volumes are projected to range from 7,600 vpd to 17,600 vpd in 2045. The daily capacity of this section ranges from 13,600 to 15,300 vpd. Trucks from mining operations, e.g. Unimin/Covia also use this route. Trucks make up 7% of vehicles on this facility.

NC 226 is a major route for the approximately 900 commuters between Mitchell County and McDowell County and for other commuters to Catawba and Rutherford counties. Figure 7 shows the number of commuters between Mitchell County and other counties in the region. NC 226 is classified as a major collector on the Federal Classification System. Regional tier facilities connect major population centers and serve local land use.

Between Summit Avenue (SR 1297) and McDowell County there are 10 sections identified as high crash sections with 9 to 23 crashes recorded between January 1, 2011 and December 31, 2015. The highest number of crashes occurred in the southern section of NC 226 near the Blue Ridge Parkway. There are also five high crash intersections identified between Summit Avenue (SR 1297) and McDowell County with 5 to 9 crashes:

- NC 226 / Halltown Road (SR 1114)
- NC 226 / Summit Avenue (SR 1297)
- NC 226 / McHone Road (SR 1120)
- NC 226 / Dale Road (SR 1106)
- NC 226 / Swiss Pine Lake Drive (SR 1119)

From 2007 to 2015, 3 crashes involving pedestrians were recorded.

According to local emergency management, the Mitchell House located on NC 226 south of Spruce Pine has the highest medical response calls in the county.

Community Vision and Problem History
The Mitchell County CTP Vision Statement includes a safe, multi-modal transportation system that connects the county to the surrounding region.

CTP Project Proposal

Project Description and Overview
From the Blue Ridge Parkway to Summit Avenue (SR 1297), NC 226 (R-5804) is currently funded to be widened to three lanes in the 2018-2027 State Transportation Improvement Program (STIP) with right-of-way beginning in 2021 and construction beginning in 2024. Intersections improvements should also be considered along this corridor. Based on future volume projections, there are sections where more than three lanes should be considered in the future if access control and intersection improvements do not meet future mobility needs.

Natural & Human Environmental Context
Based on a planning level environmental assessment using available GIS data, the proposed project is in the vicinity of hazardous waste facilities (i.e. gas stations), identified landscape habitat guilds, trout streams that cross NC 226, and water lines. There are businesses that could be impacted.

Relationship to Land Use Plans
In the "*Mitchell Works: An Economic Development Strategic Plan for Mitchell County, NC"*[5] report of 2016, NC 226 south of Spruce Pine town limits is identified as an anticipated development growth area.

Linkages to Other Plans and Proposed Project History
In addition to the growth mentioned above that is found in the Mitchell County Strategic Plan, the High Country Bike Plan[6] of March 2014 shows NC 226 as part of Route Segment #8 connecting Spruce Pine to the Blue Ridge Parkway. The recommendation is for 4-foot paved shoulders, and 4-foot bike lanes within Spruce Pine town limits.

From the Blue Ridge Parkway to Summit Avenue (SR 1297), NC 226 (R-5804) is currently funded to be widened to three lanes in the 2018-2027 State Transportation Improvement Program (STIP) with right-of-way beginning in 2021 and construction beginning in 2024.

Multi-modal Considerations
A multi-use path is also desired along NC 226 from Summit Avenue to the Blue Ridge Parkway. An alternative to a multi-use path would be bicycle lanes/paved shoulders, as recommended in the High Country Bike Plan, and sidewalks. Mitchell County would

[5] https://mitchellcountyedc.org/wp-content/uploads/2017/12/MitchellCountyWorks-AnEconomicDevelopmentStrategicPlan.pdf
[6] http://www.regiond.org/Bike-Plan-2014-final.pdf

need to work out an agreement to maintain the sidewalks outside Spruce Pine town limits since counties do not generally maintain sidewalks.

Public/ Stakeholder Involvement

A survey was conducted as part of the public outreach for the CTP. See Appendix G for a summary of the survey. In the survey comments, congestion along NC 226 in the Grassy Creek area and in the Burleson Hill area was mentioned often.

US 19E, MITC0001-H

US 19E is classified as a principal arterial on the Federal Classification System. The local vision for US 19E is for a four-lane divided facility that supports mobility through the county. Currently, there is one section (R-2519B) of US 19E being widened from Yancey County to Earls Repair Shop (SR 1271) to a four-lane divided facility with bicycle accommodations, and another portion (R-2520A) from Beaver Creek Road (SR 1143) to Mullin Hill Road (SR 1106) programmed in the North Carolina 2020-2029 State Transportation Improvement Program (STIP) to be widened to a four-lane divided facility. MITC0001-H recommends converting the current multi-lane section through Spruce Pine between these two projects to a four-lane divided facility with sidewalks and bicycle accommodations for the entire facility to serve regional mobility as its primary function.

The 2045 volume along this portion of US 19E is projected to be around 15,900 vpd. Truck volumes along this portion of US 19E range from 5%-8% of the total 2016 AADT of 13,000 vpd. Between January 1, 2011 to December 31, 2015 the section of US 19E between Altapass Hwy (SR 1121) and Ward Street (SR 1275) experienced 21 crashes, the section between Altapass Hwy (SR 1121) and NC 226 had 6 crashes, and the section between NC 226 and Greenwood Road (SR 1274) had 15 crashes. The intersection with Altapass Highway (SR 1121) had 13 crashes, and the intersection with Greenwood Road (SR 1274) had 15 crashes. The hospital is located off Altapass Highway (SR 1121) just south of US 19E.

MINOR WIDENING IMPROVEMENTS:

The following facilities are not expected to exceed capacity but were identified as candidates for upgrading to NCDOT design standards to improve mobility, safety and/or to better accommodate trucks and bicycles, especially on uphill sections of two-lane facilities. Additionally, some facilities may require improvements to the vertical and/or horizontal alignment. Implementation of the proposed projects should be coordinated through the NCDOT's Highway Division 13 office (refer to Appendix A for contact information). It is recommended that facilities be widened for modernization improvements to 10 to 12-foot lanes with a minimum 4 to 6-foot shoulder.

- **NC 80, Local ID: MITC0002-H:** From NC 226A to Yancey County line. While average annual daily traffic volumes in 2016 were around 360 vpd and only projected to be around 400 vpd in 2045, there is one section identified as a high crash section with 5 crashes recorded between January 1, 2011 and December 31, 2015. Designated as part of the Highlands of the Roan scenic byway, it is a scenic route that motorists and cyclists enjoy using. Trucks make up 4% of the vehicles on this facility. NC 80 is classified as a major collector on the Federal Classification System.
- **NC 197, Local ID: MITC0003-H:** From NC 226 to west of Pigeon Roost Rd (SR 1349). NC 197 is classified as a major collector on the Federal Classification System. The annual daily traffic volumes in 2016 were approximately 880 vpd and is only expected to grow to approximately 900 vpd by 2045, about 4% of the vpd are trucks. The current cross section is 8-foot lanes.

- **NC 226, Local ID: MITC0004-H:** From Tennessee Border to NC 261. NC 226 is classified as a major collector on the Federal Classification System. This route is a major connection to the Appalachian Trail. The portion from NC 80 to NC 261 is also part of the designated Highlands of the Roan scenic byway and is a scenic route that motorists and cyclists use. While 2016 AADT volumes range from 940 vpd near Tennessee to 2,400 vpd in Bakersville with a capacity of 9,600 to 11,400 vpd, there are 12 sections identified as high crash sections with 4-7 crashes recorded between January 1, 2011 and December 31, 2015. 2045 volumes are projected to be 1,000 to 2,500 vpd (see Figure 4). NC 226 is narrow and has experienced falling rocks at times. In 2007 there was a crash involving a pedestrian walking along the facility, and in 2012 a cyclist was overtaken by an auto. It is used by commuters between Mitchell County and Tennessee. The Sibelco Plant is also located along this facility, and truck traffic is the most significant in the county along this facility at 10%. According to the 2011-2015 American Community Survey (ACS) Block Group information, this facility is adjacent to census blocks whose residents live at a 23% poverty level, 33% are 65 or over, and 17% have zero vehicles.
- **NC 226A / Mine Creek Road, Local ID: MITC0005-H:** From NC 226 to NC 80. 2016 AADT volume is 1,700 vpd and is projected to grow to 1,750 vpd in 2045. Truck traffic from the Sibelco Plant use this facility. Trucks make up approximately 7% of the vehicles on NC 226A. Larger tractor trailer trucks have been known to have difficulty making the turn onto the bridge at NC 226. There is one section identified as a high crash section with 5 crashes recorded between January 1, 2011 and December 31, 2015.
- **NC 261, Local ID: MITC0006-H:** From Tennessee border to NC 226. NC 261 is one of the primary routes to the important regional destination, Roan Mountain State Park. Designated as part of the Highlands of the Roan scenic byway, it is a scenic route that motorists and cyclists enjoy using. It is classified as a minor collector on the Federal Classification System. 2016 AADTs range from 180 vpd near Tennessee to 2,100 vpd in Bakersville. Trucks are approximately 5% of the total vehicles. There are 3 sections identified as high crash sections with 5-6 crashes recorded between January 1, 2011 and December 31, 2015. According to the 2011-2015 American Community Survey (ACS) Block Group information, this facility is adjacent to census blocks whose residents live at a 23% poverty level.
- **Altapass Highway (SR 1121), Local ID: MITC0007-H:** From the Blue Ridge Parkway to US 19E. Altapass Highway is classified as a major collector on the Federal Classification System. Altapass Highway has narrow lanes and no paved shoulder. It connects the Town of Spruce Pine to the Blue Ridge Parkway. 2016 AADT volumes ranged from 1,400 vpd to 3,300 vpd. With mining and quarry activity, there is the potential for 6% of AADT to be truck traffic. Bicycle accommodations are also recommended along Altapass Highway as it is part of Route Segment #8 of the 2014 High Country Bike Plan. A 4-foot bike lane is recommended within Spruce Pine town limits and 4-foot paved shoulders outside of the town. There are 3 sections identified as high crash sections with 5 to 7 crashes recorded between January 1, 2011 and December 31, 2015. Blue Ridge Regional Hospital is also accessed from Altapass Highway. Altapass Highway south of Spruce Pine is documented in the Mitchell

County Economic Development Strategic Plan as an area of anticipated growth.

- **Beaver Creek Road (SR 1143), Local ID: MITC0008-H:** From US 19E to the end of the facility. 2016 AADT was 930 vpd. Trucks use this facility to access a mine down Beaver Creek Road.
- **Halltown Road (SR 1114), Local ID: MITC0009-H:** From NC 226 to Altapass Hwy (SR 1121). 2016 AADT range from 1,700 to 2,200 vpd and are projected to reach up to 6,100 vpd in 2045. There is one section identified as a high crash section near the intersection with Altapass Highway that had 8 crashes recorded between January 1, 2011 and December 31, 2015.
- **Humpback Mountain Road (SR 1128), Local ID: MITC0010-H:** From Altapass Hwy (SR 1121) to Blue Ridge Parkway. While volumes are low on this road, 910 vpd, there are several industries, i.e. PRC Industries, along this facility which generate significant truck traffic. There is one section identified as a high crash section that had 6 crashes recorded between January 1, 2011 and December 31, 2015. Humpback Mountain Road is documented in "*Mitchell Works: An Economic Development Strategic Plan for Mitchell County, NC"* report of 2016 as an area of anticipated growth.
- **Roan Road/Attorney John Peterson Rd (SR 1403), Local ID: MITC0011-H:** From NC 226 to Highland Avenue. Bicycle accommodations are also recommended along Roan Road. It is classified as a major collector on the Federal Classification System. 2016 AADT range from 1,300 to 2,700 vpd. They are only projected to grow to 2,800 vpd in 2045, but mining trucks use Roan Road on a regular basis.
- **Sullins Branch Road/Wiseman Quarry Rd (SR 1146), Local ID: MITC0012-H:** From NC 226 to the end of the road. Mining operations along Sullins Branch Road are projected to resume in the future putting an increased number of trucks along the facility.
- **Whitson Branch Road (SR 1305), Local ID: MITC0013-H:** From NC 197 to Yancey County. This facility serves residential development in the unincorporated township of Red Hill. It also provides one of the North Toe River crossings between Mitchell County and Yancey County.

PUBLIC TRANSPORTATION & RAIL

A public transportation and rail assessment was completed during the development of the CTP. The Mitchell County Transportation Authority (MCTA)[7] provides community transit service for county residents through an on-demand service and by contract to other human service agencies which seems to work well for the area. No fixed routes are proposed at this time.

Results of the Mitchell County Comprehensive Transportation Plan Public Survey showed that an increase in public transportation options was identified as the highest need in Mitchell County. Question 5 of the survey asked if there was a specific transportation issue, and it had 43 responses concerning public transportation. See

[7] https://www.mitchellcounty.org/departments/transportation/

Appendix H for the entire survey summary and online at https://connect.ncdot.gov/projects/planning/Pages/CTP-Details.aspx?study_id=Mitchell County.

In addition, the Mitchell County Transportation Authority has identified the following needs and action strategies that are supported by the Mitchell County CTP:

Need: Strategic park and ride lot(s) location(s) to meet transportation needs to Mayland Community College for low income, elderly, and disabled persons from human service agencies, remote communities, and areas in Avery and Yancey Counties.

Action Strategy: Complete a study of potential park and ride lots in strategic locations within Mitchell County

Action Strategy: Coordinate with local human service agencies in an effort to refine areas that could benefit from park and ride lots.

Action Strategy: Explore funding options for the lease or purchase of potential park and ride locations.

Need: A 25 foot van and associated operating expenses (CDL training, licensure, etc) to meet transportation needs for large groups to Mayland Community College for low income, elderly, and disabled persons from human service agencies, remote communities, and areas in Avery and Yancey Counties. Currently there is not enough room with existing fleet to meet large group transportation needs.

Action Strategy: Apply for funds to help pay for an additional vehicle and associated training/operating expenses.

Need: Extended hours of operation for nights and weekends

Action Strategy: Apply for funds to help pay for an additional vehicles and operating assistance.

Action Strategy: Coordinate with Community College

Need: Promote transportation to local food bank for poor, disabled and elderly

Action Strategy: Distribute flyers to human service agencies for clients promoting transportation to the local food bank.

Need: New child car seats

Action Strategy: Apply for funds to help pay for child car seats and associated safety training.

Need: Transportation to educational and recreational facilities

Action Strategy: Apply for funds to help pay for operating assistance.

Action Strategy: Coordinate with local educational facilities, the fitness center, and the Parks and Recreation Department to improve transportation service.

Action Strategy: Identify funding sources for operating assistance

Need: Marketing to special groups (disabled, low income, and elderly)

Action Strategy: Distribution of flyers to human service agencies for clients, to faith based organizations, the Employment Security Commission and Job Link

Action Strategy: Develop new brochure for MCTA that promotes services and

schedule as well as the rules and regulations for MCTA transportation

Need: Regular transportation related inter-agency meetings
Action Strategy: Coordinate and schedule regular meetings with local human service agencies to help identify and address the changing transportation needs of special groups (disabled, low income, and elderly) within the county.

Need: Fixed transit routes to provide regular scheduled service to medical, retail, educational, and employment locations within Bakersville and Spruce Pine town limits as well as Mayland Community College
Action Strategy: Apply for funds to help pay for an additional vehicles and operating assistance.
Action Strategy: Identify the most common transportation routes and destinations
Action Strategy: Identify potential sites for park and ride lots

Need: Bus shelters for protection from weather while waiting for MCTA vans at stop on Mayland Community College Campus
Action Strategy: Apply for funds to help pay for bus shelters.
Action Strategy: Identify major transportation destinations (employment sites, education facilities, shopping and entertainment venues) for bus stop locations.
Action Strategy: Locate in visible locations

Need: Retain and Expand ED program
Action Strategy: Seek funding assistance for additional vehicles and operating expenses.

There are no rail recommendations as part of this CTP.

There are four Park and Ride lots proposed:

- NC 226 at the old Food Lion grocery store in Spruce Pine.
- The northeast quadrant of the intersection of NC 226 and Penland Road.
- NC 226 just to the south of Bear Creek Church Road to serve the Bakersville area.
- Across from the intersection of US 19E and Penland Road in the space between US 19E and Old US 19E.

BICYCLE

During the development of the CTP, the following facilities were identified as recommended bicycle routes and will need improvement. In accordance with American Association of State Highway and Transportation Officials (AASHTO) and North Carolina Department of Transportation (NCDOT) Bicycle and Pedestrian guidance, roadways identified as bicycle routes should incorporate the following standards as roadway improvements are made and funding is available:

- Curb & gutter sections require at minimum 5-foot bike lanes.
- Shoulder sections require a minimum of 4-foot paved shoulder.

- All bridges along the roadways where bike facilities are recommended shall be equipped with a minimum of 42-inch railings and up to 54-inch railings depending on the context of the bridge location.

Part of Mitchell County's vision for the CTP is to have a safe, multi-modal transportation system that connects the county to the surrounding region, supports healthy lifestyles, local industries and businesses, and compliments economic and community development. A goal is for a transportation system that connects auto, bicycle, and pedestrian users to key destinations. For cyclists, those key destinations that support local residents and tourists would include the following:

- Three Peaks: Mt. Mitchell, Roan Mountain, and Grandfather Mountain
- Mayland Community College
- Schools
- Local parks
- Appalachian Trail
- Penland School of Crafts
- Visitor's Museum (Mineral Museum)
- Blue Ridge Parkway

Another goal is safety that recommends cyclists be separated from auto traffic when possible, especially on steep inclines along roadways. Also, NC 226 should have a separate facility for cyclists.

This plan also supports the recommendations of the *High Country Bike Plan* [8] of March 2014. This plan works to connect major destinations in the High Country region with appropriate bicycle infrastructure.

Results of the Mitchell County Comprehensive Transportation Plan Public Survey showed that safety for cyclists was a concern. Question 5 of the survey asked if there was a specific transportation issue, and it had 15 responses concerning cycling. Question 7 asked if there were areas of transportation safety concerns, and 14 responses mentioned safety for cyclists. See Appendix H for the entire survey summary.

US 19E, Local ID: R-2519B/R-2520A/MITC0001-H: US 19E is an important facility linking Spruce Pine to Burnsville to the east and to Mayland Community College to the east. This route is Route Segment #4 and Route Segment #9 in the 2014 High Country Bike Plan. US 19E is included in the NC Statewide Bicycling Highways network as part of the NC Statewide Bicycling Highways network that recommends re-routing of bicycle route NC 2, Mountains to Sea Route, off the Blue Ridge Parkway. The recommendation for US 19E is for 4-foot paved shoulders and 4-foot bike lanes within Spruce Pine Town Limits.

[8] http://www.regiond.org/Bike-Plan-2014-final.pdf

US 19E is currently being widened to multi-lanes from Burnsviille to east of Spruce Pine (R-2519B); US 19E is programmed (R-2520A) to be widened in the 2020-2029 STIP from Beaver Creek Road (SR 1143) to Mullin Hill Road (SR 1106) in Avery County. The current multi-lane portion through Spruce Pine between R-2519B and Beaver Creek Road is recommended to have 4-foot shoulders added.

US 19E is also part of the recommended NC 11 Mountains Route that traverses Mitchell County.

Results of the Mitchell County Comprehensive Transportation Plan Public Survey, found in Appendix H, showed US 19E as a location where residents would like to see pedestrian and cyclist improvements.

NC 80, Local ID: MITC0002-H: NC 80 is part of the Highlands of the Roan scenic byway. Local desire is to provide paved shoulders for bicyclists from Yancey County to NC 226.

NC 197, Local ID: MITC0001-B: NC 197 from NC 226 to Yancey County is part of Route Segment #3 in the *2014 High Country Bike Plan* connecting the Towns of Burnsville and Bakersville. It provides a shorter alternative between the Towns than the US 19E/NC 226 option. A portion of Route Segment #3 is included in the NC Statewide Bicycling Highways network as part of the NC Statewide Bicycling Highways network that recommends re-routing of bicycle route NC 2, Mountains to Sea Route, off the Blue Ridge Parkway. The recommendation is for 4-foot paved shoulders from Yancey County line to NC 226.

NC 226, Local ID: MITC0004-H, MITCH0002-B, MITCH0003-B: NC 226 from Summit Avenue (SR 1297) to US 19E (MITCH0003-B), Roan Road/Attorney John Peterson Road (SR 1403) to NC 261 (MITCH0002-B) and NC 226 from NC 261 to NC 197 (MITC0004-H) is recommended for improvements. NC 226 from NC 197 to US 19E is included in the NC Statewide Bicycling Highways network as part of the NC Statewide Bicycling Highways network that recommends re-routing of bicycle route NC 2, Mountains to Sea Route, off the Blue Ridge Parkway. NC 226 from NC 197 to NC 261 is also part of Route Segment #3 in the 2014 High Country Bike Plan connecting the Towns of Burnsville and Bakersville. It provides a shorter alternative between the Towns than the US 19E/NC 226 option. The recommendation is for 4-foot paved shoulders outside of town limits and 4-foot bike lanes within Spruce Pine and Bakersville town limits.

Results of the Mitchell County Comprehensive Transportation Plan Public Survey, found in Appendix H, showed NC 226 as a location where residents would like to see pedestrian and cyclist improvements.

NC 261, Local ID: MITC0006-H: NC 261 from Tennessee State line to NC 226 is part of Route Segment #5 in the 2014 High Country Bike Plan connecting the Town of Bakersville to Pisgah National Forest facilities at Roan Mountain. Paved shoulders are

recommended outside Bakersville town limits and 4-foor bike lanes within Bakersville town limits.

Altapass Hwy (SR 1121), Local ID: MITC0007-H: Altapass Hwy is part of the 2014 High Country Bike Plan as Route Segment #8, connecting Spruce Pine to the Blue Ridge Parkway. The recommendation is for 4-foot paved shoulders and 4-foot bike lanes within Spruce Pine town limits.

Improvements are also recommended to the existing facilities:

- **Attorney John Peterson Road/Roan Road (SR 1403), Local ID: MITC00011-H**: From NC 226 to Oak Avenue (SR 1275)
- **Highland Avenue (SR 1403), Local ID: MITC0004-B:** From US 19E to proposed multi-use path (MITC0001-M)
- **Locust Street, Local ID: MITC0005-B:** From Roan Road (SR 1403) to Oak Avenue (SR 1275)
- **Oak Avenue (SR 1275)/Cabin Road (SR 1141), Local ID: MITC0006-B:** From Locust Street to US 19E
- **Ward Street (SR 1275), Local ID: MITC0007-B:** From Oak Avenue (SR 1275) to US 19E

PEDESTRIAN

While it is desirable to have sidewalks on both sides of a facility, NCDOT understands that it is not always possible due to the mountainous terrain. Part of Mitchell County's vision for the CTP is to have a safe, multi-modal transportation system that connects the county to the surrounding region, supports healthy lifestyles, local industries and businesses, and compliments economic and community development. A CTP goal is for a transportation system that connects auto, bicycle, and pedestrian users to key destinations, e.g. schools, Mayland Community College, and local parks. Another goal is safety and, in order to meet that goal, it is recommended that pedestrians be separated from auto traffic whenever possible. Also, sidewalks are recommended to support healthy lifestyles.

Results of the Mitchell County Comprehensive Transportation Plan Public Survey showed that increased sidewalks available in Spruce Pine and Bakersville town limits was identified as the third highest need in Mitchell County, following increased public transportation options and system reliability. Question 5 of the survey that asked if there was a specific transportation issue had 4 responses concerning public transportation. Question 7 asked if there were areas of transportation safety concerns, and 7 responses mentioned the need for sidewalks and pedestrian safety. See Appendix H for the entire survey summary.

Sidewalk Recommendations:

Bakersville:

- **South Mitchell Avenue (SR 1260), Local ID: MITC0001-P:** Fill in missing sidewalk gaps from NC 226 and NC 261.
- **North Mitchell Avenue (SR 1211), Local ID: MITC0002-P:** Fill in missing sidewalk gaps from NC 261 to Maple Street.
- **Maple Street, Local ID: MITC0003-P:** Fill in missing sidewalk gaps from NC 226 to North Mitchell Avenue (SR 1211) through local funding.
- **Off-road pedestrian facility, Local ID: MITC0004-P:** Connect the existing pedestrian off-road facilities from Cane Creek to behind Gouge Elementary School.

Spruce Pine:

- **US 19E, Local ID: R-2519B; R-2520A, MITC0001-H:** Add sidewalk along US 19E within the Spruce Pine town limits. US 19E is a primary corridor through Spruce Pine.
- **NC 226, Local ID: MITC0003-B:** Add sidewalk from US 19E to Summit Avenue (SR 1297).
- **Altapass Hwy (SR 1121)/Feldspar Street/Hill Street, Local ID: MITC0005-P:** Add sidewalk Altapass between Oak Ave (SR 1275) and Spruce Pine town limits and along Feldspar Street and Hill Street to connect with Altapass Hwy.
- **Greenwood Road (SR 1274), Local ID: MITC0006-P:** Add sidewalk from Harris Street north to existing sidewalk south of Highland Avenue (SR 1403).
- **Harris Street** and **Laurel Creek Ct, Local ID: MITC0007-P:** Fill in gaps and add sidewalk to serve schools and Spruce Pine Recreation Department and Brad Ragan Park.
- **Highland Avenue (SR 1403), Local ID: MITC0004-B:** Add sidewalk from US 19E/NC 226 to existing sidewalk south of Summit Avenue (SR 1297)
- **Hospital Drive (SR 1405), Local ID: MITC0008-P**: Add sidewalk from Altapass Hwy (SR 1121) to the entrance drive of the Blue Ridge Regional Hospital.
- **Oak Avenue (SR 1274), Local ID: MITC0006-B:** Fill in sidewalk gaps. This recommendation is also part of the ***2012 Spruce Pine Downtown Master Plan***[9]
- **Summit Avenue (SR 1297), Local ID: MITC0009-P:** Add sidewalk along the entire facility. There is an event space and hotel being planned off Summit Avenue
- **Walnut Avenue, Local ID: MITC0010-P:** Fill in missing sidewalk gaps from Oak Avenue (SR 1275) to Oak Avenue through local funding
- **Ward Street (SR 1275), Local ID: MITC0007-B:** Add sidewalk between Oak Avenue (SR 1275) and US 19E

[9] https://www.arc.gov/noindex/newsroom/newsbriefs/LivableCommunities2013ActionPlans/SprucePineLivableCommActionPlan2013.pdf

- **A multi-use path, Local ID: MITC0001-M** is recommended for pedestrian and bicyclists from the existing off-road pedestrian facility at Riverside Park following the North Toe River and Creed Pitman Road.

- **A multi-use path, Local ID: MITC0002-M** is also recommended along US 226 from Summit Avenue (SR 1297) to the Blue Ridge Parkway. A multi-use path is the first choice of Mitchell County, but if it is not possible, then 4-foot shoulders and sidewalks along NC 226 to the Blue Ridge Parkway is recommended to connect this major destination in the area with the town of Spruce Pine. The county would need to agree to maintain the sidewalks outside of Spruce Pine town limits. Results of the Mitchell County Comprehensive Transportation Plan Public Survey, found in Appendix H, mentioned providing connection between Spruce Pine and the Blue Ridge Parkway.

APPENDICES

Appendix A
Resources and Contacts

Local Planning Organization

High Country Rural Planning Organization (www.regiond.org)
Contact the RPO for information on long-range multi-modal planning services.
468 New Market Blvd Boone, NC 28607 (828) 265-5434

North Carolina Department of Transportation (ncdot.gov)

Customer Service Office
Contact information for other units within the NCDOT that are not listed in this appendix is available by calling the Customer Service Office or by visiting the NCDOT directory:
1-877-DOT-4YOU (1-877-368-4968) *http://www.ncdot.gov/contact/*

Secretary of Transportation
https://www.ncdot.gov/about-us/our-people/Pages/default.aspx
1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2800

Board of Transportation
https://www.ncdot.gov/about-us/board-offices/boards/board-transportation/Pages/default.aspx
1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2820

Highway Division 13
https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx
55 Orange Street Asheville, NC 28801 (828) 251-6171

Highway Division 13 District 1 Office (Maintenance issues)
https://apps.ncdot.gov/dot/directory/authenticated/UnitPage.aspx?id=2660
3j931 NC 226 S Marion, NC 28752 (828) 652-8391

Contact the Highway Division with questions concerning NCDOT activities within each Division.

Contact the following NCDOT divisions and units[1] for:

Transportation Planning Division (TPD)	*Information on long-range multi-modal planning services.* 1554 Mail Service Center Raleigh, NC 27699 (919) 707-0900
Strategic Planning Office	*Information concerning prioritization of transportation projects.* 1501 Mail Service Center Raleigh, NC 27699 (919) 707-4740
Environmental Analysis Unit	*Information on environmental studies for projects that are included in the TIP.* 1548 Mail Service Center Raleigh, NC 27699 (919) 707-6000
State Asset Management Unit	*Information regarding the status for unpaved roads to be paved, additions and deletions of roads to the State maintained system and the Industrial Access Funds program.* 1535 Mail Service Center Raleigh, NC 27699 (919) 707-2500
Program Development Branch	*Information concerning Roadway Official Corridor Maps, Feasibility Studies and the Transportation Improvement Program (TIP).* 1542 Mail Service Center Raleigh, NC 27699 (919) 707-4610
Public Transportation Division	*Information on public transit systems.* 1550 Mail Service Center Raleigh, NC 27699 (919) 707-4670
Rail Division	*Rail information throughout the state.* 1553 Mail Service Center Raleigh, NC 27699 (919) 707-4700
Division of Bicycle and Pedestrian Transportation	*Bicycle and pedestrian transportation information throughout the state.* 1552 Mail Service Center Raleigh, NC 27699 (919) 707-2600
Structures Management Unit	*Information on bridge management throughout the state.* 1581 Mail Service Center Raleigh, NC 27699 (919) 707-6400
Roadway Design Unit	*Information regarding design plans and proposals for road and bridge projects throughout the state.* 1582 Mail Service Center Raleigh, NC 27699 (919) 707-6200
Transportation Mobility and Safety Division	*Information regarding crash data throughout the state.* 1561 Mail Service Center Raleigh, NC 27699 (919) 773-2800

Other State Government Offices

Department of Commerce – Division of Community Assistance

Contact the Department of Commerce for resources and services to help realize economic prosperity, plan for new growth and address community needs.

http://www.nccommerce.com/cd

[1] Unit websites are hyperlinked and can also be accessed at *https://connect.ncdot.gov/Pages/default.aspx*.

Appendix B
Comprehensive Transportation Plan Definitions

This appendix contains descriptive information and definitions for the designations depicted on the CTP maps shown in Figure 1.

Highway Map

The "NCDOT Facility Type –Control of Access Definitions" document provides a visual depiction of facility types for the following CTP classification.

Facility Type Definitions

- **Freeways**
  - Functional purpose – high mobility, high volume, high speed
  - Posted speed – 55 mph or greater
  - Cross section – minimum four lanes with continuous median
  - Multi-modal elements – High Occupancy Vehicles (HOV)/High Occupancy Transit (HOT) lanes, busways, truck lanes, park-and-ride facilities at/near interchanges, adjacent shared use paths (separate from roadway and outside ROW)
  - Type of access control – full control of access
  - Access management – interchange spacing (urban – one mile; non-urban – three miles); at interchanges on the intersecting roadway, full control of access for 1,000ft or for 350ft plus 650ft island or median; use of frontage roads, rear service roads
  - Intersecting facilities – interchange or grade separation (no signals or at-grade intersections)
  - Driveways – not allowed

- **Expressways**
  - Functional purpose – high mobility, high volume, medium-high speed
  - Posted speed – 45 to 60 mph
  - Cross section – minimum four lanes with median
  - Multi-modal elements – HOV lanes, busways, very wide paved shoulders (rural), shared use paths (separate from roadway but within ROW)
  - Type of access control – limited or partial control of access;
  - Access management – minimum interchange/intersection spacing 2,000ft; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways limited in location and number; use of acceleration/deceleration or right turning lanes
  - Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
  - Driveways – right-in/right-out only; direct driveway access via service roads or other alternate connections

❖ **Boulevards**

- Functional purpose – moderate mobility; moderate access, moderate volume, medium speed
- Posted speed – 30 to 55 mph
- Cross section – two or more lanes with median (median breaks allowed for U-turns per current NCDOT *Driveway Manual*
- Multi-modal elements – bus stops, bike lanes (urban) or wide paved shoulders (rural), sidewalks (urban - local government option)
- Type of access control – limited control of access, partial control of access, or no control of access
- Access management – two lane facilities may have medians with crossovers, medians with turning pockets or turning lanes; use of acceleration/deceleration or right turning lanes is optional; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – at grade intersections and driveways; interchanges at special locations with high volumes
- Driveways – primarily right-in/right-out, some right-in/right-out in combination with median leftovers; major driveways may be full movement when access is not possible using an alternate roadway

❖ **Other Major Thoroughfares**

- Functional purpose – balanced mobility and access, moderate volume, low to medium speed
- Posted speed – 25 to 55 mph
- Cross section – four or more lanes without median *(US and NC routes may have less than four lanes)*
- Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
- Type of access control – no control of access
- Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – intersections and driveways
- Driveways – full movement on two lane roadway with center turn lane as permitted by the current NCDOT *Driveway Manual*

❖ **Minor Thoroughfares**

- Functional purpose – balanced mobility and access, moderate volume, low to medium speed
- Posted speed – 25 to 55 mph
- Cross section – ultimately three lanes (no more than one lane per direction) or less without median
- Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
- ROW – no control of access

- Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – intersections and driveways
- Driveways – full movement on two lane with center turn lane as permitted by the current NCDOT *Driveway Manual*

Other Highway Map Definitions

- **Existing** – Roadway facilities that are not recommended to be improved.
- **Needs Improvement** – Roadway facilities that need to be improved for capacity, safety, operations, or system continuity. The improvement to the facility may be widening, increasing the level of access control along the facility, operational strategies (including but not limited to traffic control and enforcement, incident and emergency management, and deployment of Intelligent Transportation Systems (ITS) technologies), or a combination of improvements and strategies. *"Needs improvement" does not refer to the maintenance needs of existing facilities or the replacement or rehab of structures.*
- **Recommended** – Roadway facilities on new location that are needed in the future.
- **Interchange** – Through movement on intersecting roads is separated by a structure. Turning movement area accommodated by on/off ramps and loops.
- **Grade Separation** – Through movement on intersecting roads is separated by a structure. There is no direct access between the facilities.
- **Full Control of Access** – Connections to a facility provided only via ramps at interchanges. No private driveway connections allowed.
- **Limited Control of Access** – Connections to a facility provided only via ramps at interchanges (major crossings) and at-grade intersections (minor crossings and service roads). No private driveway connections allowed.
- **Partial Control of Access** – Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. Private driveway connections shall be defined as a maximum of one connection per parcel. One connection is defined as one ingress and one egress point. These may be combined to form a two-way driveway (most common) or separated to allow for better traffic flow through the parcel. The use of shared or consolidated connections is highly encouraged.
- **No Control of Access** – Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways.

Public Transportation and Rail Map

- **Bus Routes** – The primary fixed route bus system for the area. Does not include demand response systems.
- **Fixed Guideway** – Any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes heavy rail, commuter rail, light rail,

monorail, trolleybus, aerial tramway, included plane, cable car, automated guideway transit, and ferryboats.

- **Operational Strategies** – Plans geared toward the non-single occupant vehicle. This includes but is not limited to HOV lanes or express bus service.
- **Rail Corridor** – Locations of railroad tracks that are either active or inactive tracks. These tracks were used for either freight or passenger service.
  - Active – rail service is currently provided in the corridor; may include freight and/or passenger service
  - Inactive – right of way exists; however, there is no service currently provided; tracks may or may not exist
  - Recommended – It is desirable for future rail to be considered to serve an area.
- **High Speed Rail Corridor** – Corridor designated by the U.S. Department of Transportation as a potential high speed rail corridor.
  - Existing – Corridor where higher-speed rail service (over 79 mph) is provided or a corridor that is officially designated by FRA to run higher speed trains in the future. There is currently one federally designated high-speed rail corridor in North Carolina - The Southeast High Speed Rail Corridor.
  - Recommended – Proposed corridor for higher speed rail service.
- **Rail Stop** – A railroad station or stop along the railroad tracks.
- **Multimodal Connector** - A location where more than one mode of transportation meet such as where light rail and a bus route come together in one location. (NOTE- intermodal refers to two or more modes that transfer the same cargo unit-like 40' shipping container from ship to train or truck); multimodal is the transfer of people/cargo between two or more modes and in NC is used in public transit settings i.e. Charlotte Multimodal Station)
- **Park and Ride Lot** – A strategically located parking lot that provides commuters connections to transit or carpools.
- **Existing Grade Separation** – Locations where existing rail facilities are physically separated from existing highways or other transportation facilities. These may be bridges, culverts, or other structures.
- **Proposed Grade Separation** – Locations where rail facilities are recommended to be physically separated from existing or recommended highways or other transportation facilities. These may be bridges, culverts, or other structures.

Bicycle Map

- **On Road-Existing** – Conditions for bicycling on the highway facility are adequate to safely accommodate cyclists.
- **On Road-Needs Improvement** – At the systems level, it is desirable for **an existing** highway facility to accommodate bicycle transportation; however, highway improvements are necessary to create safe travel conditions for the cyclists.

- **On Road-Recommended** – At the systems level, it is desirable for **a recommended** highway facility to accommodate bicycle transportation. The highway should be designed and built to safely accommodate cyclists.

- **Off Road-Existing** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way.

- **Off Road-Needs Improvement** – A facility that accommodates only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way that will not adequately serve future bicycle needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment.

- **Off Road-Recommended** – A facility needed to accommodate only bicycle transportation and is physically separated from a highway facility either within the right-of-way or within an independent right-of-way.

- **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- **Existing Grade Separation** – Locations where existing “Off Road” facilities and “Multi-use Paths” are physically separated from existing highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

- **Proposed Grade Separation** – Locations where “Off Road” facilities and “Multi-use Paths” are recommended to be physically separated from existing or recommended highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

Pedestrian Map

- **Sidewalk-Existing** – Paved paths (including but not limited to concrete, asphalt, brick, stone, or wood) on both sides of a highway facility and within the highway right-of-way that are adequate to safely accommodate pedestrian traffic.

- **Sidewalk-Needs Improvement** – Improvements are needed to provide paved paths on both sides of a highway facility. The highway facility may or may not need improvements. Improvements do not include re-paving or other maintenance activities but may include: filling in gaps, widening sidewalks, or meeting ADA (Americans with Disabilities Act) requirements.

- **Sidewalk-Recommended** – At the systems level, it is desirable for a recommended highway facility to accommodate pedestrian transportation **or** to add sidewalks on an existing facility where no sidewalks currently exist. The highway should be designed and built to safely accommodate pedestrian traffic.

- **Off Road-Existing** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.

- **Off Road-Needs Improvement** – A facility that accommodates only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way that will not adequately serve future pedestrian needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), improved horizontal or vertical alignment, and meeting ADA requirements.

- **Off Road-Recommended** – A facility needed to accommodate only pedestrian traffic and is physically separated from a highway facility usually within an independent right-of-way.

- **Multi-use Path-Existing** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Needs Improvement** – An existing facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that serves bicycle and pedestrian traffic that will not adequately serve future needs. Improvements may include but are not limited to, widening, paving (not re-paving or other maintenance activities), and improved horizontal or vertical alignment. Sidewalks should not be designated as a multi-use path.

- **Multi-use Path-Recommended** – A facility physically separated from motor vehicle traffic that is either within the highway right-of-way or on an independent right-of-way that is needed to serve bicycle and pedestrian traffic. Sidewalks should not be designated as a multi-use path.

- **Existing Grade Separation** – Locations where existing “Off Road” facilities and “Multi-use Paths” are physically separated from existing highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

- **Proposed Grade Separation** – Locations where “Off Road” facilities and “Multi-use Paths” are recommended to be physically separated from existing or recommended highways, railroads, or other transportation facilities. These may be bridges, culverts, or other structures.

Appendix C
CTP Inventory and Recommendations

Assumptions/ Notes:

- **Local ID:** This Local ID is the same as the one used for the Prioritization Project Submittal Tool. If a TIP project number exists it is listed as the ID. Otherwise, the following system is used to create a code for each recommended improvement: the first 4 letters of the county name is combined with a 4 digit unique numerical code followed by '-H' for highway, '-T' for public transportation, '-R' for rail, '-B' for bicycle, '-M' for multi-use paths, or '-P' for pedestrian modes. If a different code is used along a route it indicates separate projects will probably be requested. Also, upper case alphabetic characters (i.e. 'A', 'B', or 'C') are included after the numeric portion of the code if it is anticipated that project segmentation or phasing will be recommended.
- **Jurisdiction:** Jurisdictions listed are based on municipal limits, county boundaries, and MPO Metropolitan Planning Area Boundaries (MAB), as applicable.
- **Existing Cross-Section:** Listed under 'Total Width (ft)' is the approximate width of the roadway from edge of pavement to edge of pavement and under 'Lane Width (ft)' is the approximate width of a single lane based on centerline/ edge line markings. Listed under 'Lanes' is the total number of lanes, with 'D' if the facility is divided, and 'OW' if it is a one-way facility.
- **Existing ROW:** The estimated existing right-of-way is based on October 2017 NCDOT's Roadway Characteristics database. These right-of-way amounts are approximate and may vary.
- **Existing and Proposed Capacity:** The estimated capacities are given in vehicles per day (vpd) based on LOS D for existing facilities and LOS C for new facilities. These capacity estimates were developed based on the 2000 Highway Capacity Manual using the Transportation Planning Branch's LOS D Standards for Systems Level Planning, as documented in Chapter 1.
- **Existing and Proposed Volumes**, given in vehicles per day (vpd), are estimates only based on a systems-level analysis. The '2045 Volume E+C' is an estimate of the volume in 2045 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for right-of-way and/or construction in the 2020 - 2029 Transportation Improvement Program (TIP) between 2020 and 2027. The '2045 Volume with CTP' is an estimate of the volume in 2045 with all proposed CTP improvements assumed to be in place. The '2045 Volume with CTP' is shown in bold if it exceeds the proposed capacity, indicating an unmet need. For additional information about the assumptions and techniques used to develop the AADT volume estimates, refer to Chapter 1.
- **Proposed Cross-section:** The CTP recommended cross-sections are listed by code; for depiction of the cross-section, refer to Appendix D. An entry of 'ADQ' indicates the existing facility is adequate and there are no improvements recommended for the given mode as part of the CTP.

- **CTP Classification:** The CTP classification is listed, as shown on the adopted CTP Maps (see Figure 1). Abbreviations are F= freeway, E= expressway, B= boulevard, Maj= other major thoroughfare, Min= minor thoroughfare.
- **Tier:** Tiers are defined as part of the North Carolina Multimodal Investment Network (NCMIN). Abbreviations are Sta= statewide tier, Reg= regional tier, Sub= subregional tier.
- **Proposals for Other Modes:** If there is an improvement recommended for another mode of transportation that relates to the given recommendation, it is indicated by an alphabetic code (H= highway, T= public transportation, R= rail, B= bicycle, P= pedestrian, and M= multi-use path).

CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
		Section				2016 Existing System							2045 Proposed System						
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
R-2519B	US 19E	Yancey County	Earls Repair Shop Rd (SR 1271)	Mitchell County	3.4	24	2	12	80	55	14600	9600	11300	11300	44500	4A	180	Maj	B
MITC0001-H	US 19E	Earls Repair Shop Rd (SR 1271)	East of Beaver Creek Rd (SR 1143)	Spruce Pine/Mitchell County	2.7	48	4	12	80	45	24600	13000	15900	12100	24600	4C	180	Maj	B,P
R-2520A	US 19E	East of Beaver Creek Rd (SR 1143)	Biggerstaff Rd (SR 1142)	Spruce Pine/Mitchell County	0.8	36	3	12	70	45	13800	9800	11000	11000	44500	4C	180	Maj	B,P
R-2520A	US 19E	Biggerstaff Rd (SR 1142)	Avery County	Mitchell County	1.4	24	2	12	70	55	14600	6600	7400	7400	44500	4A	180	Maj	B,P
																			B,P
MITCH0002-H	NC 80	Yancey County	NC 226	Mitchell County	10.4	18	2	9	60	55	7400	370	400	400	8800	2A	80	Maj	B,P
																			B,P
MITC0001-B	NC 197	Yancey County	NC 226	Mitchell County	0.8	25	2	12	60	55	10200	1400	1600	1600	10200	ADQ	ADQ	Maj	B,P
MITCH0003-H	NC 197/NC 226	NC 197	NC 226	Mitchell County	0.1	18	2	9	100	55	7400	1800	1900	1900	10200	2A	ADQ	Maj	B,P
MITCH0003-H	NC 197	NC 226	Just west of Pigeon Roost Rd (SR 1349)	Mitchell County	5.9	16	2	8	60	55	7400	880	900	900	8800	2C	ADQ	Maj	B,P
	NC 197	Just west of Pigeon Roost Rd (SR 1349)	Tennessee State Line	Mitchell County	8.6	20	2	10	50-60	55	8800	880	900	900	8800	2C	60	Maj	B,P
																			B,P
R-5804	NC 226	McDowell County	Halltown Rd (SR 1114)	Mitchell County	1.2	24	2	12	60	55	10200	6500	7600	7600	15300	3D	110	Maj	M
R-5804	NC 226	Halltown Rd (SR 1114)	Tom Bell Rd	Mitchell County	0.2	30-37	3	10	60	55	14000	6500	7700	7700	15300	3D	110	Maj	M

HIGHWAY																				
		Section				2016 Existing System							2045 Proposed System							
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
R-5804	NC 226	Tom Bell Rd	South of Old NC 226 (SR 1116)	Mitchell County	0.3	24	2	12	60	55	14000	12000	17600	17600	15300	3D	110	Maj	M
R-5804	NC 226	South of Old NC 226 (SR 1116)	Old NC 226 (SR 1116)	Mitchell County	0.5	24	2	12	60	45	13600	12000	17600	17600	14900	3D	110	Maj	M
R-5804	NC 226	Old NC 226 (SR 1116)	North of Carters Ridge Rd (SR 1117)	Mitchell County	0.1	30-36	2	12	60	45	13600	12000	17600	17600	14900	3D	110	Maj	M
R-5804	NC 226	North of Carters Ridge Rd (SR 1117)	Ray Wiseman Rd	Mitchell County	0.3	24	2	12	60	45	13600	12000	17600	17600	14900	3D	110	Maj	M
R-5804	NC 226	Ray Wiseman Rd	Carters Ridge Rd (SR 1117)	Mitchell County	0.8	30-36	3	12	60	45	13600	12000	18000	18000	14900	3D	110	Maj	M
R-5804	NC 226	Carters Ridge Rd (SR 1117)	South of Ellis Rd	Mitchell County	0.6	24	2	12	60	45	13600	16000	20200	20200	14900	3D	110	Maj	M
R-5804	NC 226	South of Ellis Rd	Daisy Ave	Spruce Pine	0.02	36	3	12	120	55	15300	16000	19500	19500	15300	3D	110	Maj	M
R-5804	NC 226	Daisy Ave	Summit Ave (SR 1297)	Spruce Pine	0.2	36	3	10	120	35	14000	16000	18400	18400	14000	3D	110	Maj	M
MITC0003-B	NC 226	Summit Ave (SR 1297)	0.2 miles North of Summit Ave	Spruce Pine	0.2	36	3	10	120	35	14000	16000	18400	18400	14000	ADQ	ADQ	Maj	B,P
MITC0003-B	NC 226	0.2 miles North of Summit Ave	19E	Spruce Pine	0.4	36	4	9	120	35	20300	16000	18400	18400	20300	ADQ	ADQ	Maj	B,P
	US 19E/NC 226 - See US 19E																		
	NC 226	19E	North of Deer Park Lake Rd (SR 1152)	Spruce Pine	0.09	64	4D	12	500	35	27800	9100	9400	9400	27800	ADQ	ADQ	Maj	

HIGHWAY																				
		Section				2016 Existing System							2045 Proposed System							
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
	NC 226	North of Deer Park Lake Rd (SR 1152)	North of Meadowlark Dr	Mitchell County	0.3	52-60	4	12	300	35	23500	9100	9400	9400	23500	ADQ	ADQ	Maj	
	NC 226	North of Meadowlark Dr	Attorney John Peterson Rd (SR 1403)	Mitchell County	0.9	52	4	12	200	55	28600	9100	11500	11500	28600	ADQ	ADQ	Maj	
MITC0002-B	NC 226	Attorney John Peterson Rd (SR 1403)	South of Pine Mountain Rd	Mitchell County	0.4	52	4	12	200	55	28600	9100	11500	11500	28600	ADQ	ADQ	Maj	
MITC0002-B	NC 226	South of Pine Mountain Rd	Bear Creek Church Rd (SR 1194)	Mitchell County	2.0	24-36	2	12	180-200	55	14600	7600	9100	9100	14600	ADQ	ADQ	Maj	
MITC0002-B	NC 226	Bear Creek Church Rd (SR 1194)	Bakersville Town Limits	Mitchell County	5.4	24	2	11	180	55	14000	3900	4700	4700	14000	ADQ	ADQ	Maj	
MITC0002-B	NC 226	Bakersville Town Limits	North of Hemlock Dr	Bakersville	0.4	24	2	11	90	35	10700	3900	4600	4600	10700	ADQ	ADQ	Maj	
MITC0002-B	NC 226	North of Hemlock Dr	NC 261	Bakersville	0.1	24	2	12	90	20	10000	3900	4600	4600	10000	ADQ	ADQ	Maj	
MITC0004-H	NC 226	NC 261	North of Minnie Lane (SR 1189)	Bakersville	0.6	20	2	10	30	20-25	9600	2200	2300	2300	9600	2C	50	Maj	
MITC0004-H	NC 226	North of Minnie Lane (SR 1189)	North of Toecane Rd (SR 1187)	Mitchell County	2.0	18	2	9	30	35	10400	2400	2500	2500	10400	2C	50	Maj	
MITC0004-H	NC 226	North of Toecane Rd (SR 1187)	NC 197	Mitchell County	2.8	18-19	2	9	30	45	11400	2400	2800	2800	11400	2C	50	Maj	
MITC0004-H	NC 226	NC 197	North of Homestead Rd	Mitchell County	6.3	18-19	2	9	100	45	11400	1800	2100	2100	11400	2C	50	Maj	
MITC0004-H	NC 226	North of Homestead Rd	Jones Garland Ln (SR 1358)	Mitchell County	0.6	18-19	2	9	100	35	10400	1800	1900	1900	10400	2C	50	Maj	

HIGHWAY																			
		Section				2016 Existing System							2045 Proposed System						
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
MITC0004-H	NC 226	Jones Garland Ln (SR 1358)	Tennessee State Line	Mitchell County	3.7	18	2	9	100	45	11400	940	1000	1000	11400	2C	50	Maj	
MITC0005-H	NC 226A (Mine Creek Rd)	NC 226 South	NC 80	Mitchell County	1.7	20	2	10	30	55	11100	1700	1750	1750	12100	2A	60	Maj	
MITC0006-H	NC 261	NC 226	Dogwood Dr (SR 1221)	Bakersville	0.2	22	2	10	-	20	8800	2100	2800	2800	9500	2B	60	Maj	
MITC0006-H	NC 261	Dogwood Dr (SR 1221)	Bakersville CL	Bakersville	0.3	22	2	10	-	35	9500	2100	2800	2800	9900	2B	60	Maj	
MITC0006-H	NC 261	Bakersville CL	Green Creek Rd (SR 1223)	Mitchell County	5.7	18-20	2	9	-	55	12600	840	900	900	13500	2B	60	Maj	
MITC0006-H	NC 261	Green Creek Rd (SR 1223)	Charles Creek Rd (SR 1345)	Mitchell County	0.5	20	2	10	-	35	7400	840	1000	1000	9900	2B	60	Maj	
MITC0006-H	NC 261	Charles Creek Rd (SR 1345)	Tennessee State Line	Mitchell County	6.2	18-20	2	9	-	55	7400	180	200	200	9600	2B	60	Maj	
MITC0007-H	Altapass Hwy (SR 1121)	Blue Ridge Pkwy	Humpback Mtn Rd (SR 1128)	Mitchell County	1.5	17	2	8	-	45	7400	1400	1600	1600	10900	2C	50	Maj	
MITC0007-H	Altapass Hwy (SR 1121)	Humpback Mtn Rd (SR 1128)	Hannah Lane	Mitchell County	2	18-20	2	10	-	45	8800	1400	1600	1600	10900	2C	50	Maj	B
MITC0007-H	Altapass Hwy (SR 1121)	Hannah Lane	Spruce Pine CL	Mitchell County	0.2	18	2	9	-	55	7400	2500	2800	2800	10900	2C	50	Maj	B
MITC0007-H	Altapass Hwy (SR 1121)	Spruce Pine CL	Oakland Ave	Spruce Pine	3	20	2	10	-	35	9500	2500	2800	2800		2E	60	Maj	B,P
MITC0007-H	Altapass Hwy (SR 1121)	Oakland Ave	Hospital Dr (SR 1405)	Spruce Pine	0.3	20	2	10	-	20	9300	3300	3700	3700	9500	2E	60	Maj	B,P
MITC0007-H	Altapass Hwy (SR 1121)	Hospital Dr (SR 1405)	NC 19E	Spruce Pine	0.1	24	2	12	-	35	9500	1000	1600	1600	9900	2E	60	Maj	B,P

HIGHWAY																				
		Section				2016 Existing System							2045 Proposed System							
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
MITC0005-P	Altapass Hwy (SR 1121)	NC 19E	Oak Ave (SR 1275)	Spruce Pine	0.3	20-24	2	10-12	-	35	9500	1000	1600	1600	9900	2E	60	Maj	B,P
MITC0011-H	Attorney John Peterson Rd (SR 1403)	NC 226	Roan Road (SR 1403)	Mitchell County	0.2	24	2	10	100	55	10200	1300	1350	1350	13500	2B	60	Min	B
MITC0008-H	Beaver Creek Rd (SR 1143)	US 19E	Spruce Pine Town Limit	Spurce Pine	0.6	18-20	2	9	60	35	6300	930	930	930	9700	2C	ADQ	Min	
MITC0008-H	Beaver Creek Rd (SR 1143)	Spruce Pine Town Limit	End	Mitchell County	2.1	18	2	9	-	55	9200	NA	NA	NA	9700	2C	60	Min	
	Cane Creek Rd (SR 1211)	North Michell Ave (Bakersville CL)	Ted Byrd Rd (SR 1203)	Mitchell County	0.3	18-19	2	9	-	35	7400	1400	1450	1450	7400	ADQ	ADQ	Min	
	Cane Creek Rd (SR 1211)	Ted Byrd Rd (SR 1203)	End	Mitchell County	5.6	16-18	2	8	-	45	7400	1100	1150	1150	7400	ADQ	ADQ	Min	
	Carters Ridge Rd (SR 1117)	NC 226	NC 226	Mitchell County	2.4	16-18	2	8	60	35	7400	960	2800	2800	7400	ADQ	ADQ	Min	
	Conley Ridge Rd (SR 1164)	Snow Creek Rd (SR 1171)	Unpaved section	Mitchell County	0.4	18	2	9	60	55	7400	540	550	550	7400	ADQ	ADQ	Min	
	Conley Ridge Rd (SR 1164)	Unpaved section	Copley Place Rd	Mitchell County	2.0	14	2	7	-	55	7000	NA	NA	NA	7000	ADQ	ADQ	Min	
	Conley Ridge Rd (SR 1164)	Copley Place Rd	Lucy Morgan Ln	Mitchell County	0.7	16	2	8	60	25	7400	180	200	200	7400	ADQ	ADQ	Min	
	Conley Ridge Rd (SR 1164)	Lucy Morgan Ln	Penland Rd (SR 1162)	Mitchell County	0.8	16	2	8	60	55	7400	180	200	200	7400	ADQ	ADQ	Min	
	Cub Creek Rd (SR 1300)	NC 226	NC 261	Mitchell County	1.5	18-20	2	9	50	55	7400	NA	NA	NA	7400	ADQ	ADQ	Min	
	Dale Rd (SR 1106)	Velvis Hollifield Rd (SR 1269)	Old NC 226 (SR 1116)	Mitchell County	2.6	16-18	2	8	-	35	9200	1600	1900	1900	9200	ADQ	ADQ	Min	

HIGHWAY																				
		Section				2016 Existing System							2045 Proposed System							
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
	Duck Branch Rd (SR 1190)	NC 80	NC 226	Mitchell County	1.0	16	2	8	-	25	8500	1700	2500	2500	8500	ADQ	ADQ	Min	
	Dula Rd (SR 1111)	NC 226	Dale Rd (SR 1106)	Mitchell County	2	20	2	10	-	55	8800	250	300	300	8800	ADQ	ADQ	Min	
	Fork Mountain Rd (SR 1338)	NC 226	NC 261	Mitchell County	4.2	16-18	2	8	-	40	9200	470	700	700	9200	ADQ	ADQ	Min	
	Gouges Creek Rd (SR 1137)	US 19E	Avery County	Mitchell County	3.00	18	2	9	-	55	7400	350	360	360	7400	ADQ	ADQ	Min	
	Green Young Cemetary Rd (SR 1217)	Mckinney Cove Rd (SR 1217)	Cane Creek Rd (SR 1211)	Mitchell County	1.4	18	2	8	-	55	7400	470	480	480	7400	ADQ	ADQ	Min	
MITC0006-P	Greenwood Rd (SR 1274)	US 19E	Highland Ave (SR 1403)	Spruce Pine	1.3	20-24	2	10	-	35	9200	900	1000	1000	9200	ADQ	ADQ	Min	P
MITC0009-H	Halltown Rd (SR 1114)	NC 226	Old NC 226 (SR 1112)	Mitchell County	0.02	30	2	10	60	45	12200	2200	6100	6100		ADQ	ADQ	Min	
MITC0009-H	Halltown Rd (SR 1114)	Old NC 226 (SR 1112)	Walmart Driveway	Mitchell County	0.3	20	2	10	60	45	10500	1700	6100	6100		2A	ADQ	Min	
MITC0009-H	Halltown Rd (SR 1114)	Old NC 226	Altapass Hwy (SR 1121)	Mitchell County	2.7	18-20	2	9	60	45	10500	1700	3000	3000		2B	ADQ	Min	
	Harrell Hill Rd (SR 1307)	NC 197	NC 226	Mitchell County	3.1	16	2	8	40	55	7400	180	200	200	7400	ADQ	ADQ	Min	
	Hughes Gap Rd (SR 1330)	NC 226	Tennessee State line	Mitchell County	4.3	17-20	2	9	60	55	7400	760	800	800	7400	ADQ	ADQ	Min	
MITC0010-H	Humpback Mountain Rd (SR 1128)	Altapass Hwy (SR 1121)	Blue Ridge Pkwy	Mitchell County	2.8	20	2	10	60	55	8800	910	940	940	12100	2B	60	Min	

HIGHWAY																				
		Section				2016 Existing System							2045 Proposed System							
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
	Huntdale Rd (SR 1304)	Yancey County	Peterson Ln	Mitchell County	0.1	22	2	11	90	55	9800	170	200	200	9800	ADQ	ADQ	Min	
	Huntdale Rd (SR 1304)	Peterson Ln	NC 197	Mitchell County	1.2	16	2	8	-	55	7400	170	200	200	7400	ADQ	ADQ	Min	
	Ledger School Rd (SR 1193)	NC 226	End	Mitchell County	0.5	24	2	12	60	25	9200	1900	2000	2000	9200	ADQ	ADQ	Min	
	McHone Rd (SR 1120)	NC 226	Spruce Pine Town Limits	Spruce Pine	0.05	18	2	9	60	35	9200	700	1000	1000	9200	ADQ	ADQ	Min	
	McHone Rd (SR 1120)	Spruce Pine Town Limits	Swiss Pine Lake Dr (SR 1243)	Mitchell County	0.1	18	2	9	60	55	7400	700	1000	1000	7400	ADQ	ADQ	Min	
	McKinney Cove Rd (SR 1217)	Bakersville Town Limits	Green Young Cemetary Rd (SR 1217)	Mitchell County	0.8	16	2	9	60	55	7400	480	500	500	7400	ADQ	ADQ	Min	
	McKinney Mine Rd (SR 1100)	Crabtree Rd (SR 1002)	Chestnut Grove Rd (SR 1100)	Mitchell County	2.4	20	2	10	60	40	8800	220	300	300	8800	ADQ	ADQ	Min	
MITC0002-P	North Mitchell Ave (SR 1211)	NC 261	Hillside Ln	Bakersvillle	0.08	43	2*	10	NA	20	9000	1400	1450	1450	9000	ADQ	ADQ	Min	
MITC0002-P	North Mitchell Ave (SR 1211)	Hillside Ln	Cane Creek Rd (SR 1211)	Bakersvillle	0.6	24	2	12	NA	20-25	10000	1400	1450	1450	10000	ADQ	ADQ	Min	
	North Toe River Bridge	Yancey County	Whitson Branch Rd (SR 1305)	Mitchell County	0.07	22	2	11	60	55	9800	500	520	520	9800	ADQ	ADQ	Min	
MITC0006-B	Oak Ave (SR 1275)	Highland Ave (SR 1403)	Walnut Ave	Spruce Pine	0.3	36-40	2*	12	60	20	8500	4800	4900	4900	8500	ADQ	ADQ	Min	
MITC0006-B	Oak Ave (SR 1275)	Walnut Ave	NC 19E	Spruce Pine	0.8	24	2	12	NA	20	8500	4700	4800	4800	8500	ADQ	ADQ	Min	
	Penland Rd (SR 1160/SR 1162)	US 19E	Rabbit Hop Rd (SR 1160)	Mitchell County	0.2	20	2	10	-	55	8800	770	800	800	8800	ADQ	ADQ	Min	

HIGHWAY																			
		Section				2016 Existing System							2045 Proposed System						
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
	Penland Rd (SR 1160/SR 1162)	Rabbit Hop Rd (SR 1160)	River Rd (SR 1270)	Mitchell County	1.9	16	2	8	-	55	7400	770	800	800	7400	ADQ	ADQ	Min	
	Penland Rd (SR 1160/SR 1162)	River Rd (SR 1270)	0.1 mile west of Clinchfield Dr	Mitchell County	0.1	24	2	12	80	55	10200	310	320	320	10200	ADQ	ADQ	Min	
	Penland Rd (SR 1160/SR 1162)	0.1 mile west of Clinchfield Dr	NC 226	Mitchell County	1.9	18	2	9	-	55	7400	640	700	700	7400	ADQ	ADQ	Min	
	Redwood Rd (SR 1217)	N Mitchell Ave (SR 1211)	Bakersville Town Limits	Bakersville	0.3	18	2	8	-	35	9200	480	500	500	9200	ADQ	ADQ	Min	
MITC0011-H	Roan Rd (SR 1403)	Ellis Hilltop Rd	Spruce Pine Town Limit	Spruce Pine		22	2	11	-	55	9800	1300	1350	1350		2B	60	Min	
MITC0011-H	Roan Rd (SR 1403)	Spruce Pine Town Limit	Sullins Branch Rd (SR 1146)	Spruce Pine	0.5	22	2	11	60	35	9200	1300	1350	1350		2B	ADQ	Min	
MITC0011-H	Roan Rd (SR 1403)	Sullins Branch Rd (SR 1146)	Highland Ave (SR 1403)	Spruce Pine	0.9	22	2	11	60	35	9200	2700	2800	2800		2B	ADQ	Min	
	Snow Creek Rd (SR 1170)	NC 80	Slagle Rd (SR 1170)	Mitchell County	1.8	18	2	9	-	35	7400	330	340	240	7400	ADQ	ADQ	Min	
	Snow Creek Rd (SR 1170/SR 1164)	Slagle Rd (SR 1170)	Murdock Rd (SR 1168)	Mitchell County	1	19	2	9	-	55	7400	540	600	600	7400	ADQ	ADQ	Min	
	Snow Creek Rd (SR 1164/SR 1250)	Murdock Rd (SR 1168)	NC 226	Mitchell County	1.5	16	2	8	-	55	7400	510	530	530	7400	ADQ	ADQ	Min	

HIGHWAY																			
		Section				2016 Existing System							2045 Proposed System						
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification	Proposals for Other Modes
MITC0001-P	South Mitchell Ave (SR 1260)	NC 261	NC 261	Bakersville	0.5	16	2	8	-	25	9000	320	330	330	9000	ADQ	ADQ	Min	
MITC0012-H	Sullins Branch Rd (SR 1146)	NC 226	Spruce Pine Town Limit	Spruce Pine	0.3	20	2	10	60	35	9500	700	1200	1200	2B	9900	ADQ	Min	
MITC0012-H	Sullins Branch Rd (SR 1146)	Spruce Pine Town Limit	End	Mitchell County	0.7	20	2	10	60	35	9500	700	1200	1200	2B	9900	ADQ	Min	
MITC0009-P	Summit Ave (SR 1297)	NC 226	19E	Spruce Pine	0.4	22-24	2	11	60	35	9200	1800	2100	2100	9200	ADQ	ADQ	Min	
MITC0009-P	Summit Ave	19E	0.08 miles East of Greenwood Rd (SR 1274)	Spruce Pine	0.42	22	2	10	NA	35	8800	NA	NA	NA	8800	ADQ	ADQ	Min	
MITC0009-P	Summit Ave	0.08 miles East of Greenwood Rd (SR 1274)	Greenwood Rd (SR 1274)	Spruce Pine	0.08	35	3	10	NA	35	8800	NA	NA	NA	8800	ADQ	ADQ	Min	
	Swafford Rd (SR 1113)	Old NC 226 (SR 1112)	Blue Ridge Parkway	Mitchell County	0.8	18	2	9	45	55	7400	NA	NA	NA	7400	ADQ	ADQ	Min	
	Swiss Pine Lake Dr (SR 1119)	NC 226	Curb and Gutter End	Mitchell County	0.04	28	3	9	-	55	7400	NA	NA	NA	7400	ADQ	ADQ	Min	
	Swiss Pine Lake Dr (SR 1119)	Curb and Gutter End	Woods Rd	Mitchell County	0.1	20	2	10	-	55	8800	NA	NA	NA	8800	ADQ	ADQ	Min	
	Swiss Pine Lake Dr	Woods Rd	0.11 NE of Sunrise Ridge Dr	Mitchell County	1.5	18	2	9	-	55	7400	NA	NA	NA	7400	ADQ	ADQ	Min	
	Swiss Pine Lake Dr (SR 1243)	0.11 NE of Sunrise Ridge Dr	McHone Rd (SR 1120)	Mitchell County	0.6	18	2	9	-	55	7400	700	800	800	7400	ADQ	ADQ	Min	
	Tempie Mtn Rd (SR 1122)	Altapass Hwy (SR 1121)	US 19E	Mitchell County	1.5	20	2	10	60	55	8800	700	720	720	8800	ADQ	ADQ	Min	
MITC0013-H	Whitson Branch Rd (SR 1305)	Yancey County	NC 197	Mitchell County	1.4	16-18	2	8-9	-	55	7400	NA	NA	NA	8800	2C	ADQ	Min	

HIGHWAY																				
		Section				2016 Existing System							2045 Proposed System							
Local ID	Facility	From	To	Jurisdiction	Dist. (mi)	Total Width (ft)	Lanes	Lane Width (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd	2016 Volume	2045 Volume E+C	2045 Volume with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classifi-cation	Proposals for Other Modes
	Wing Rd (SR 1167/SR 1250)	Snow Creek Rd (SR 1164)	NC 226	Mitchell County	1.7	18	2	9	60	55	7400	510	530	530	7400	ADQ	ADQ	Min	

BICYCLE AND PEDESTRIAN [1]

BICYCLE								
				Existing System		Proposed System		
				Cross-Section				Other
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	(ft)	lanes	Type	Cross-Section	Modes
MITC0001-B	NC 197	NC 226-Yancey County	0.8	24	2	On Road`	4-ft paved shoulder	
MITC0002-B	NC 226	Attry John Peterson Rd (SR 1403)-NC 261	8.3	24-52	2-5	On Road`	4-ft paved shoulder	
MITC0003-B	NC 226	Summit Ave (SR 1297)-US 19E	0.6	36	3	On Road`	4-ft pave	P
MITC0004-B	Highland Ave (SR 1403)	US 19E-Proposed Multi-use Path (MITC0001-M)	0.4	20	2	On Road	4-ft paved shoulder	P
MITC0005-B	Locust Street	Roan Rd (SR 1403)-Oak Ave (SR 1275)	0.5	16	2	On Road		
MITC0006-B	Oak Ave (SR 1275)/Cabin Road	Locust St-US 19E	1.3	24-40	2-4	On Road		P
MITC0007-B	Ward St (SR 1275)	Oak Ave (SR 1275)-US 19E	0.06	46	4	On Road		P

PEDESTRIAN								
				Existing System		Proposed System		Other
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Type	Side of Street	Type	Side of Street	Modes
MITC0001-P	S Mitchell Ave (SR 1260)	NC 226-NC 226 - Fill in gaps	0.5			Sidewalk	Both	
MITC0002-P	N Mitchell Ave (SR 1211)	Hemlock Dr-Maple St - Fill in gaps	0.2			Sidewalk	Both	
MITC0004-P	Off-road Pedestrian Facility	Cane Creek pedestrian facility-Gouge Elementary School	0.1			Off Road		
MITC0005-P	Altapass Hwy (SR 1121)	Oak Ave (SR 1275)-Spruce Pine town limits	3.7			Sidewalk	Both	H,B
MITC0006-P	Greenwood Rd (SR 1274)	Harris St (SR 1153)-English Rd	0.5			Sidewalk	Both	
MITC0007-P	Harris St (SR 1153)	Laurel Creek Ct (SR 1277)-Greenwood Rd (SR 1274) - Fill in gaps	0.5			Sidewalk	Both	
MITC0008-P	Hospital Dr (SR 1405)	Altapass Hwy (SR 1121)-Blure Ridge Regional Hospital	0.2			Sidewalk	Both	
MITC0007-P	Laurel Creek Ct (SR 1277)	End (Brad Ragan Park)-Harris St (SR 1153)	0.4			Sidewalk	Both	
MITC0009-P	Summit Ave (SR 1297)	NC 226-NC 226	0.9			Sidewalk	Both	

[1] Only major routes and proposals are shown here. For further documentation of bicycle and pedestrian facilities and proposals, refer to *High Country Bike Plan*. Also refer to Chapter 2 of the *Mitchell County Comprehensive Transportation Plan* Report.

Appendix D
Typical Cross Sections

Cross section requirements for roadways vary according to the capacity and level of service to be provided. Universal standards in the design of roadways are not practical. Each roadway section must be individually analyzed and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service, and available right-of-way. These cross sections are typical for facilities on new location and where right-of-way constraints are not critical. For widening projects and urban projects with limited right-of-way, special cross sections should be developed that meet the needs of the project.

The comprehensive planning and design "typical" highway cross sections, as depicted on the following pages, were updated on May 5, 2014 in response to the Strategic Transportation Investments[1] (STI) law (House Bill 817) and are also consistent with SPOTOn!ine (used for project prioritization[2]), NCDOT's GIS-based web application for providing automated, near real-time prioritization scores and project costs. This guidance establishes design elements that emphasize safety, mobility, complete streets[3], and accessibility for multiple modes of travel. These "typical" highway cross sections should be used as guidelines for comprehensive transportation planning, project planning and project design activities. The specific and final cross section details and right of way limits for projects will be established through the preparation of the National Environmental Policy Act[4] (NEPA) documentation and through final design preparation.

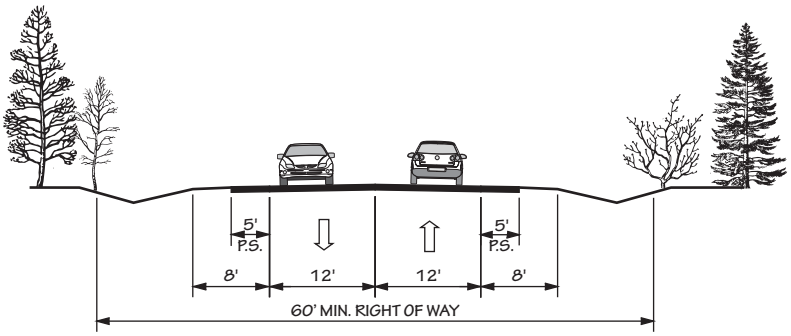
On all existing and proposed roadways delineated on the CTP, adequate right-of-way should be protected or acquired for the recommended cross sections. In addition to cross section and right-of-way recommendations for improvements, Appendix C may recommend ultimate needed right-of-way for the following situations:

- roadways which may require widening after the current planning period,
- roadways which are borderline adequate and accelerated traffic growth could render them deficient,
- roadways where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment, and
- roadways which may need to accommodate an additional transportation mode.

[1] *For more information on STI, go to:* http://www.ncdot.gov/strategictransportationinvestments/.
[2] *For more information on prioritization, go to:* https://connect.ncdot.gov/projects/planning/Pages/StrategicPrioritization.aspx.
[3] *For more information on Complete Streets, go to:* http://www.completestreetsnc.org/.
[4] *For more information on NEPA, go to:* http://ceq.hss.doe.gov/.

FIGURE 10
"TYPICAL" HIGHWAY CROSS SECTIONS

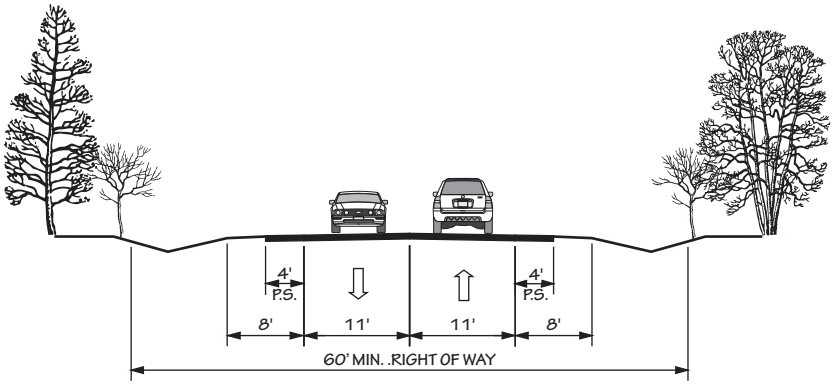
2A



2 LANE UNDIVIDED WITH PAVED SHOULDERS

POSTED SPEED 55 MPH

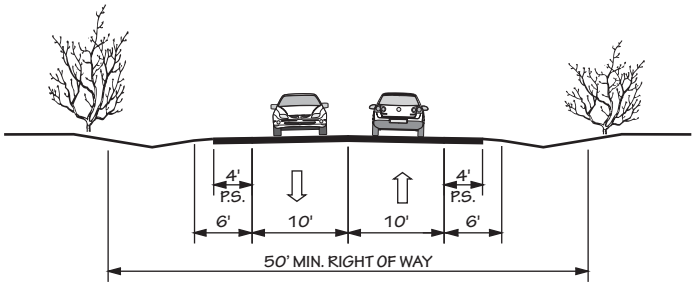
2B



2 LANES UNDIVIDED

POSTED SPEED 45 MPH OR LESS

2C



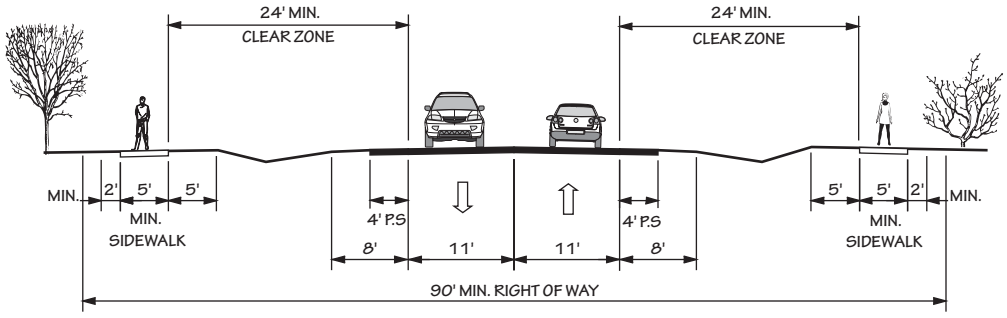
2 LANE UNDIVIDED WITH PAVED SHOULDERS

POSTED SPEED 25 - 35 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

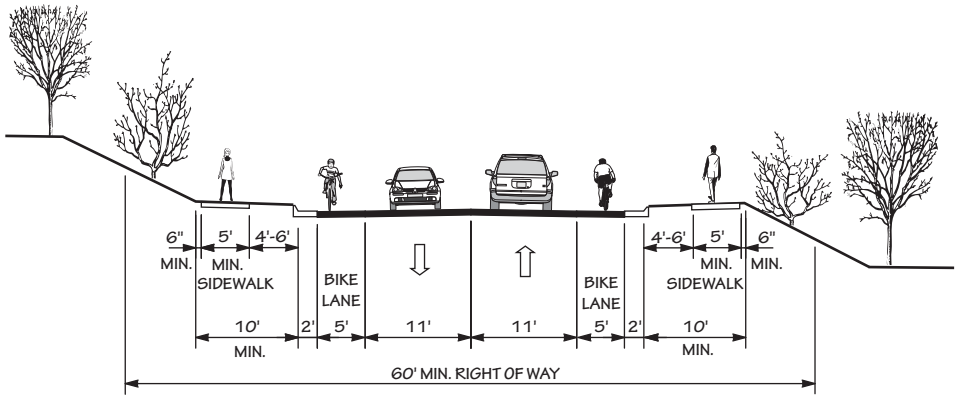
2D



2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 25-45 MPH

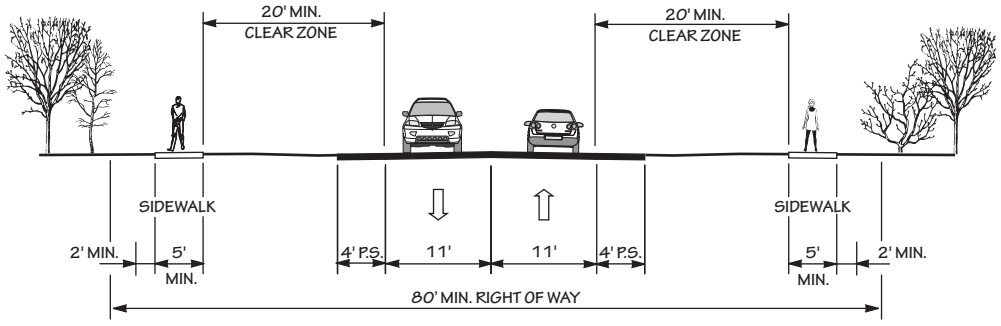
2E



2 LANE UNDIVIDED WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

2F



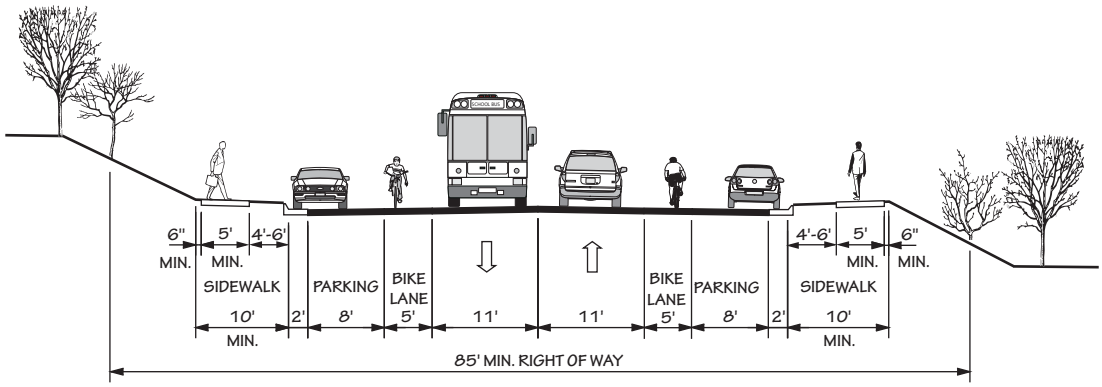
2 LANE UNDIVIDED WITH PAVED SHOULDERS AND SIDEWALKS
IN CAMA COUNTIES

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

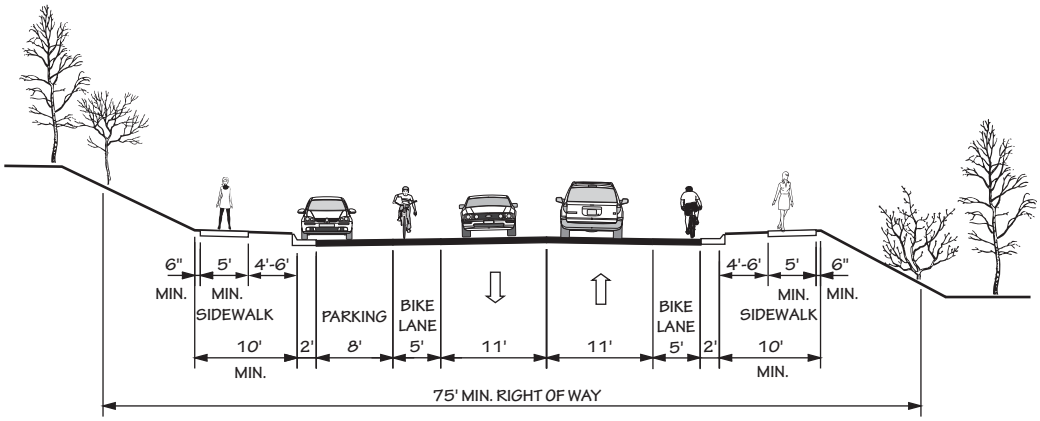
2G



2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING BOTH SIDES, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

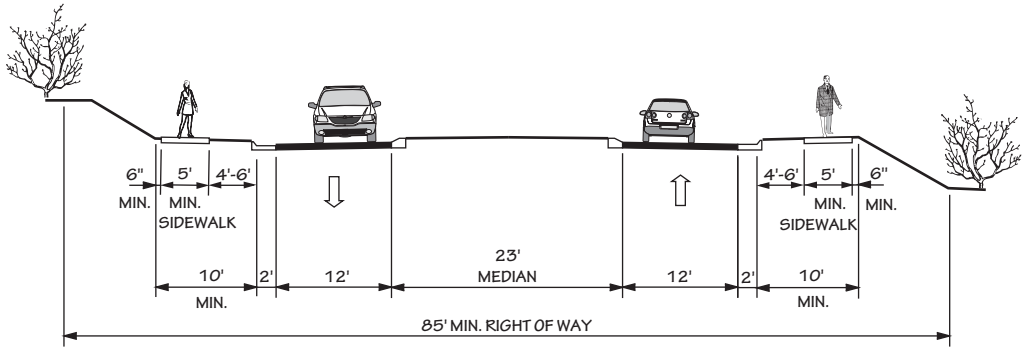
2H



2 LANE UNDIVIDED WITH CURB & GUTTER, PARKING ONE SIDE, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

2I



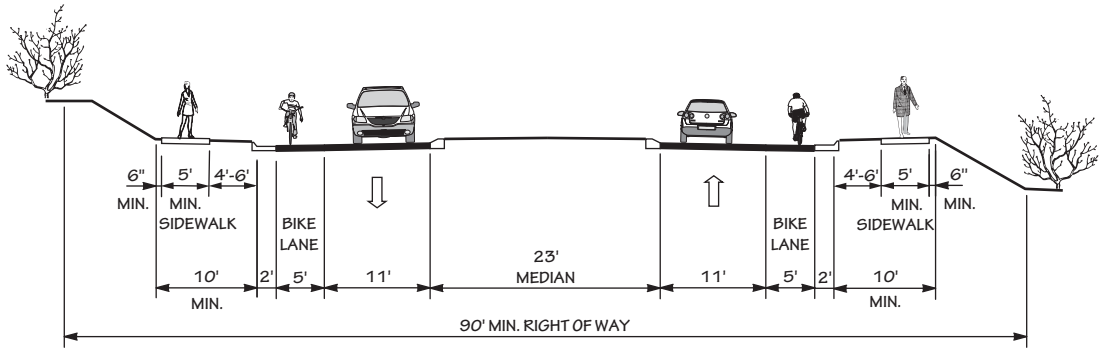
2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER AND SIDEWALKS

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

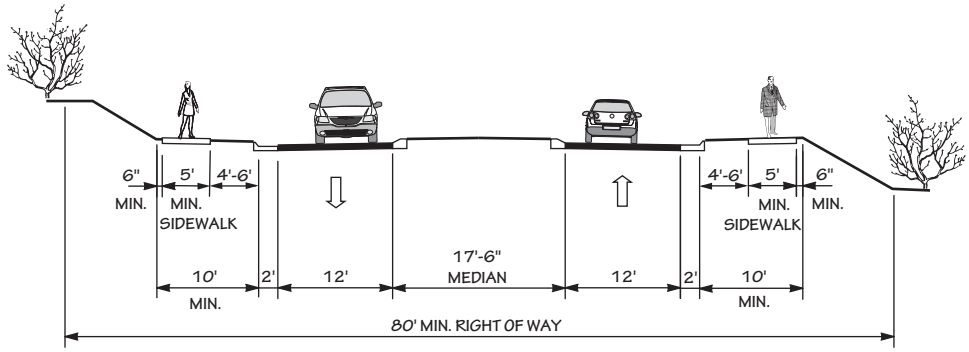
2J



2 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

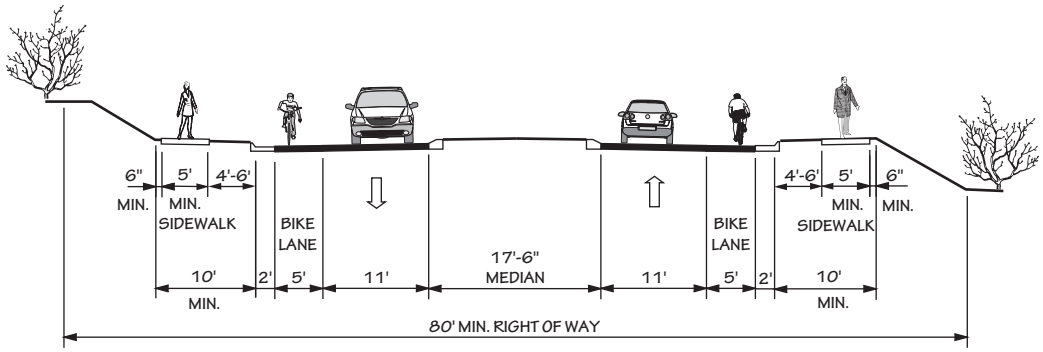
2K



2 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER AND SIDEWALKS

POSTED SPEED 25-45 MPH

2L



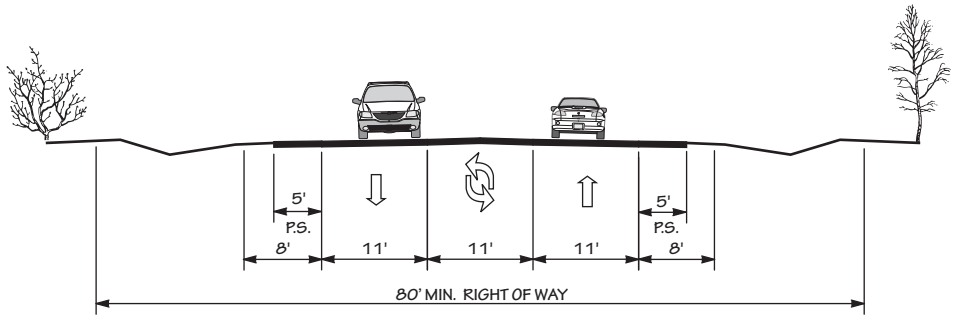
2 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

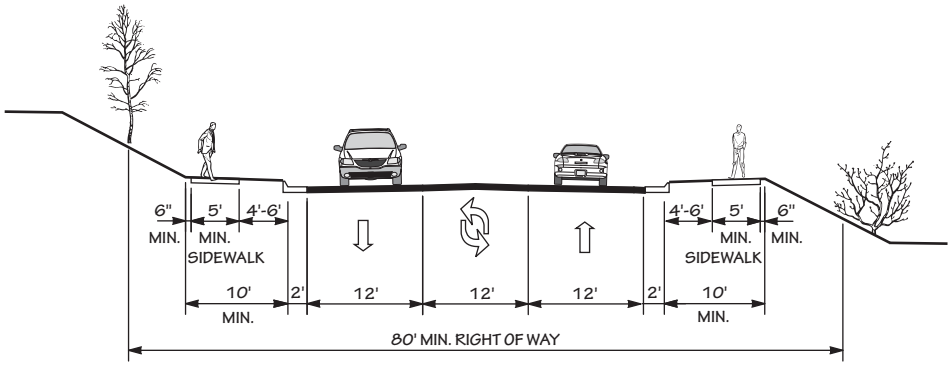
3A



2 LANE WITH TWO WAY LEFT TURN LANE, AND PAVED SHOULDERS

POSTED SPEED 25-55 MPH

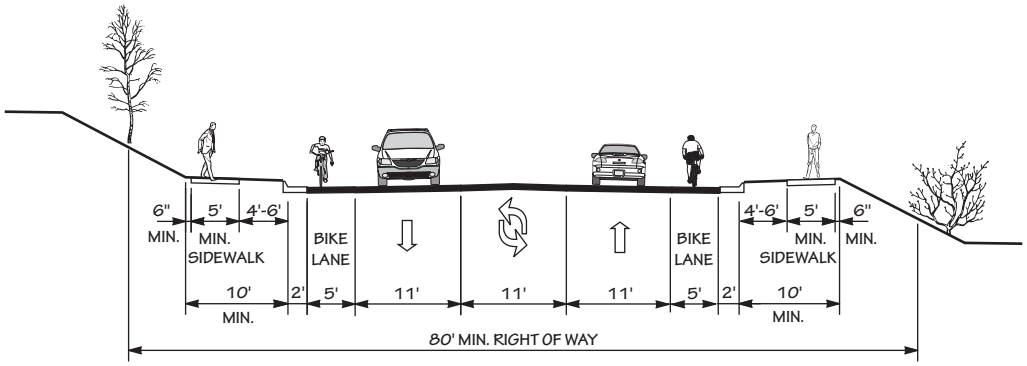
3B



2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, AND SIDEWALKS

POSTED SPEED 25-45 MPH

3C

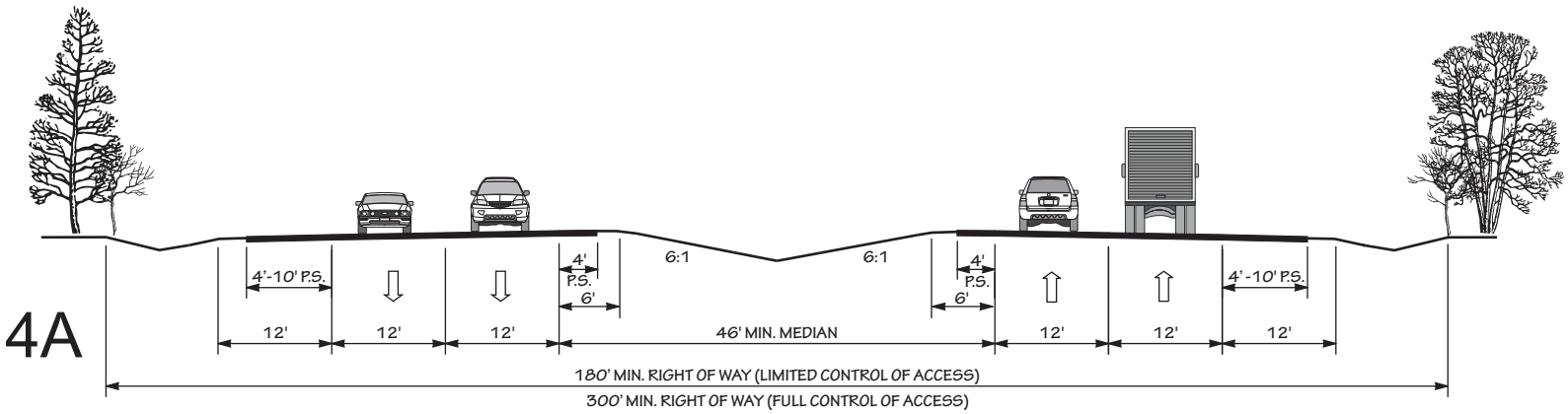


2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 25-45 MPH

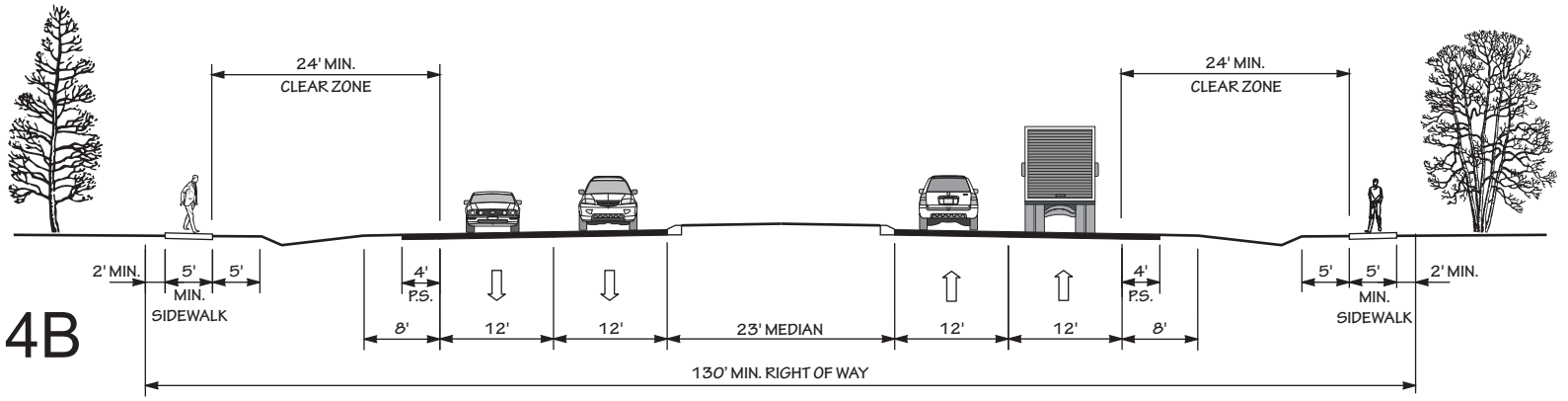
Revised 05/05/2014

"Typical" Highway Cross Sections



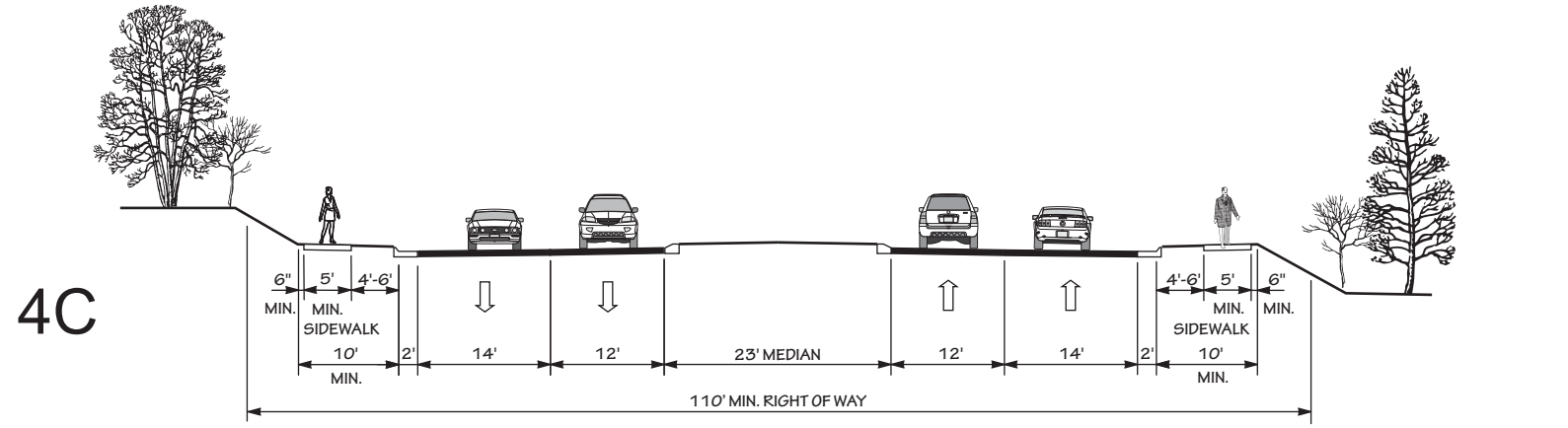
4 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS

POSTED SPEED 45-70 MPH



4 LANE DIVIDED (23' RAISED MEDIAN) WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 35-55 MPH



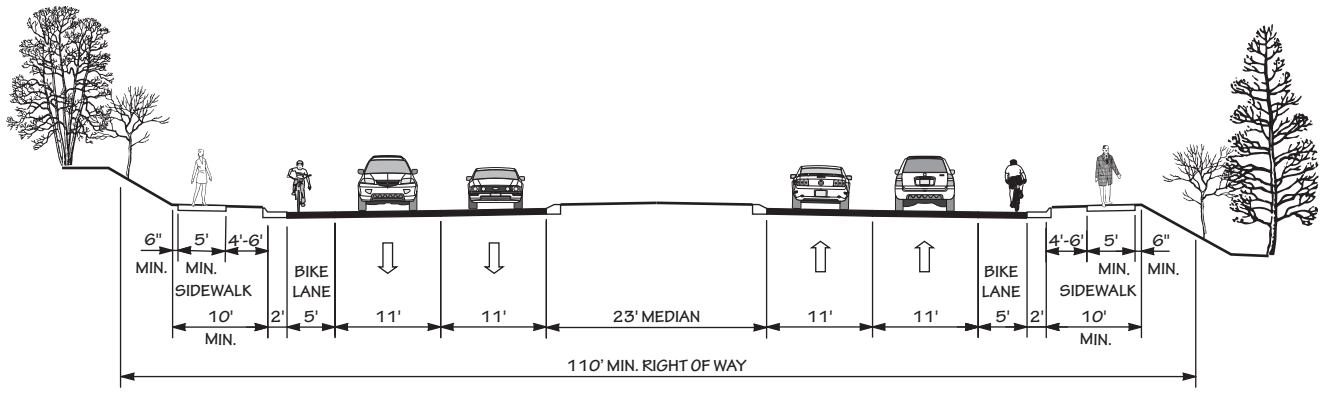
4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

"Typical" Highway Cross Sections

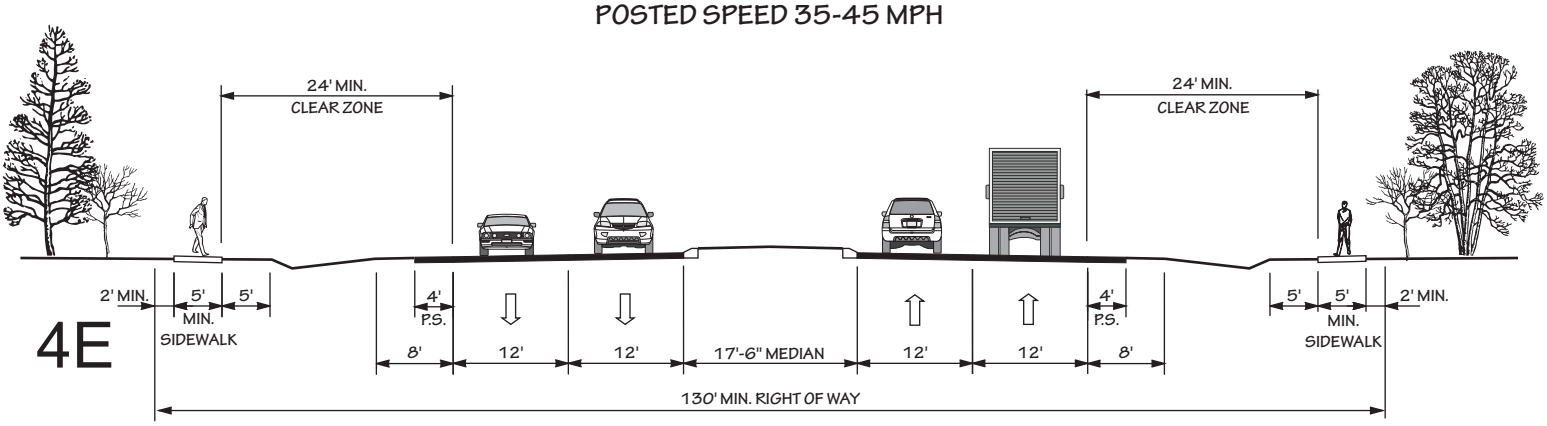
4D



4 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES AND SIDEWALKS

POSTED SPEED 35-45 MPH

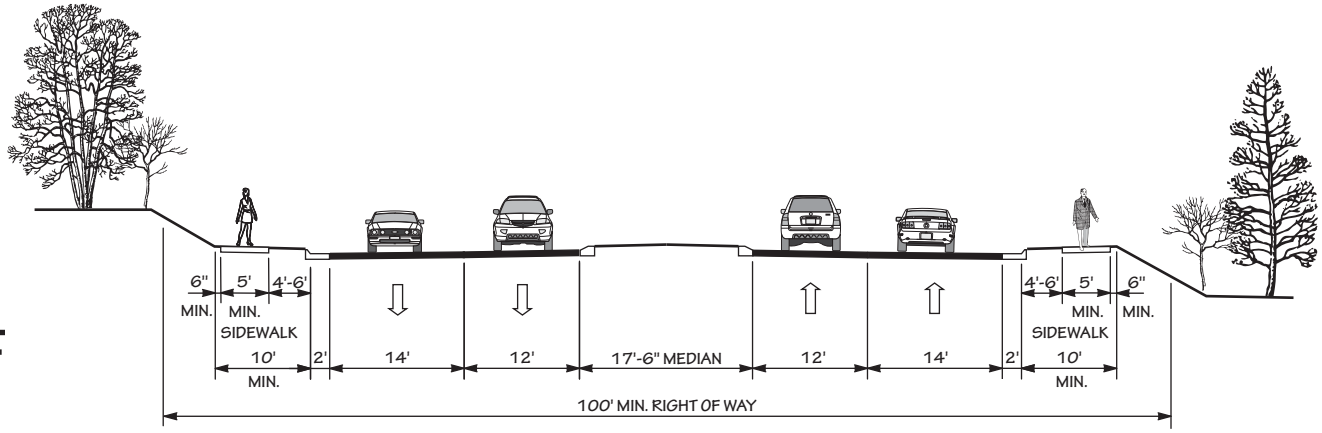
4E



4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH PAVED SHOULDERS AND SIDEWALKS

POSTED SPEED 35-55 MPH

4F



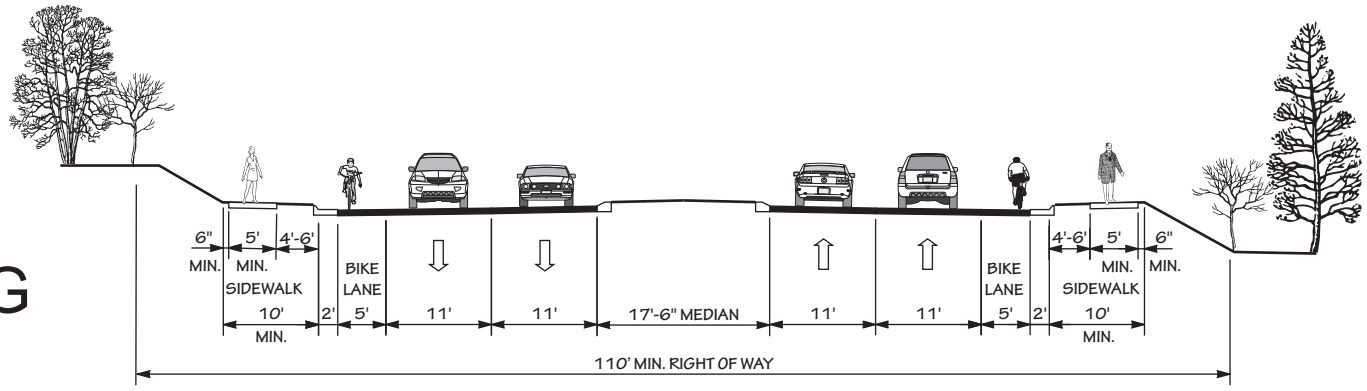
4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS

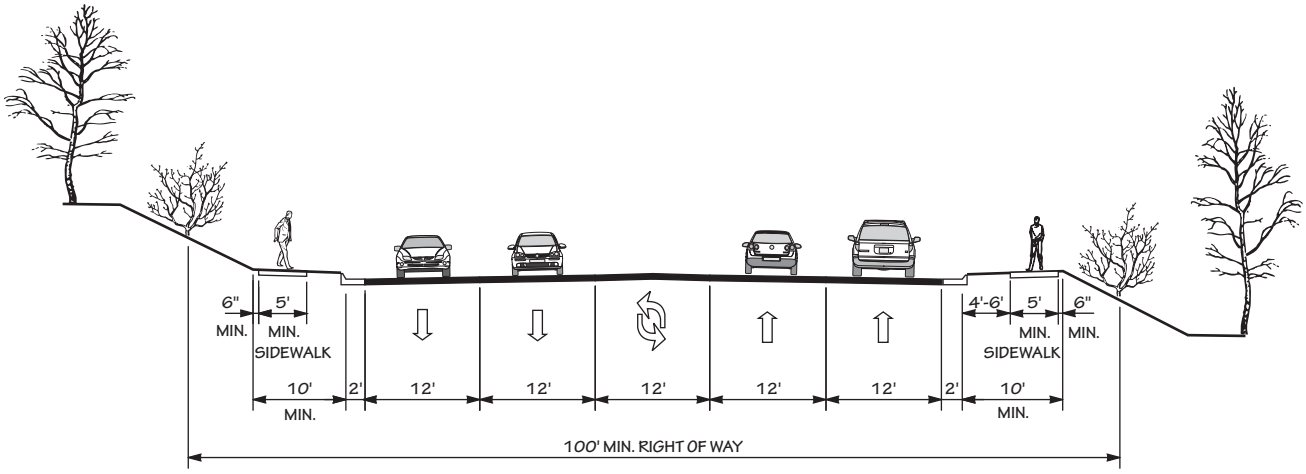
4G



4 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, BIKE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH

5A

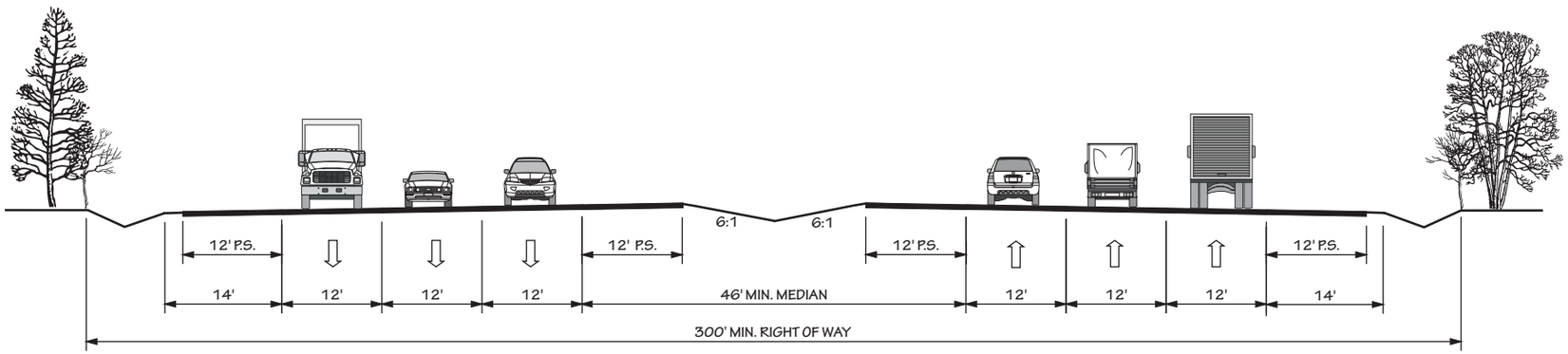


4 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, AND SIDEWALKS

POSTED SPEED 35-45 MPH

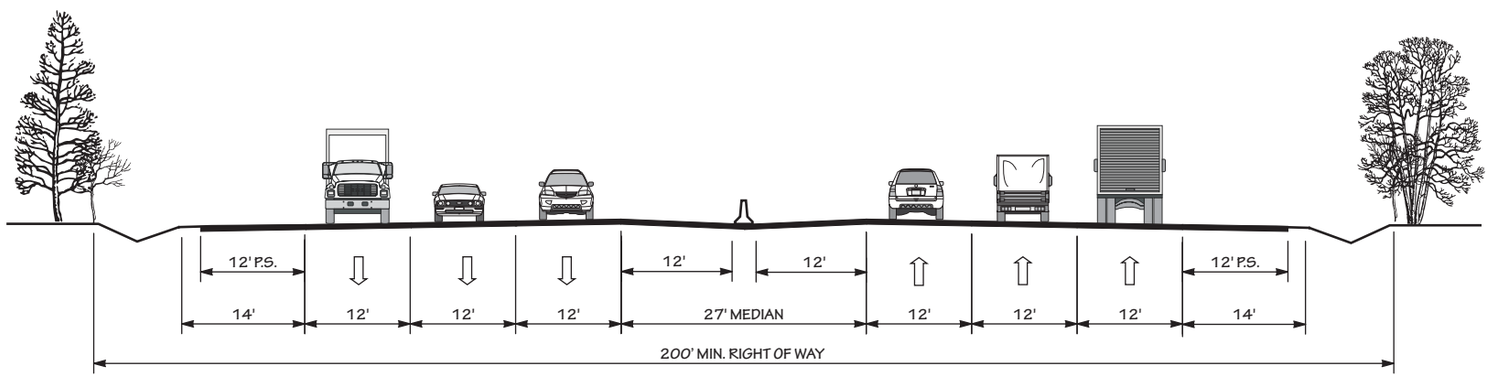
Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS



6A 6 LANE DIVIDED (46' DEPRESSED MEDIAN) WITH PAVED SHOULDERS

POSTED SPEED 45-70 MPH

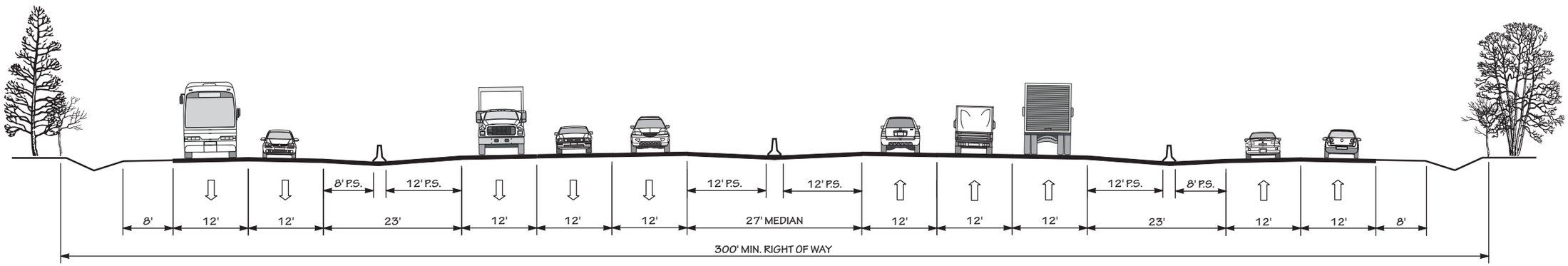


6B 6 LANE DIVIDED (27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS

POSTED SPEED 55-70 MPH

Revised 05/05/2014

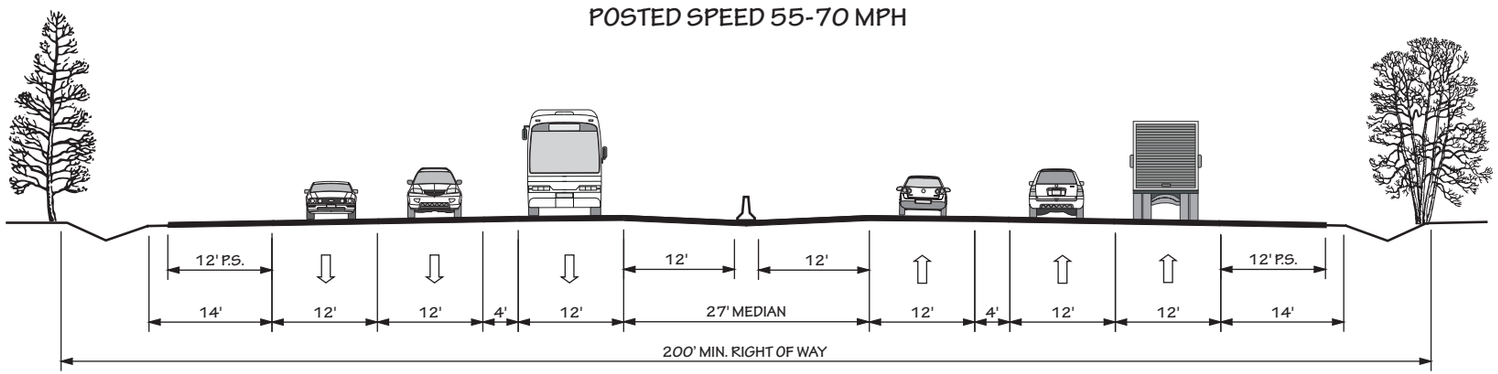
"TYPICAL" HIGHWAY CROSS SECTIONS



6C

6 LANE FREEWAY (27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS AND 2 LANE ONE-WAY SERVICE ROADS EACH SIDE

POSTED SPEED 55-70 MPH



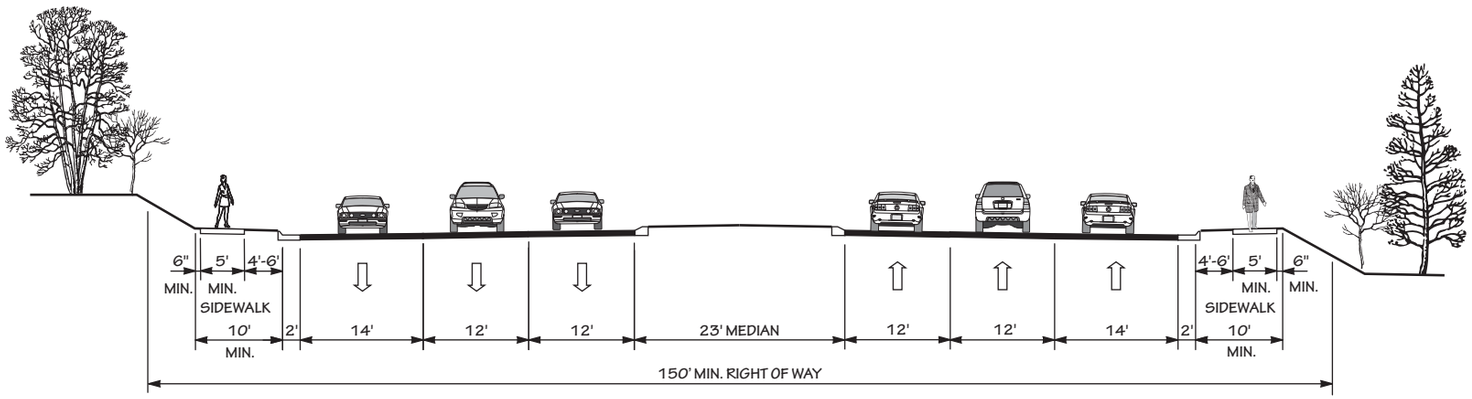
6D

6 LANE FREEWAY (4 GENERAL PURPOSE LANES, 2 MANAGED LANES, AND 27' MEDIAN WITH JERSEY BARRIER) WITH PAVED SHOULDERS

POSTED SPEED 55-70 MPH

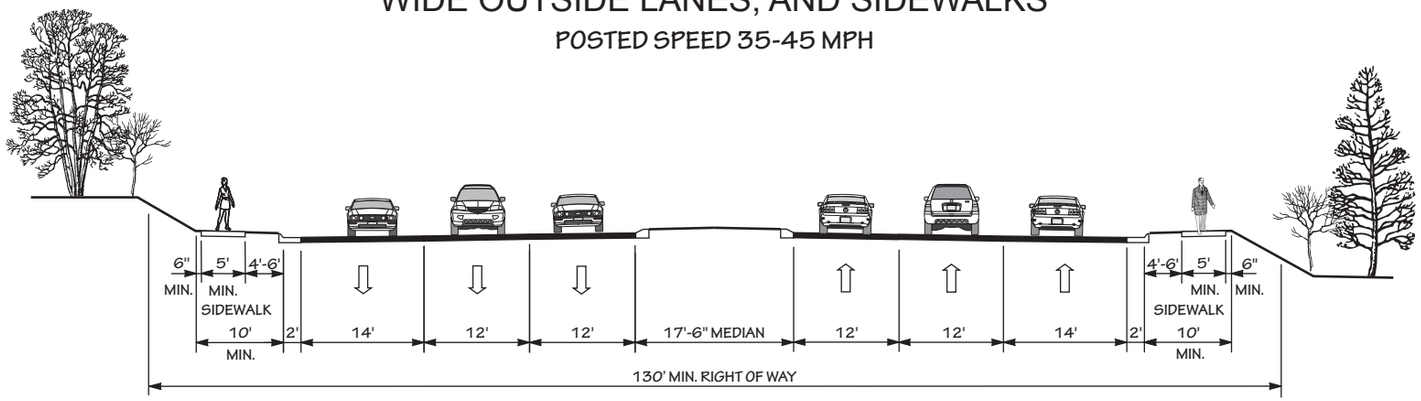
Revised 05/05/2014

"TYPICAL" HIGHWAY CROSS SECTIONS



6E 6 LANE DIVIDED (23' RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH



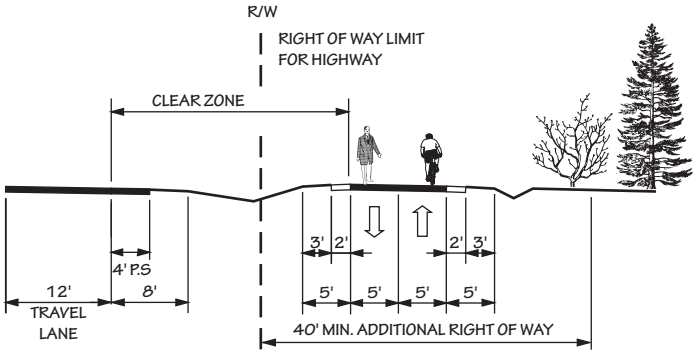
6F 6 LANE DIVIDED (17'-6" RAISED MEDIAN) WITH CURB & GUTTER, WIDE OUTSIDE LANES, AND SIDEWALKS

POSTED SPEED 35-45 MPH

Revised 05/05/2014

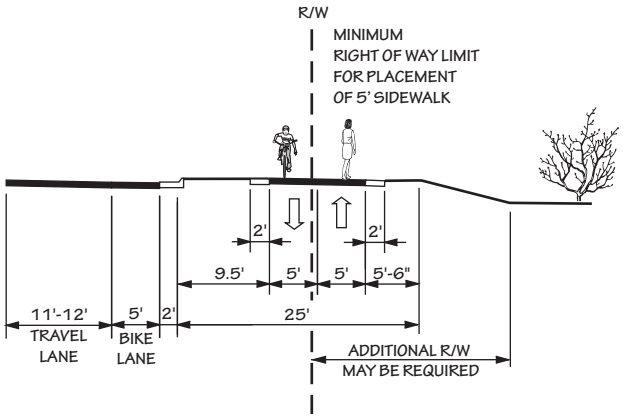
"TYPICAL" HIGHWAY CROSS SECTIONS

M A



MULTI - USE PATH
ADJACENT TO RIGHT OF WAY OR SEPARATE PATHWAY

M B



MULTI - USE PATH ADJACENT TO CURB AND GUTTER

Revised 05/05/2014

Appendix E
Level of Service Definitions

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

Design requirements for roadways vary according to the desired capacity and level of service. LOS D indicates "practical capacity" of a roadway, or the capacity at which the public begins to express dissatisfaction. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C on new facilities. The six levels of service are described below and illustrated in Figure 11.

- **LOS A**: Describes free-flow operations. Free Flow Speed (FFS) prevails and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.
- **LOS B**: Represents reasonably free-flow operations, and FFS is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents and point breakdowns are still easily absorbed.
- **LOS C**: Provides for flow with speeds near the FFS. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.
- **LOS D**: The level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
- **LOS E**: Describes operation at capacity. Operations at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.
- **LOS F**: Describes breakdown, or unstable flow. Such conditions exist within queues forming behind bottlenecks.

Figure 11 - Level of Service Illustrations

Source: 2010 Highway Capacity Manual, Exhibit 11-4

Appendix F
Bridge Deficiency Assessment

The Transportation Improvement Program (TIP) development process for bridge projects involves consideration of several evaluation methods in order to prioritize needed improvements. A sufficiency index is used to determine whether a bridge is sufficient to remain in service, or to what extent it is deficient. The index is a percentage in which 100 percent represents an entirely sufficient bridge and zero represents an entirely insufficient or deficient bridge. Factors evaluated in calculating the index are listed below.

- structural adequacy and safety
- serviceability and functional obsolescence
- essentiality for public use
- type of structure
- traffic safety features

The NCDOT Structures Management Unit inspects all bridges in North Carolina at least once every two years. A sufficiency rating for each bridge is calculated and establishes the eligibility and priority for replacement. Bridges having the highest priority are replaced as federal and state funds become available.

A bridge is considered deficient if it is either structurally deficient (SD) or functionally obsolete (FO). Structurally deficient means there are elements of the bridge that need to be monitored and/or repaired. The fact that a bridge is "structurally deficient" does not imply that it is likely to collapse or that it is unsafe. It means the bridge must be monitored, inspected and repaired/replaced at an appropriate time to maintain its structural integrity. A functionally obsolete bridge is one that was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand or to meet the current geometric standards, or those that may be occasionally flooded.

A bridge must be classified as deficient in order to qualify for federal replacement funds. Additionally, the sufficiency rating must be less than 50% to qualify for replacement or less than 80% to qualify for rehabilitation under federal funding. Deficient bridges located on roads evaluated as a part of the CTP are listed in Table 3. For more details on deficient bridges within the planning area, contact the Structures Management Unit using the information in Appendix A.

Table 3 - Deficient Bridges

Bridge ID	Facility	Feature	Condition	Local ID
8	SR 1403 (Atty John Peterson Rd/Highland Ave/Roan Rd)	N.Toe River, N&S RR	SD & FO	MITC0007-H
14	NC 226	Cane Creek	FO	
16	US19E	Clinchfield RR, N Toe River	FO	MITC0001-B
19	NC 226	Cub Creek	FO	MITC0004-H
29	NC 226	Big Rock Creek	FO	MITC0004-H
32	SR 1260 (South Mitchell Ave)	Cane Creek	FO	MITC0001-P
44	SR 1211 (Cane Creek Rd/N Mitchell Ave)	Cane Creek	SD	
46	SR 1211 (Cane Creek Rd/N Mitchell Ave)	Cane Creek	SD & FO	
55	SR 1217 (Green Young Cem Rd/McKinney Cove Rd/Redwood Rd)	Young Cove Cree	SD & FO	
61	SR 1172 (Snow Creek Rd)	Snow Creek	FO	
70	SR 1121 (Altapass Hwy)	Roses Creek	SO	MITC0007-H
87	SR 1330 (Hughes Gap Rd)	Creek	FO	
93	SR 1330 (Hughes Gap Rd)	Creek	FO	
140	NC 197	Big Rock Creek	FO	MITC0002-B
154	SR 1188 (Dale Hill Rd)	Cane Creek	FO	
176	SR 1137 (Gouges Creek Rd)	Gouges Creek	FO	
201	SR 1141 (Cabin Rd/Gouges Creek Rd)	Beaver Creek	FO	
207	SR 1106 (Dale Rd)	Branch Grassy Creek	FO	
213	SR 1197 (Bear Creek Rd)	Bear Creek	FO	
214	SR 1235 (Old US 19E)	Brushy Creek	FO	
215	NC 197	Clinchfield RR	FO	
217	SR 1305 (Whitson Branch Rd)	Clinchfield RR	FO	MITC0013-H

Federal Bridges

218	Blue Ridge Pkwy	SR 1002 (Crabtree Rd)	FO
219	Blue Ridge Pkwy	SR 1106 (Dale Rd/Lynn Gap Rd)	FO
221	Blue Ridge Pkwy	SR 1100 (Chestnut Grove Rd/McKinney Mine Rd)	FO

Other Bridges

222	Pedestrian Walkway off Whitson Branch Rd (SR 1305)	North Toe River	SD & FO

Data received 5/21/2019 from NCDOT Structure Locations, 2nd Quarter 2019

Appendix G
Socio-Economic Data Forecasting Methodology

In the development of the Mitchell County CTP, existing and anticipated deficiencies were determined through an analysis of the transportation system looking at both current and future travel patterns. Travel demand was projected from 2016 to 2045 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1990 to 2015. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. For this CTP, the 2016 ***Mitchell Works: An Economic Development Strategic Plan*** for Mitchell County, NC was used and is illustrated in Figures 12 and 13, respectively.

The CTP Steering Committee worked with NCDOT to estimate population growth, economic development potential, and land use trends to determine the potential impacts on the future transportation system in 2045. This data was endorsed by the Mitchell County Commissioners (November 19, 2018), Bakersville Town Council (October 29, 2018), and Spruce Pine Town Council (November 26, 2018). Below is a description of the methodology used in the analysis.

Population

Population trends were estimated using available data from the Office of State Budget and Management (OSBM). In addition, population trends were estimated by calculating the annual growth rate (AGR) for the previous 40 years of census data (1970-2010) and using that historical AGR value to project into the future as shown in Table 4. The 2045 population was projected by applying the same growth rate as 2025 to 2030. For those years, an annual growth rate of 0.4% AGR was used in Mitchell County.

Table 4 – Population Data

Year	Population – Mitchell County	Population - Bakersville	Population Spruce Pine	Population North Carolina
1970	13,447	409	2,333	5,084,411
1980	14,428	373	2,282	5,880,095
1990	14,433	332	2,010	6,632,448
2000	15,687	357	2,030	8,046,813
2010	15,579	464	2,175	9,535,483
2016	15,266	470	2,235	10,155,942
2020	15,191	NA	NA	10,619,432
2025	15,169	NA	NA	11,192,454
2030	15,163	NA	NA	11,759,744
2035	15,164	NA	NA	12,327,153
2037	15,164	NA	NA	12,553,271
2045***	17,100			

http://data.osbm.state.nc.us/pls/linc/dyn_linc_main.show; Accessed on 8/27/2018
*Extrapolated by NCDOT using 0.4% AGR from 2016

Using the known data, a growth rate was determined with the following formula:

$F = P (1+r)^N$ where:

F = Future Population P = Present Population
r = Rate of Growth N = Number of Years

Using this formula, historic growth rates were established as shown in below:

Table 5 – Mitchell County and State Growth Rates

Growth Rates Per Year	North Carolina	Mitchell County	Bakersville	Spruce Pine
1990-2000	1.95%	0.84%	0.73%	0.10%
1990-2010	1.83%	0.38%	1.69%	0.40%
1990-2016	1.65%	0.22%	1.35%	0.41%
1990-2037	1.37%	0.11%	NA	NA
2000-2010	1.71%	-0.07%	2.66%	0.69%
2000-2016	1.47%	-0.17%	1.73%	0.60%
2000-2037	1.21%	-0.09%	NA	NA
2010-2016	1.06%	-0.34%	0.21%	0.45%
2010-2037	1.02%	-0.10%	NA	NA
2016-2037	1.01%	-0.03%	NA	NA

Table 6 – High Country RPO County Growth Rates Comparison

County	1980 Census	1990 Census	2000 Census	2010 Census	% CAAGR* (1970 - 2010)	% CAAGR (1980 - 2010)	% CAAGR (1990 - 2010)	% CAAGR (2000 - 2010)
Avery	14,409	14,867	17,167	17,797	0.86%	0.71%	0.90%	0.36%
McDowell	35,135	35,681	42,134	44,996	0.96%	0.83%	1.17%	0.66%
Mitchell	**14,428**	**14,433**	**15,687**	**15,579**	**0.37%**	**0.26%**	**0.38%**	**-0.07%**
Watauga	31,666	36,952	42,695	51,079	1.97%	1.61%	1.63%	1.81%
Ashe	22,325	22,209	24,384	27,281	0.83%	0.67%	1.03%	1.13%
Alleghany	9,587	9,590	10,677	11,155	0.79%	0.51%	0.76%	0.44%
Wilkes	58,657	59,393	65,632	69,340	0.84%	0.56%	0.78%	0.55%
Yancey	14,934	15,419	17,774	17,818	0.86%	0.59%	0.73%	0.02%
				Average:	0.94%	0.72%	0.92%	
				Average (minus Watauga):	0.79%	0.59%	0.82%	

*CAAGR (Compounded Average Annual Growth Rate)

Employment

Future employment conditions within Mitchell County were approved by the CTP Steering Committee. This included approximate locations and intensity for proposed employment centers. Any anticipated heavy demand on the future transportation system as a result of these proposals is accounted for in projected traffic volumes. Countywide 2045 employment totals were based on maintaining the same population-employment ratio as present in 2016.

Table 7 – Employment Data

Year	1990	2000	2010	2015	2016	2017
Employment - Mitchell County	6,478	7,448	5,964	5,879	5,803	5,789

https://www.bls.gov/lau/ accessed on 8/27/2018

Table 8 – Mitchell County Population to Employment Ratio

Year	Mitchell County Population	Mitchell County Employment	Employment/Population Ratio
1990	14,433	6,478	0.45
2000	15,687	7,448	0.47
2010	15,579	5,964	0.38
2015	15,229	5,879	0.39
2016	15,266	5,803	0.38
2045	17,100	6,840	0.40

Current Land Use

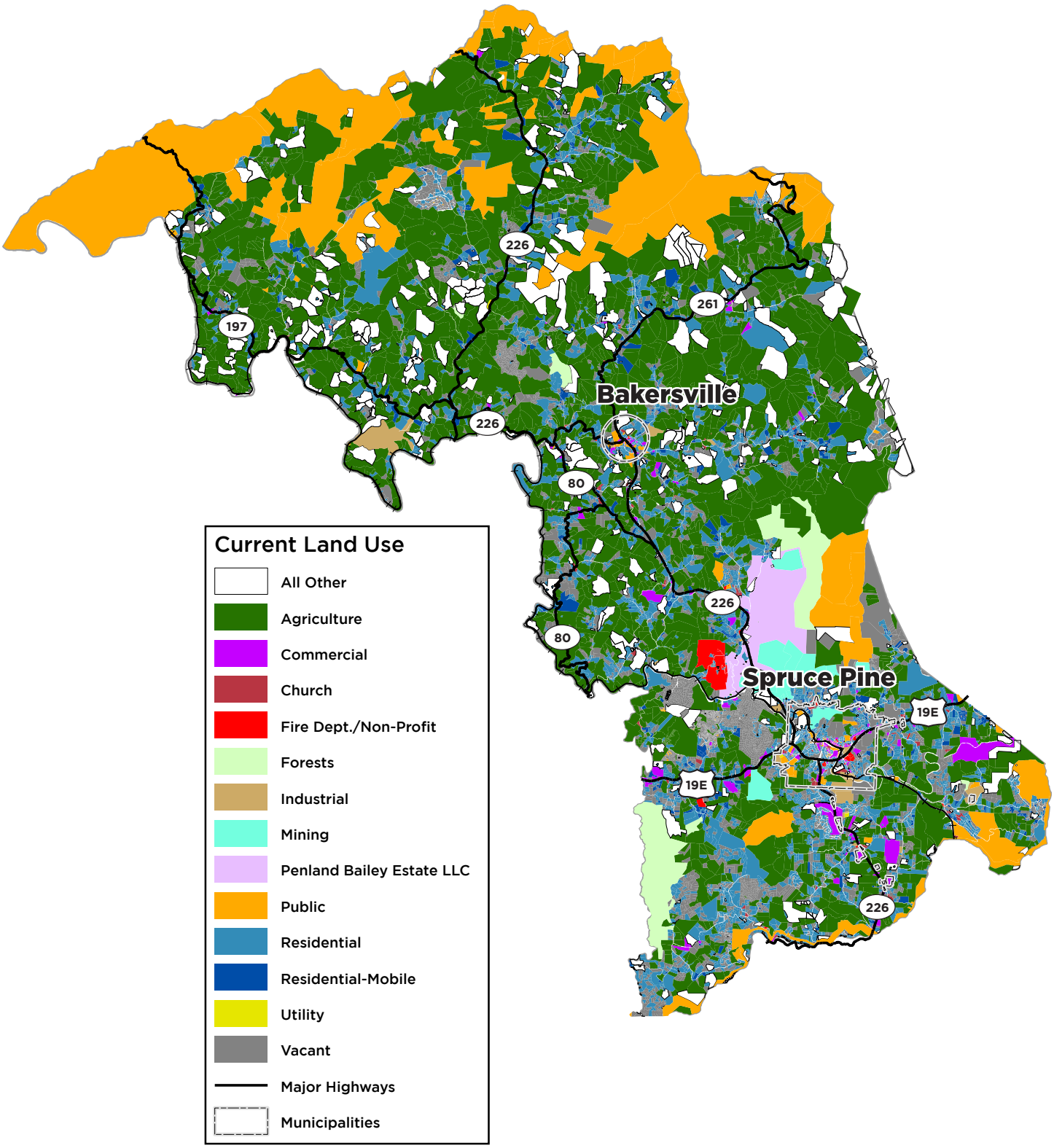


FIGURE 12

Map 14

Anticipated Growth Areas

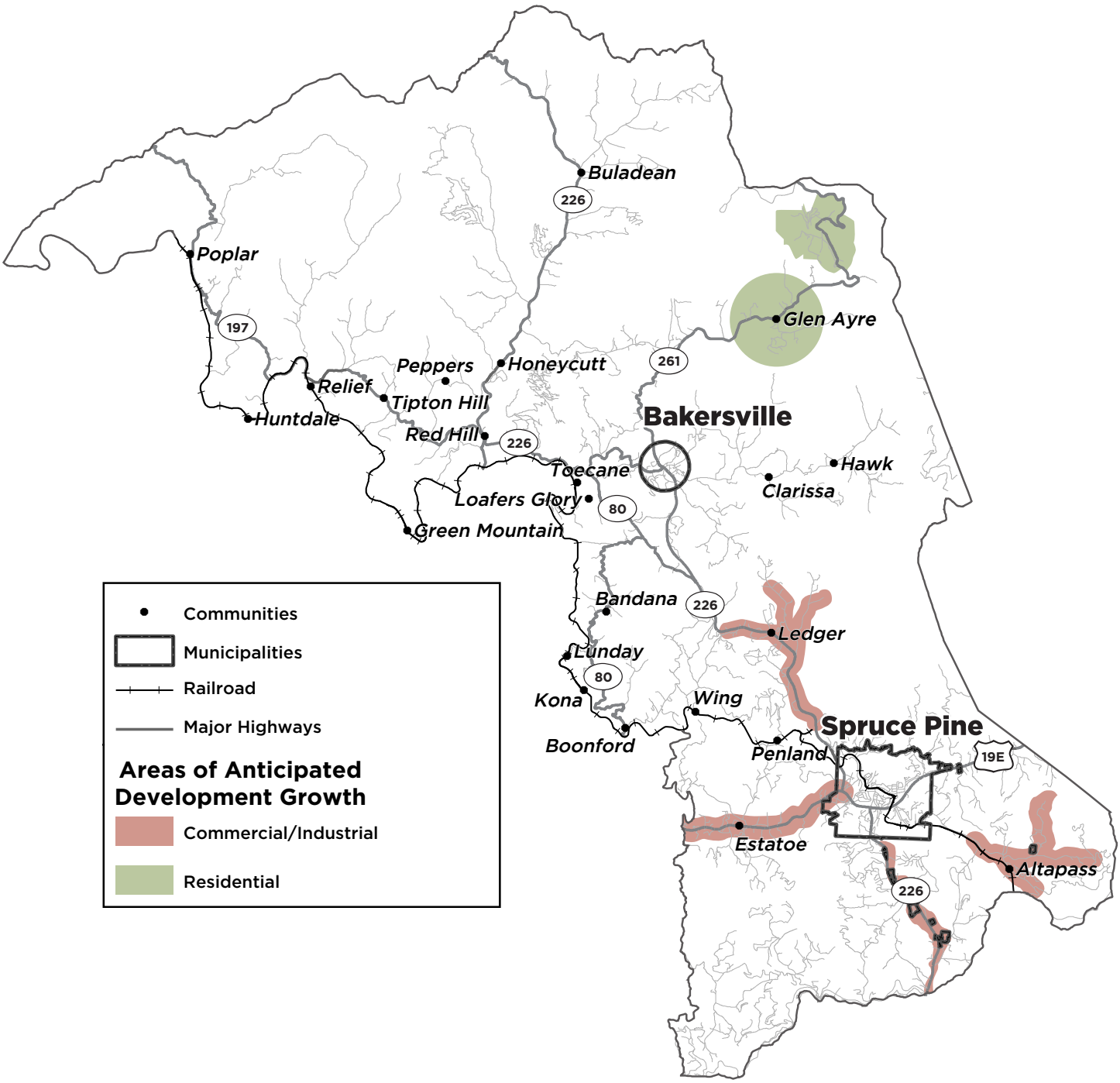


FIGURE 13

Appendix H
Public Involvement

This appendix documents the public involvement process and includes a listing of steering committee members, the goals and objectives survey results, and public meetings held throughout the development of the Comprehensive Transportation Plan (CTP).

List of CTP Steering Committee Members

At the start of a CTP study, a committee is formed that is comprised of individuals who represent the various needs, issues and populations of the community. These representatives are responsible for capturing the transportation needs of the community relative to all modes of transportation and for guiding the development of the CTP. A listing of steering committee members for the Mitchell County CTP is given below.

- John Boyd, Mayland Community College
- Richard Canipe, Town of Spruce Pine
- Mickey Duvall, Mitchell County Economic Development Commission (EDC)
- Jeff Edwards, Mitchell Emergency Medical Services (EMS)
- Jessica Farley, Toe River Health District
- Chris Gentry, The Quartz Corporation
- Vern Grindstaff, Mitchell County Commissioner
- Darla Harding, Town of Spruce Pine
- Steve Miller, Hidden Creek Contractor
- Chuck Shelton, Mountain Community Health Partnership
- Jeff Vance, Mitchell Coop Extension
- Charles Vines, Town of Bakersville
- Mark Woody, Mitchell County Schools

Resource Attendees:

- Kathy Young, Mitchell County Manager
- Diane Creek, Toe River Health District
- Drew Brown, Toe River Health District
- Sheila Blalock, Mitchell County Transportation
- Ricky Duncan, Mitchell County Transportation
- Steve Wilson, Sibelco
- Mary Vogel, Cyclist
- Wesley Barker, NC Department of Commerce
- Stephen Sparks, NCDOT Division 13
- Hannah Cook, NCDOT Division 13
- Pam Cook, NCDOT Transportation Planning Division
- David Graham, High Country Rural Planning Organization (RPO)

CTP Vision, Goals, and Objectives

The CTP vision, goals and objectives are developed as part of the public involvement process and help identify how people within an area would like to develop the transportation system (all modes). The CTP committee develops the draft vision, goals, and objectives which are further refined with input from citizens via the CTP Goals & Objectives (G&O) survey. These products become the official guide for the CTP being developed.

The vision statement, goals and objectives reflect what is important for the area and defines any local preferences concerning the transportation system and community assets. The vision statement is the framework for the area's strategic planning. Goals and objectives document how the area plans to fulfill its vision. The goals break down the vision statement into themes, while the objectives document how the area plans to make progress towards achieving each goal.

Mitchell County desires a safe, multi-modal transportation system that connects the county to the surrounding region, supports healthy lifestyles, local industries and businesses, compliments economic and community development as well as allows users to enjoy the beautiful natural environment of the county complimented by wayfinding signage.

Goals:

1. The transportation system connects people in Mitchell County to the surrounding region, e.g. Asheville, Boone, Marion, Johnson City, interstates, regional medical services, and regional airports.

2. The transportation system connects auto, bicycle, and pedestrian users to key destinations:
    - Three Peaks: Mt. Mitchell, Roan Mountain, and Grandfather Mountain
    - Mayland Community College
    - Schools
    - Local parks
    - Appalachian Trail
    - Penland School of Crafts
    - Recreational fishing streams
    - Toe River
    - Rafting
    - Camping in north and south of county
    - Visitor's Museum (Mineral Museum)
    - Blue Ridge Parkway
    - Toe River Arts and Crafts Open House throughout the county

3. The transportation system supports other planning efforts and growth efforts in Mitchell County
    a) Objective: Provide wayfinding signage throughout the county
    b) Objective: Provide gateway signs for county and towns along 4 major routes into county
    c) Objective: Signage for entrance to an industrial park along Altapass Highway

4. The transportation system is safe
    a) Objective: Separate bicyclists and pedestrians from auto traffic when possible, especially on steep inclines along roadways
    b) Objective: Keep roads safe for motorcycle and bicycle tourists (gravel)
    c) Objective: NC 226 have separate facilities for cyclists and pedestrians
    d) Objective: Provide sidewalks to schools
    e) Objective: Provide accommodations for truck traffic

5. The transportation system supports healthy lifestyles
    a) Objective: Individuals have choices on mode of transportation to use, e.g. auto, bicycle, walking
    b) Objective: Provide sidewalks within town limits

6. The transportation system provides a means for individuals to enjoy the natural beauty of the area and does not take away from the natural beauty.
    a) Objective: Wayfinding signage should not deter from the natural surroundings

NCDOT Mission:
Connecting people, products and places safely and efficeintly with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

NCDOT Goals:
- Make transportation safer
- Provide GREAT customer service
- Deliver and maintain our infrastructure effectively and efficiently
- Improve the reliability and connectivity of the transportation system
- Promote economic growth through better use of our infrastructure
- Make our organization a great place to work

Mitchell County Comprehensive Transportation Plan (CTP) Public Survey

A CTP survey is a public involvement technique used to help identify an area's perception of transportation-related issues, identify concerns that should be addressed during the development of a CTP, and to help develop a vision for the community. The CTP survey is most appropriately implemented at the beginning of the transportation planning study. In addition to determining up front what is important to the citizens of the planning area, initiating the CTP survey early in the planning process allows the survey to serve as an introduction to the transportation planning process. The survey includes a brief introduction explaining what a transportation plan is and how the area can benefit from having one. The survey also includes a wide variety of questions that is tailored to each area as appropriate.

Mitchell County CTP Public Survey was made available in English and Spanish, online and hard copy. There were 522 responses with 23 of the surveys being completed in Spanish. There was a fairly even distribution between all age groups (Under 16, 16-25, 26-35, 36-45, 46-55, 56-65, and Over 65). There were 13% of responders who indicated that there was someone with a disability in their household. Two percent of households had no vehicle, and 4% said someone in the household is unemployed and transportation is an issue to finding a job. The majority of responders lived in Spruce Pine, Bakersville or the Grassy Creek area. There were also 10% of responders who indicated they lived outside Mitchell County including Tennessee, Avery County, Yancey County and Asheville. The entire survey with responses can be found online[2]. Eight transportation related questions were asked on the survey. A summary of the Mitchell County CTP survey is given below.

1. **Based on your opinion, please rank the following transportation goals for Mitchell County from 1 (most important) to 5 (least Important).**
   Below are the survey results:
   1) Safety (Keep all travelers safe no matter the mode of transportation)
   2) Connectivity (Connect Mitchell County to key local and regional destinations e.g. schools, parks, Mayland Community College, Mt. Mitchell, Roan Mountain, Grandfather Mountain, and health care facilities)
   3) Economic Development (Invest in projects that spur economic growth and create jobs)
   4) Preservation (Take care of the transportation system and service we enjoy today while preserving the existing natural beauty of the region)
   5) Choices (Provide transportation mode choices: public transportation/transit, bicycle, pedestrian, auto)

2. **Based on your opinion, rank the transportation needs for Mitchell County from most important (1) to least important (7).**
   Below are the survey results:
   1) Increase public transportation (transit options)

[2] https://connect.ncdot.gov/projects/planning/Pages/CTP-Details.aspx?study_id=Mitchell County

2) System Reliability (Travel time between destinations does not vary significantly at any time)
3) Increased sidewalks available in Spruce Pine and Bakersville town limits
4) Freight Movement (Improve the connectivity and mobility of freight through the county, i.e. store delivery trucks and industry trucks)
5) Congestion Reduction (Improve traffic flow on the existing transportation system)
6) Preserve the Existing System (Take care of the existing transportation system and services – new additions are not needed)
7) Provide separated bicycle lanes for cyclists

3. What are key destinations you want to be able to reach?

Destinations listed included Spruce Pine, Bakersville, schools, jobs within and outside of Mitchell County, medical facilities within and outside of Mitchell County, shopping, parks/recreation facilities, major 4-lane highways, Blue Ridge Parkway, Roan Mountain, Appalachian Trail, Penland School of Crafts, and airports (Asheville, Charlotte, and Johnson City, TN)

4. If your destinations are outside of Mitchell County, please select the destination/county(ies).

Asheville area, Marion, Avery County, Yancey County and Watauga County were the primary destinations outside of Mitchell County listed. In addition, airports, medical facilities and major interstates (I-40, I-26, and I-85) were listed again.

5. Is there a specific transportation issue you would like the Mitchell County CTP Steering Committee to know about?

The entire list can be found online, but top issues are listed below:

- The need for more and improved public transportation
- The need to plan for aging population
- Narrow, two lane roads
- The significant amount of truck traffic on many of the roads
- The lack of standard two-lane width with shoulders and guard rails if needed.
- Congestion in the Grassy Creek, NC 226, area
- The need for bicycle lanes and paths throughout the county
- Pedestrian needs (sidewalks and crosswalks)
- Park and ride lots needed

6. Are there any areas in Mitchell County you feel are congested? Is it always or just certain times of the day, week, or year?

The entire list can be found online, but top areas are listed below:

- US 19-E
- NC 226 especially in the Grassy Creek area
- Burleson Hill
- Bakersville, especially the fourth of July
- School areas - Roads that provide access to schools during school year
- Downtown streets

7. **Are there areas in which you have transportation safety concerns?**
   The entire list can be found online, but top areas are listed below:
   - US 19-E (especially light to Burleson Hill and Ledger School Rd)
   - NC 226 (especially Grassy Creek area)
   - Trucks on Mine Creek Road
   - Cox's Creek
   - All the access roads to schools (for auto, pedestrian, and cyclists)
   - Need more sidewalks or wider shoulders for walkers, runners, and cyclists

8. **Are there specific locations you would like to see pedestrian or bicycle improvements?**
   The entire list can be found online, but top areas are listed below:
   - US 19-E
   - NC 226
   - Cane Creek Road
   - Mitchell Avenue to schools
   - NC 80 (bicycle)
   - Ledger School Road to the high school
   - Roads near all schools, parks, medical buildings, and major shopping areas

Public Meetings

Press releases for the public meetings were provided in English and Spanish. Brief summaries of the public meetings held within Mitchell County are provided below:

- **Buladean Community Foundation, April 29, 2019 from 5PM – 7PM**
  Six people attended. No comments were received.

- **Bowman Middle School (410 N. Mitchell Ave., Bakersville, NC 28705) April 30, 2019 from 5PM – 7PM**
  There were three people who attended the meeting. No comments were received.

- **Harris Middle School (121 Harris Street Spruce Pine, NC 28777) May 1, 2019 from 5PM – 7PM**
  There were seven people who attended the meeting. A Spanish interpreter was also provided at this meeting. Two comments were received

  1. Add sidewalks: a) Extend sidewalk from Altapass Hwy (SR 1121) to Blue Ridge Regional Hospital and b) Extend recommended sidewalk along Altapass Hwy to Hannah Lane.
  2. While Mitchell County Public Transportation does an incredible job, there is a huge concern in Mitchell County about continuing to have sufficient funding for public transportation as the needs of the citizens continue to grow

> particularly as some services are no longer available at Blue Ridge Regional Hospital forcing residents to find transportation to Boone, Marion, Johnson City (TN), or Asheville. An older person with chronic illness has a hard time sitting on a bus from early morning until mid to late afternoon during a roundtrip to see a doctor. Similar concerns are being expressed by pregnant women who may also have young children and therefore have a hard time with long trips. (This comment was shared with Mitchell County Transit Director.)

In addition, a citizen attended the January CTP Steering Committee meeting and offered the following suggestion:

> Add a new facility from NC 226 in the Grassy Creek area to US 19E between Summit Avenue (SR 1297) and Altapass Hwy (SR 1121) to alleviate traffic along NC 226 in the Grassy Creek area. This alternative was deemed to have significant environmental impacts (potentially crossing the North Toe River, Grassy Creek, Smith Branch, and Cathis Creek). In addition, Halltown Road (SR 1114) provides a similar alternative. Much of the traffic along NC 226 is going to destinations along NC 226.

The public was also provided the opportunity to speak at the following meetings when local boards considered the plan for adoption:

July 29, 2019 at the Bakersville Town Council meeting; September 3, 2019 at the Mitchell County Commissioners meeting; and September 9, 2019 at the Spruce Pine Town Council meeting.