



2012 Swain County Comprehensive Transportation Plan

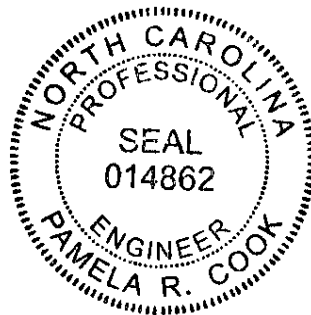


2012 Swain County Comprehensive Transportation Plan

Prepared by: Jessica McClure, EI, Project Engineer
Pam Cook, PE, Mountains Planning Group Supervisor
Transportation Planning Branch
N.C. Department of Transportation

In Cooperation with: Swain County
Town of Bryson City
Southwestern Rural Planning Organization

Published: February 2013



Pam R. Cook

Pam R. Cook, PE
Mountains Planning Group Supervisor

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Executive Summary

In June of 2010, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and Swain County initiated a study to cooperatively develop the Swain County Comprehensive Transportation Plan (CTP), which includes Bryson City. This is a long range multi-modal transportation plan that covers transportation needs through 2035. 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. Refer to Figure 1 for the CTP maps, which were mutually adopted in 2012. 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 Swain County, Bryson City, and NCDOT. Refer to Chapter 2 for information on the implementation process.

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

- **US 74:** Widen to a four lane divided expressway with bicycle accommodations from US 19/NC 28 to 1700 feet east of the Little Tennessee River in accordance with NCDOT's Strategic Highway Corridor (SHC) Vision Plan.
- **US 441:** Widen to a four lane divided boulevard from Jackson County to the US 19/US 441 split in accordance with NCDOT's SHC Vision Plan.
- **Park & Ride Lot:** Construct a new, paved, park-and-ride lot at the intersection of SR 1168 (Hyatt Creek Road) and US 74 to serve locals and commuters.

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Adopted by:
 Town of Bryson City
 Date: June 4, 2012

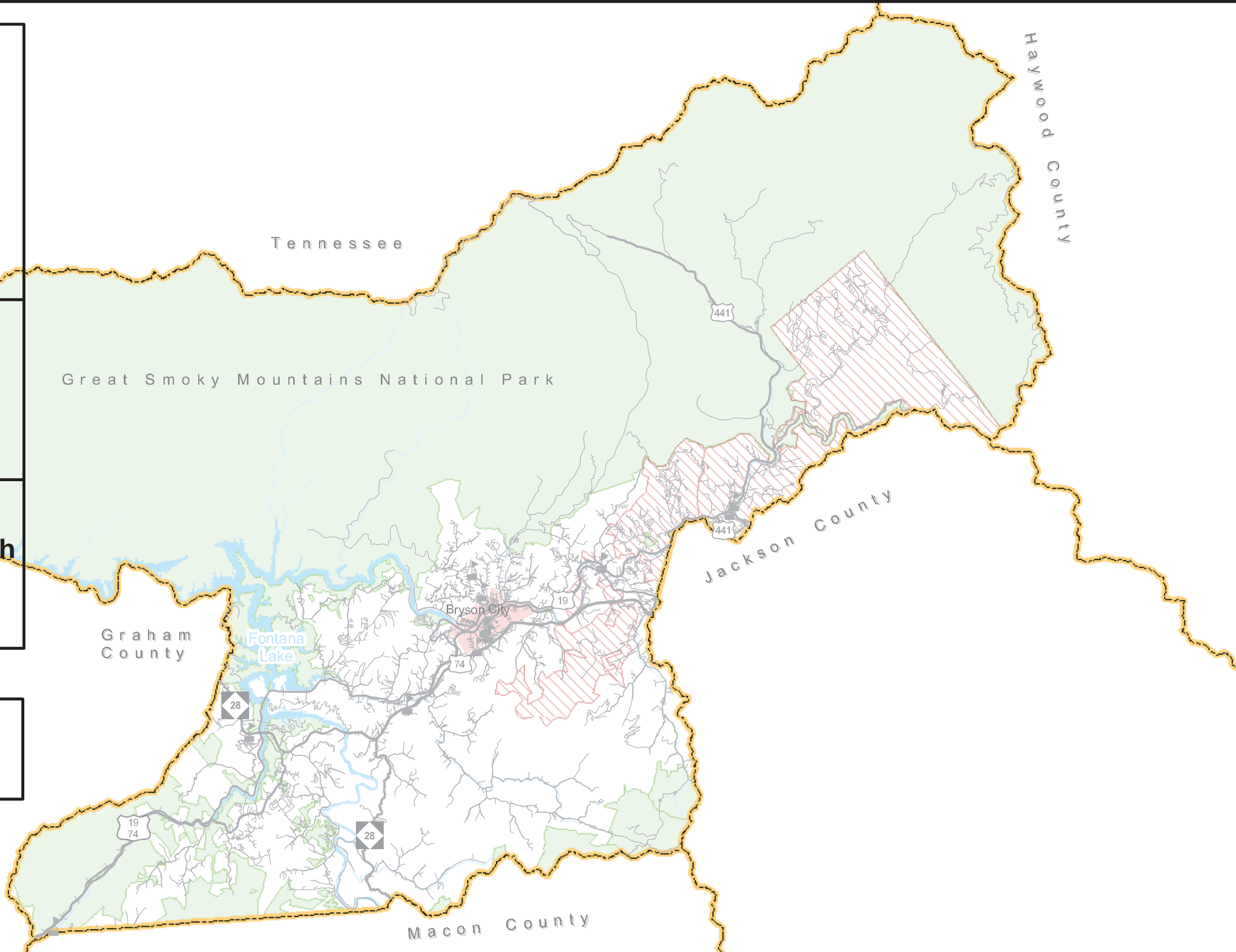
Swain County
 Date: May 22, 2012

NCDOT
 Date: September 6, 2012

Endorsed by:
 Southwestern RPO
 Date: May 15, 2012

Recommended by:
 Transportation Planning Branch
 Date: June 5, 2012

NOTES:



- Sheet 1 **Adoption Sheet**
- Sheet 2 **Highway Map**
- Sheet 3 **Public Transportation and Rail Map**
- Sheet 4 **Bicycle Map**
- Sheet 5 **Pedestrian Map**

Legend

	Roads		School
	Railroads		Municipal Boundary
	Rivers and Streams		County Boundary
	Bodies of Water		National Park
	Eastern Band of Cherokee Indians Boundary		

0 0.5 1 2 3 4 Miles

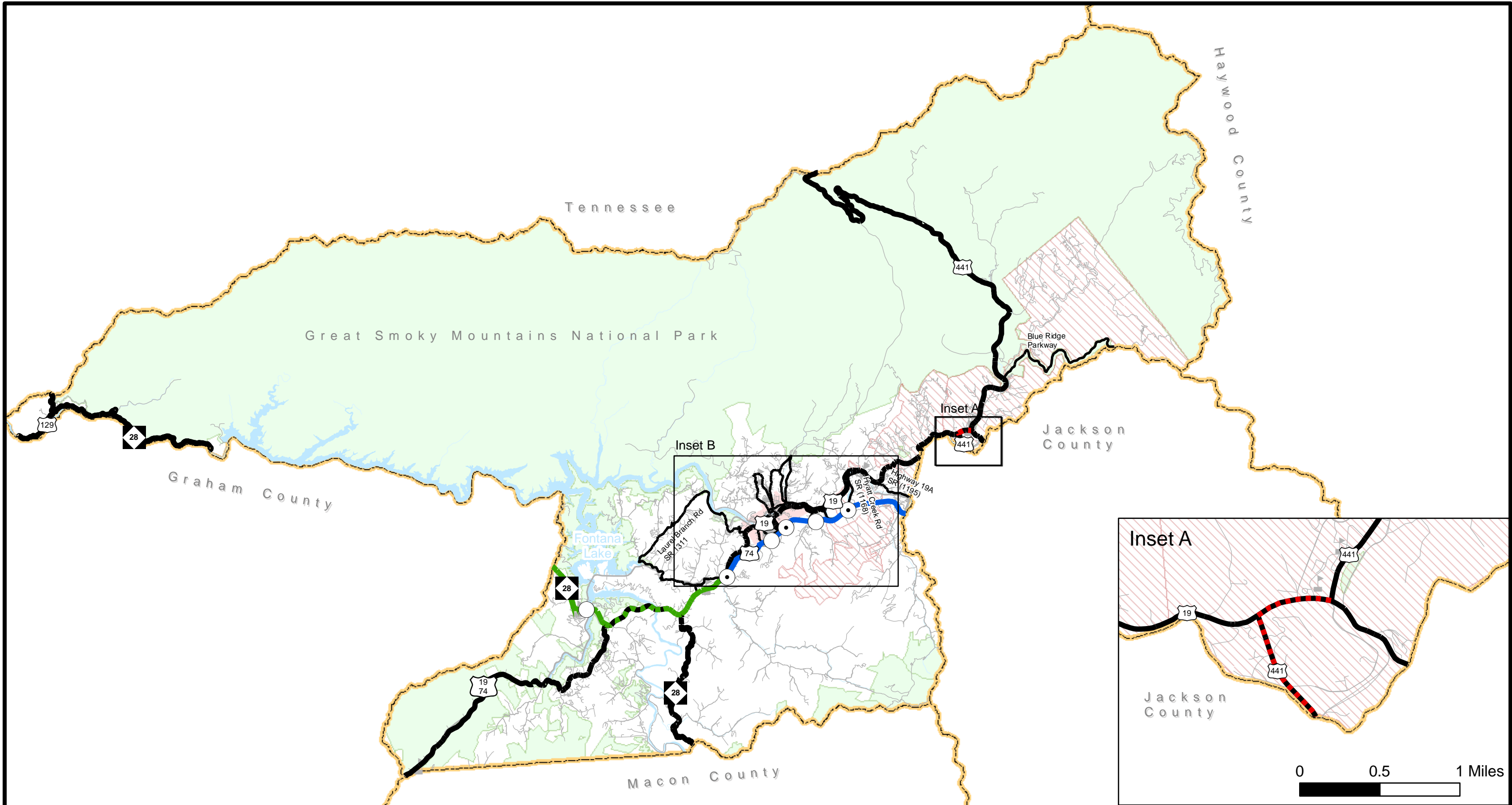
Figure 1
 Sheet 1 of 5

Base map date: June 6, 2011
 Refer to CTP document for more details

Swain County
 North Carolina

**Comprehensive
 Transportation Plan**

Plan date: November 7, 2011



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
- Existing Grade Separation
- Proposed Grade Separation

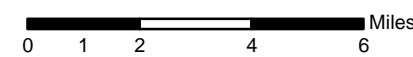
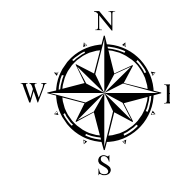


Figure 1

Sheet 2 of 5



Base map date: June 6, 2011

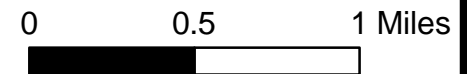
Refer to CTP document for more details

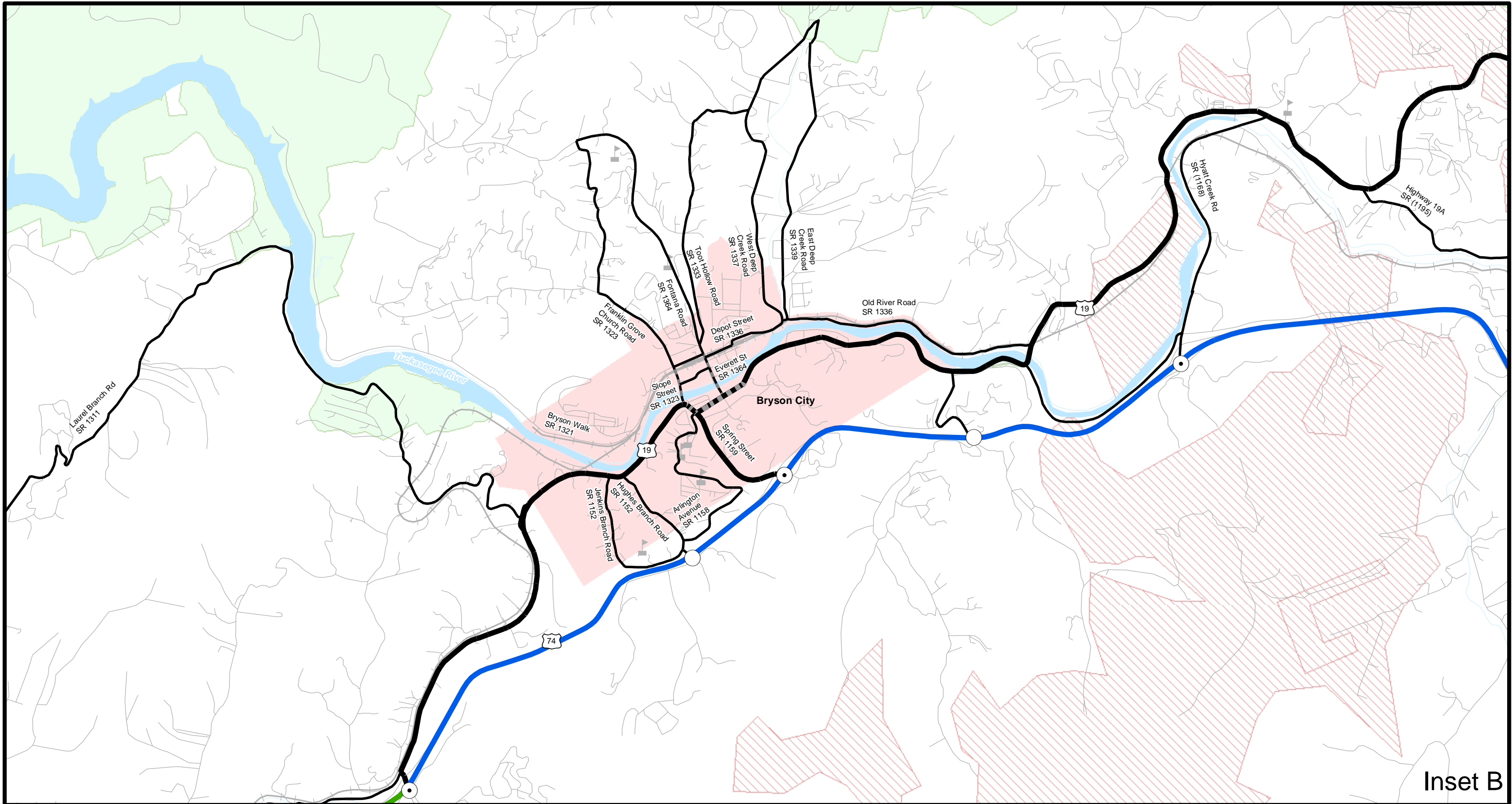
Highway Map

Swain County

**Comprehensive
Transportation Plan**

Plan date: November 7, 2011





Inset B

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
- Existing Grade Separation
- Proposed Grade Separation

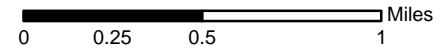


Figure 1

Sheet 2A of 5



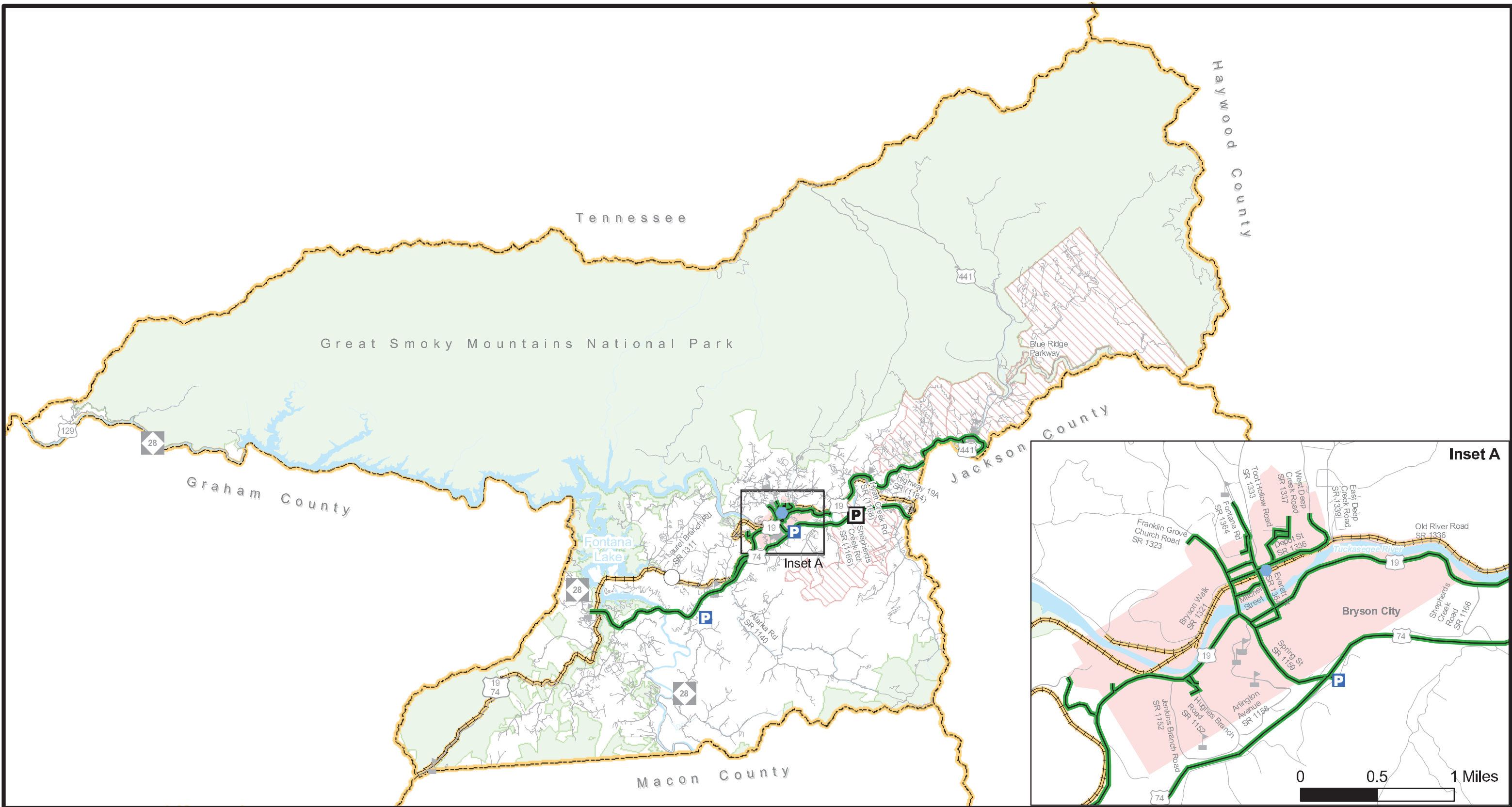
Base map date: June 6, 2011

Refer to CTP document for more details

**Highway Map
Swain County**

**Comprehensive
Transportation Plan**

Plan date: November 7, 2011



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

Rail Stops

- Existing
- Recommended

Intermodal Connector

- Existing
- Recommended

Park and Ride Lot

- Existing
- Recommended
- Existing Grade Separation
- Proposed Grade Separation



Figure 1

Sheet 3 of 5



Base map date: June 6, 2011

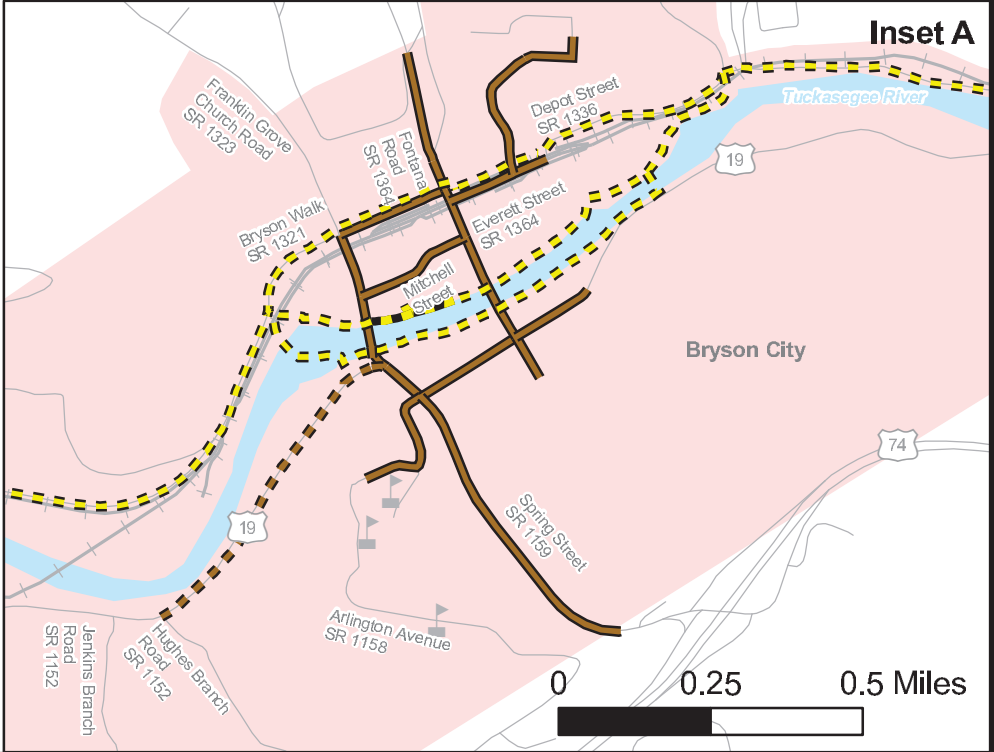
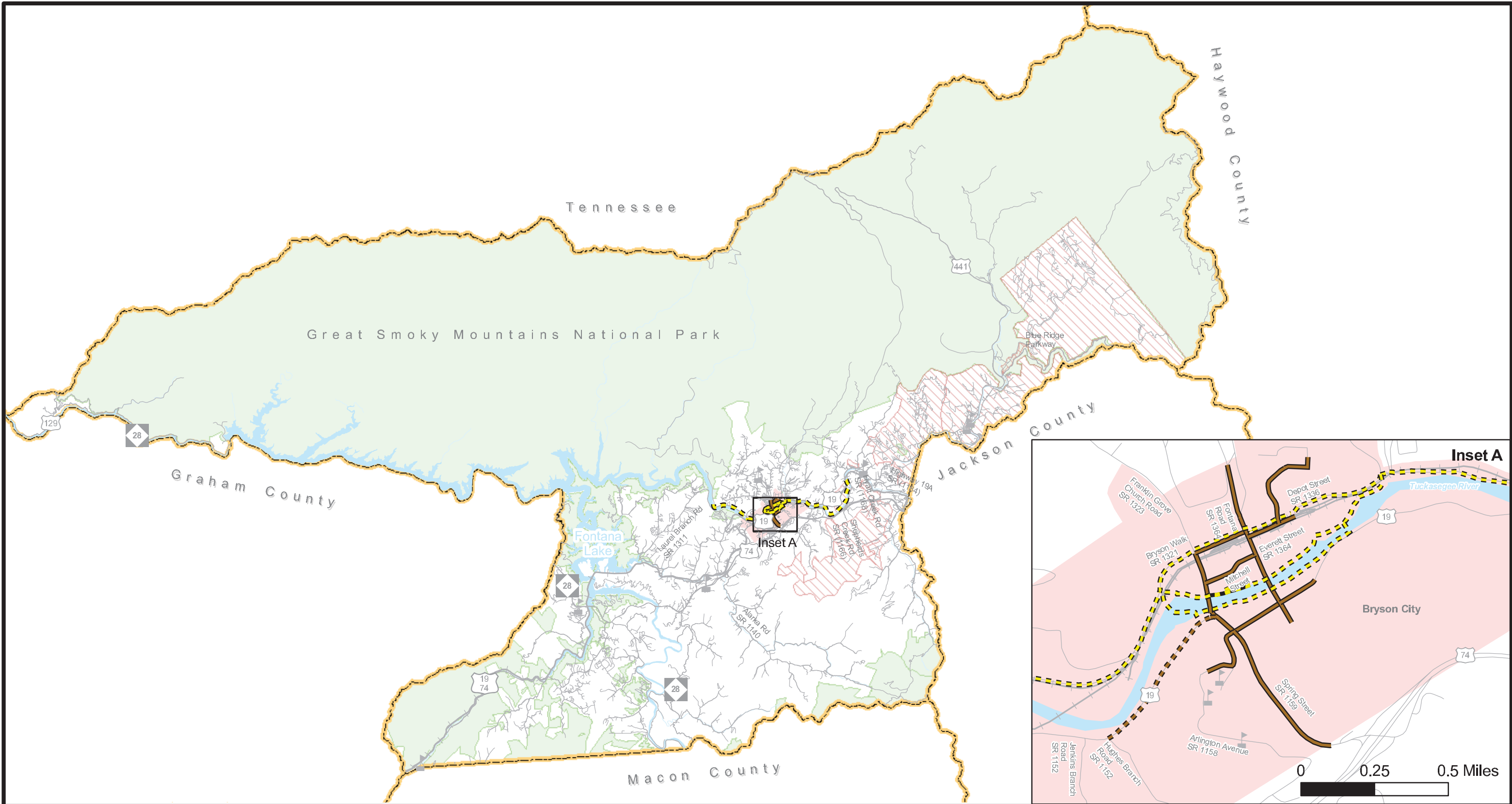
Refer to CTP document for more details

Public Transportation and Rail Map

Swain County

Comprehensive Transportation Plan

Plan date: November 7, 2011



Sidewalks

- Existing
- Needs Improvement
- Recommended

- Existing Grade Separation
- Proposed Grade Separation

Off Road

- Existing
- Needs Improvement
- Recommended

Multi-Use Paths

- Existing
- Needs Improvement
- Recommended



Figure 1
Sheet 5 of 5



Base map date: June 6, 2011

Refer to CTP document for more details

Pedestrian Map

Swain County

**Comprehensive
Transportation Plan**

Plan date: November 7, 2011

I. 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 providing 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 and goals and objectives.

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 travel desires. 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, and intersection controls. System deficiencies may result from missing travel links, bypass routes, loop facilities, radial routes or improvements to meet statewide initiatives.

One of those statewide initiatives is the Strategic Highway Corridor (SHC) Vision Plan¹ adopted by the Board of Transportation on September 2, 2004. The SHC Vision Plan is

¹ For more information on the SHC Vision Plan, go to: <http://www.ncdot.gov/doh/preconstruct/tpb/SHC/>.

an initiative to protect and maximize the mobility and connectivity on a core set of highway 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 SHC Vision Plan is to provide a network of high-speed, safe, reliable highways throughout North Carolina. The primary goal to support this purpose is to create a greater consensus towards the development of a genuine vision for each corridor – specifically towards the identification of a desired facility type (Freeway, Expressway, Boulevard, or Thoroughfare) for each corridor. Individual CTPs shall incorporate the long-term vision of each corridor. Refer to Appendix A for contact information for the SHC Vision Plan.

In the development of this plan, travel demand was projected from 2010 to 2035 using a trend line analysis based on Annual Average Daily Traffic (AADT) from 1990 to 2009. In addition, local land use plans and growth expectations were used to further refine future growth rates and patterns. NCDOT worked with the steering committee to develop growth rates. The established future growth rates were endorsed by the Swain County Commissioners and the Bryson City Town Council in November of 2011.

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 deficiencies.

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.

LOS E indicates “ultimate capacity” of a roadway, or the capacity at which traffic flow becomes irregular and speed varies rapidly. The ultimate capacity for each roadway was developed based on the 2000 Highway Capacity Manual using the Mountains Methodology. Recommended improvements were based upon achieving a minimum LOS D on existing facilities. Refer to Appendix E for detailed information on LOS.

Traffic Crash Analysis

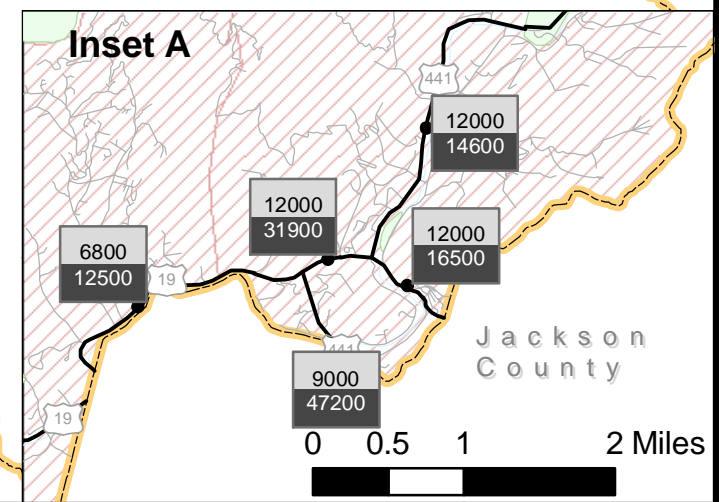
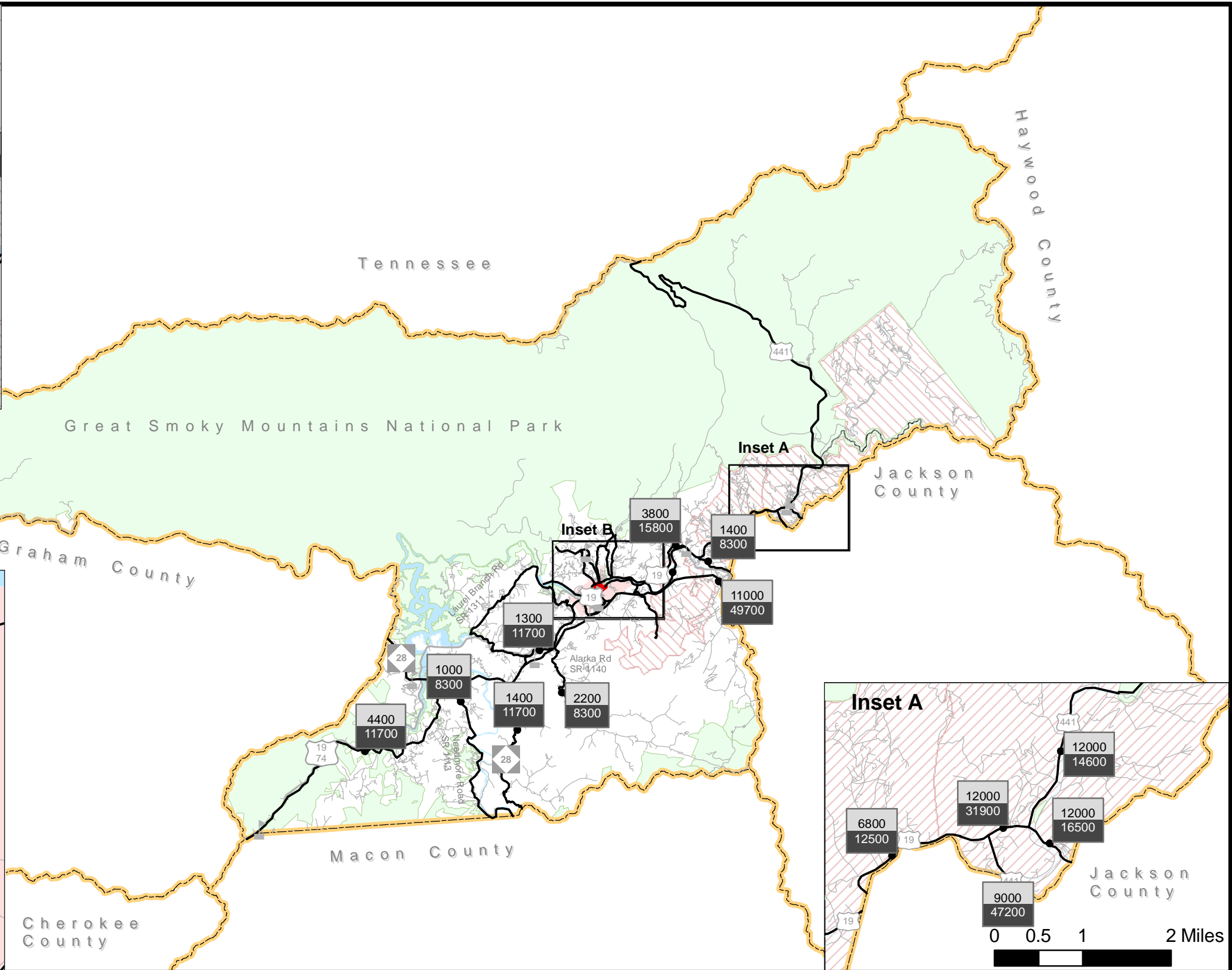
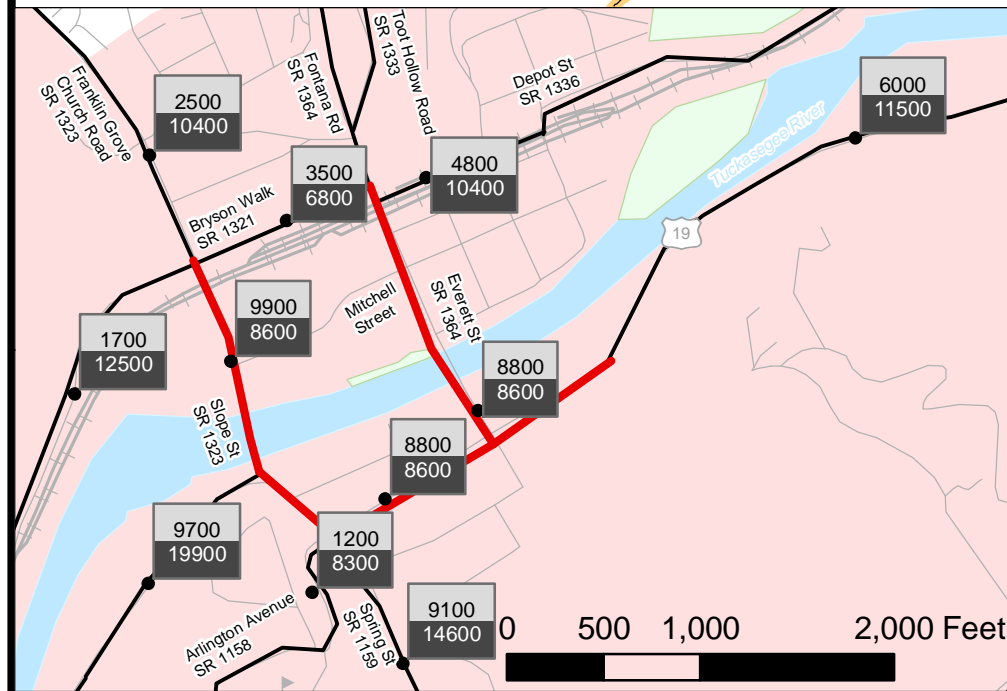
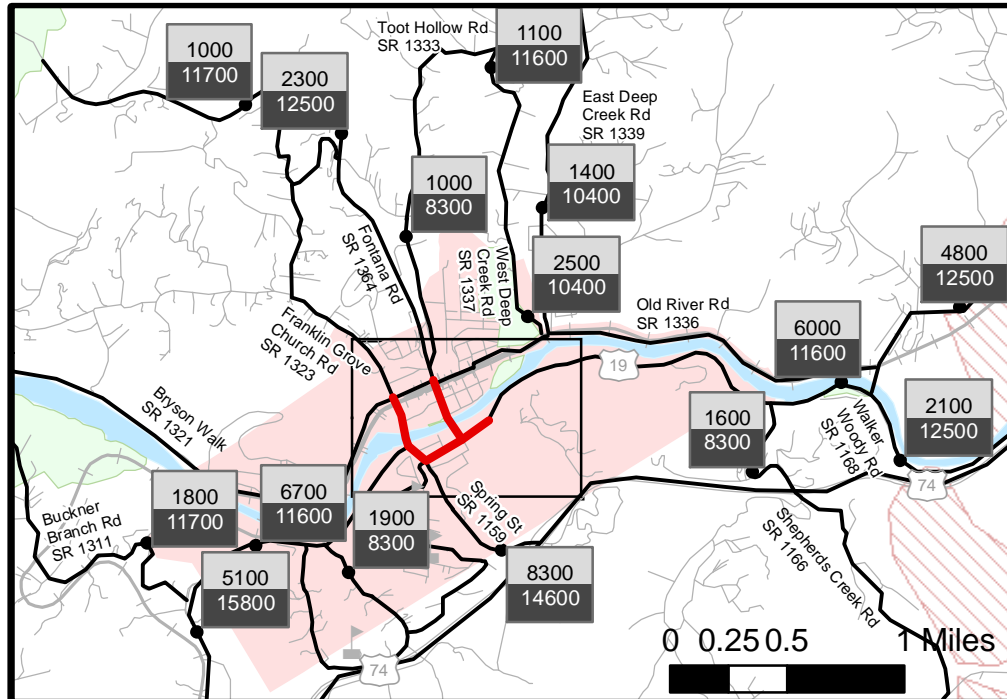
Traffic crashes are often used as an indicator for locating congestion and roadway problems. Crash patterns obtained from an analysis of crash data can lead to the identification of improvements that will reduce the number of crashes. A crash analysis was performed for the Swain County CTP for crashes occurring in the planning area between January 1, 2007 and December 31, 2009. During this period, a total of 3 intersections were identified as high crash locations as illustrated in Figure 4. Refer to Appendix F for a detailed crash analysis.

Bridge Deficiency Assessment

Bridges are a vital and unique 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. Nine deficient bridges were identified on roads evaluated as part of the CTP and are illustrated in Figure 5. As deficient bridges are replaced, every consideration should be given to proposed CTP recommendation and cross section associated with the recommendation. Table 5 in Appendix G gives a listing of the deficient bridges identified in the CTP and the ID number associated with CTP project proposal. Refer to Appendix G for more detailed bridge deficiency information.

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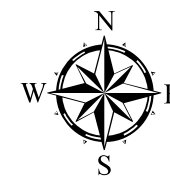


Legend

- Over Capacity
- Near Capacity
- Study Roads
- Roads
- Railroads
- School
- County Boundary
- Municipal Boundary
- Eastern Band of Cherokee Indians Boundary
- National Parks
- Bodies of Water
- Rivers and Streams

2010 AADT
2010 Capacity

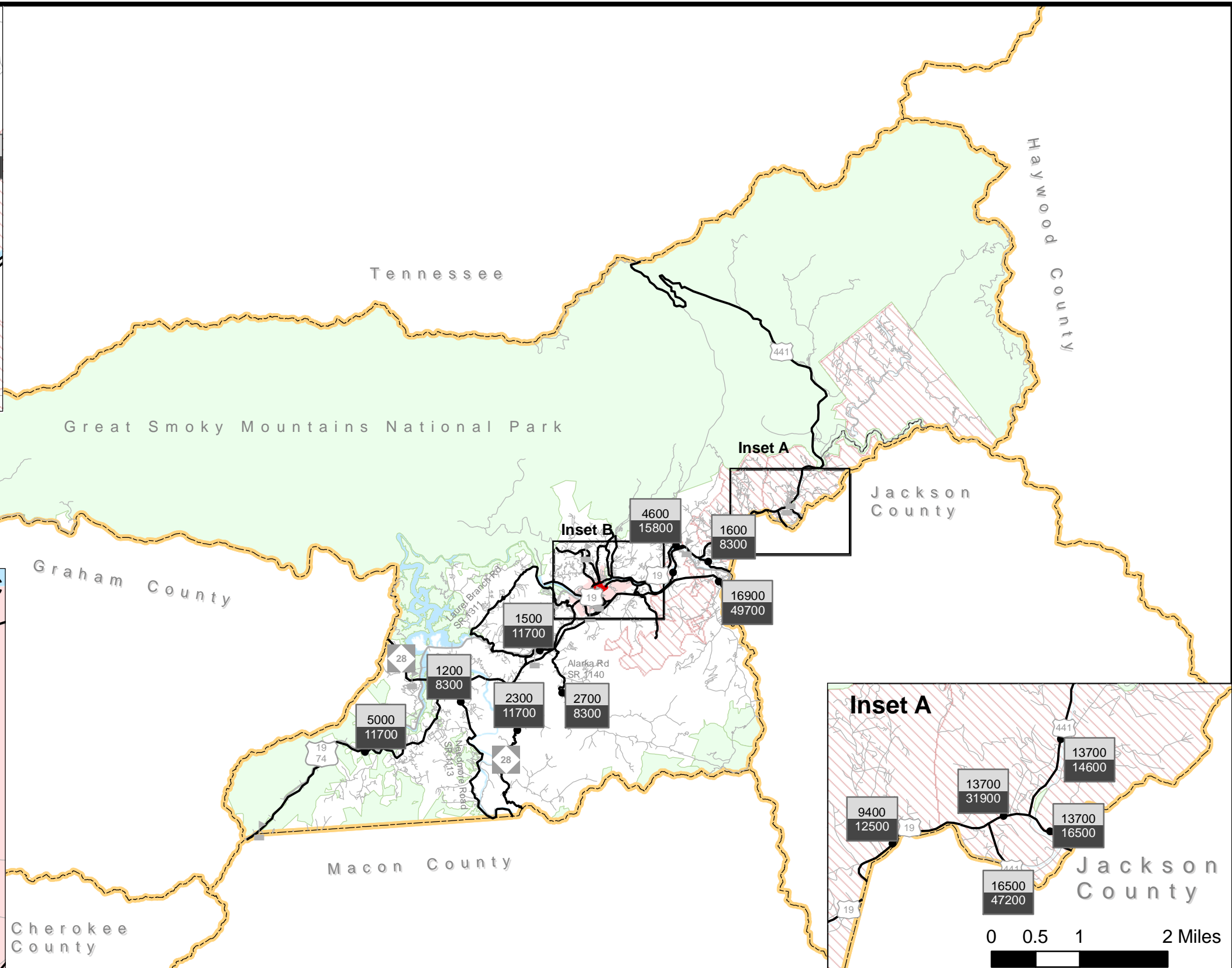
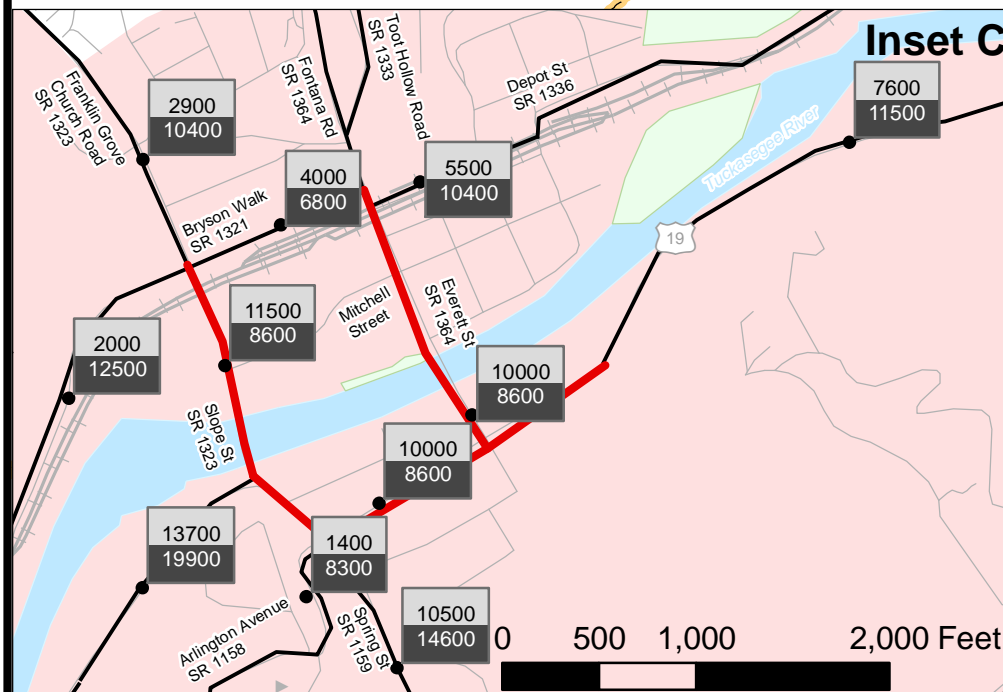
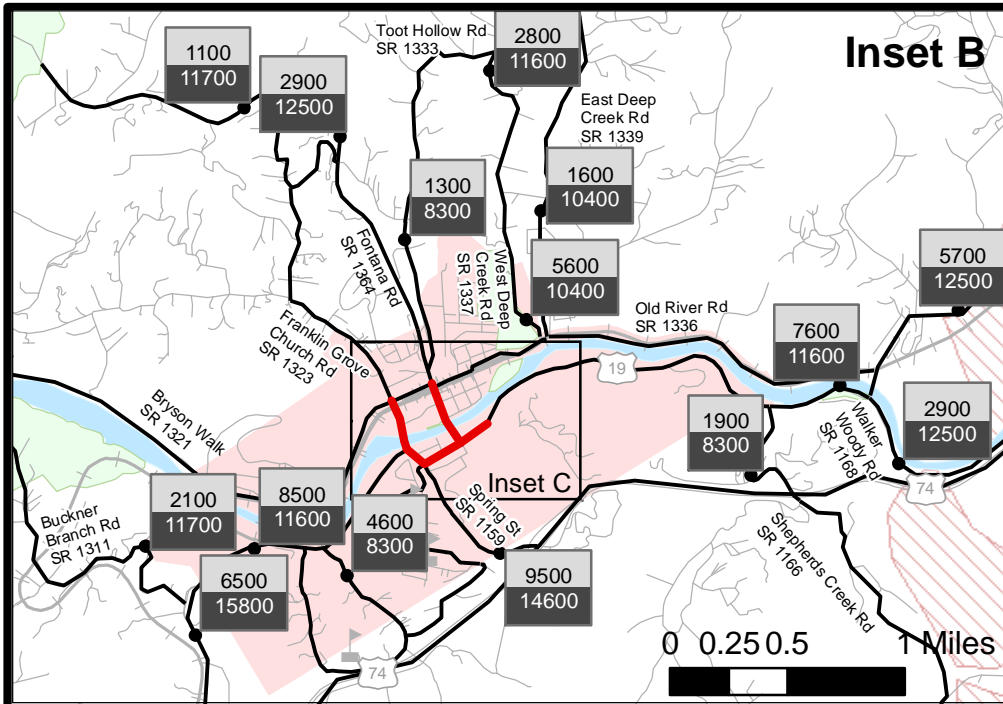
0 0.5 1 2 3 4 5 6 Miles



Base Map Date: June 6, 2011

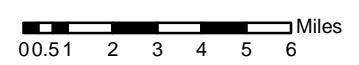
2010 Volumes and Capacity Deficiencies

**Swain County
Comprehensive
Transportation Plan
Figure 2**



Legend

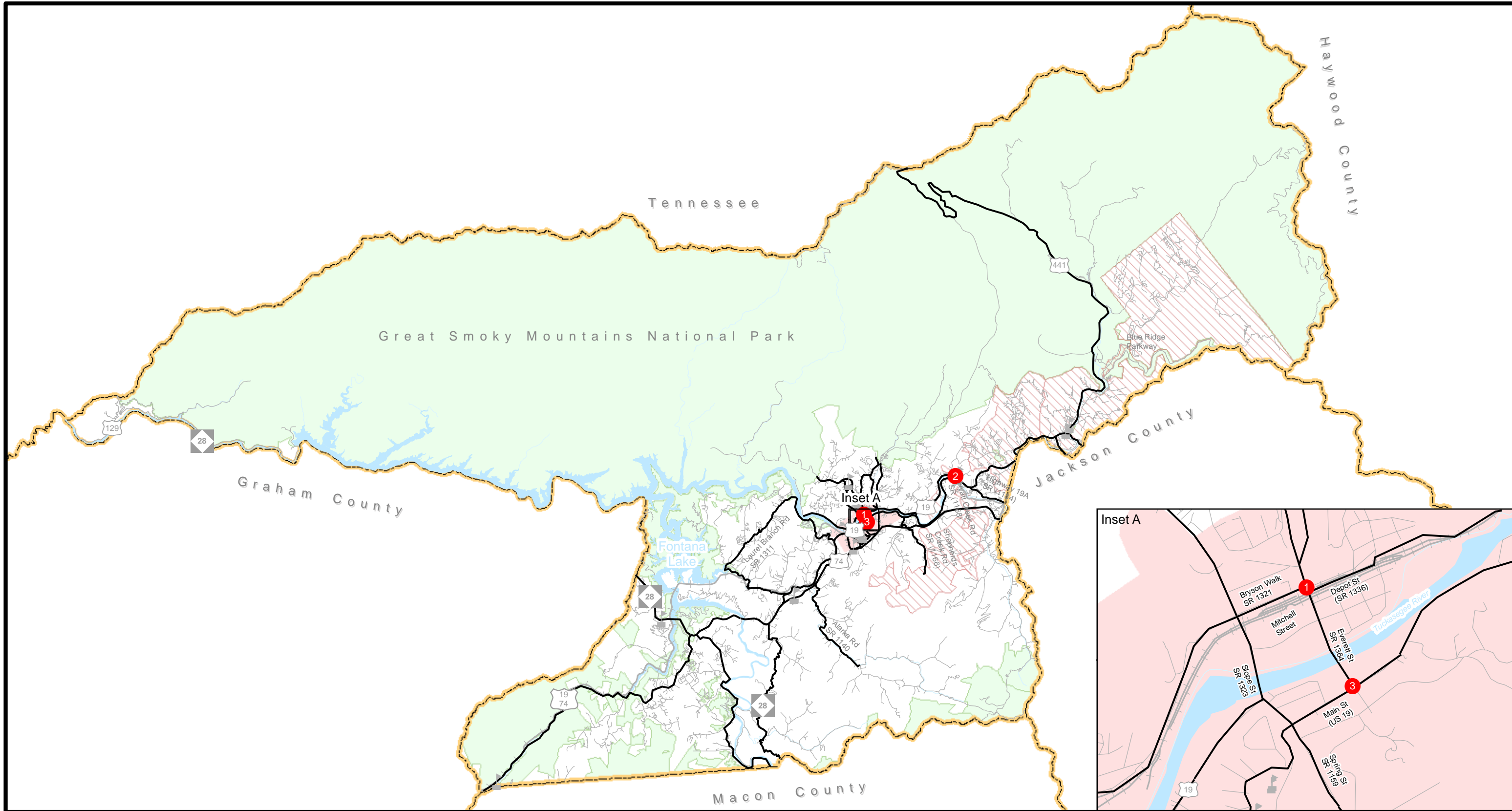
- | | | | | | | |
|---------------|--|---------------|--|---|--|--------------------|
| 2035 AADT | | Over Capacity | | School | | National Parks |
| 2010 Capacity | | Near Capacity | | County Boundary | | Bodies of Water |
| | | Study Roads | | Municipal Boundary | | Rivers and Streams |
| | | Roads | | Eastern Band of Cherokee Indians Boundary | | |
| | | Railroads | | | | |



Base map date: June 6, 2011

2035 Volumes and Capacity Deficiencies

**Swain County
Comprehensive
Transportation Plan
Figure 3**



Legend

- Crash Locations (# Map Index)
- School
- Study Roads
- Roads
- Railroads
- Bodies of Water
- Rivers and Streams
- Municipal Boundary
- County Boundary
- Eastern Band of Cherokee Indian Boundary
- National Parks



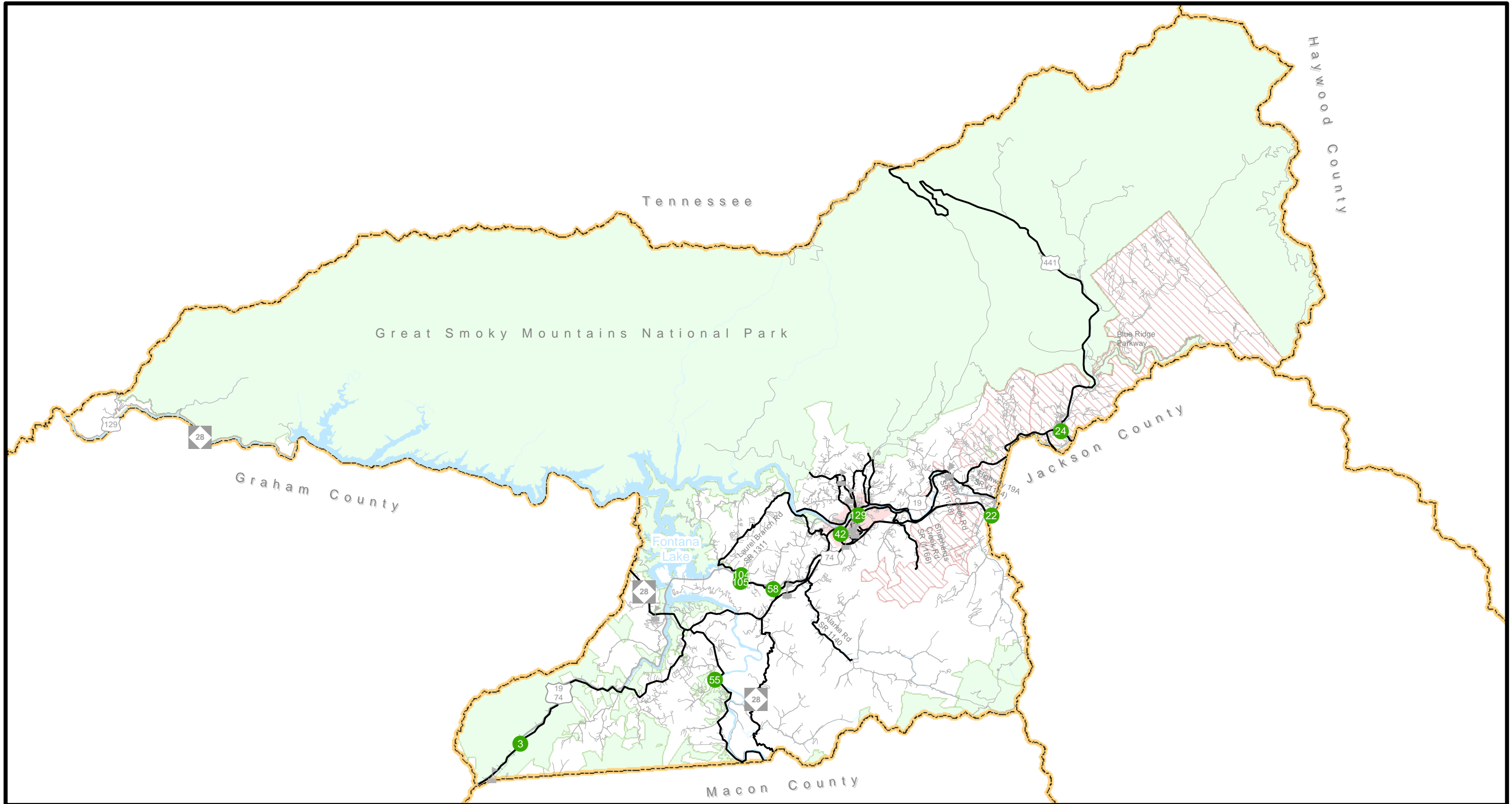
Base map date: June 6, 2011
 Refer to Appendix F, Table 4 for more details.

Crash Locations

January 1, 2007 to December 31, 2009

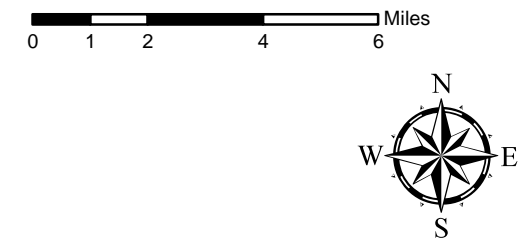
**Swain County
 Comprehensive
 Transportation Plan**

Figure 4



Legend

- Deficient Bridge (# Bridge Number)
- Bodies of Water
- Study Roads
- Roads
- Railroads
- School
- Rivers and Streams
- Municipal Boundary
- County Boundary
- Eastern Band of Cherokee Indian Boundary
- National Parks



Base map date: June 6, 2011
 Refer to Appendix G, Table 5 for more details

Deficient Bridges
Swain County
Comprehensive
Transportation Plan
Figure 5

Public Transportation and Rail

Public transportation and rail are vital modes of transportation that give alternative options 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, the NCDOT Board of Transportation is encouraging single-county systems 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 are at work 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 and throughout the United States and Canada. Greyhound/Carolina Trailways operates 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. Swain Public Transit is a community-based system that offers three transit options – deviated fixed route, demand response, and subscription. The deviated fixed route is a loop route through the town of Bryson City. The transit vehicle operator is permitted to deviate from the fixed route up to one quarter mile ($\frac{1}{4}$ mile) to service customers who have made ride requests. The route is completed hourly and serves public housing, government buildings, and the hospital within the municipal boundary of Bryson City. Demand response trips are at the request

of the customer and typically consist of medical appointments. Subscription routes are also at the request of the customer and generally satisfy transportation needs for work related schedules. 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 3,684 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 a partnership between NCDOT and Amtrak. Amtrak 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 a rise in the state. In 2010 ridership was 840,000 and increased to 893,000 passengers in 2011.

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 everyday. Combined, the Carolinian and Piedmont carry more than 200,000 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 20 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. The Great Smoky Mountains Railroad (GSMR) owns and operates the tracks from Dillsboro, NC to Andrews, NC, with excursions embarking and disembarking in the heart of Bryson City. The GSMR offers scenic tours that travel to either the Nantahala Gorge, southwest of Bryson City, or Dillsboro, east of Bryson City. Trains run varying schedules year-round, with peak ridership in October, due to the seasonal changing of the leaves. All recommendations for rail were coordinated with the local governments and the Rail Division of NCDOT. Refer to Appendix A for contact information for contact information for the Rail Division.

Bicycles & Pedestrians

Bicyclists and pedestrians are a growing part of the transportation equation 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 upon and 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 the 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 2007 Town of Bryson City Pedestrian Plan and the 2001 Bryson City/Swain County Greenway System Plan were utilized in the development of these elements of the CTP. There are no statewide or regional facilities in Swain 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 2007 Bryson City Land Development Plan and the 2010 Swain County Land Use Plan (future land use map unavailable) were used to meet this requirement and are illustrated in Figures 6 and 7, respectively.

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.

Swain County anticipates a redevelopment of downtown Bryson City in the future, particularly near the open area/parking lot for the Great Smoky Mountain Railroad, along the Tuckasegee riverfront, and near Island Park. Additionally, opportunities for commercial development exist along US 19 and West Deep Creek Road, among other roads, surrounding Bryson City. Residential growth is expected in the greater surrounding areas and mountains.

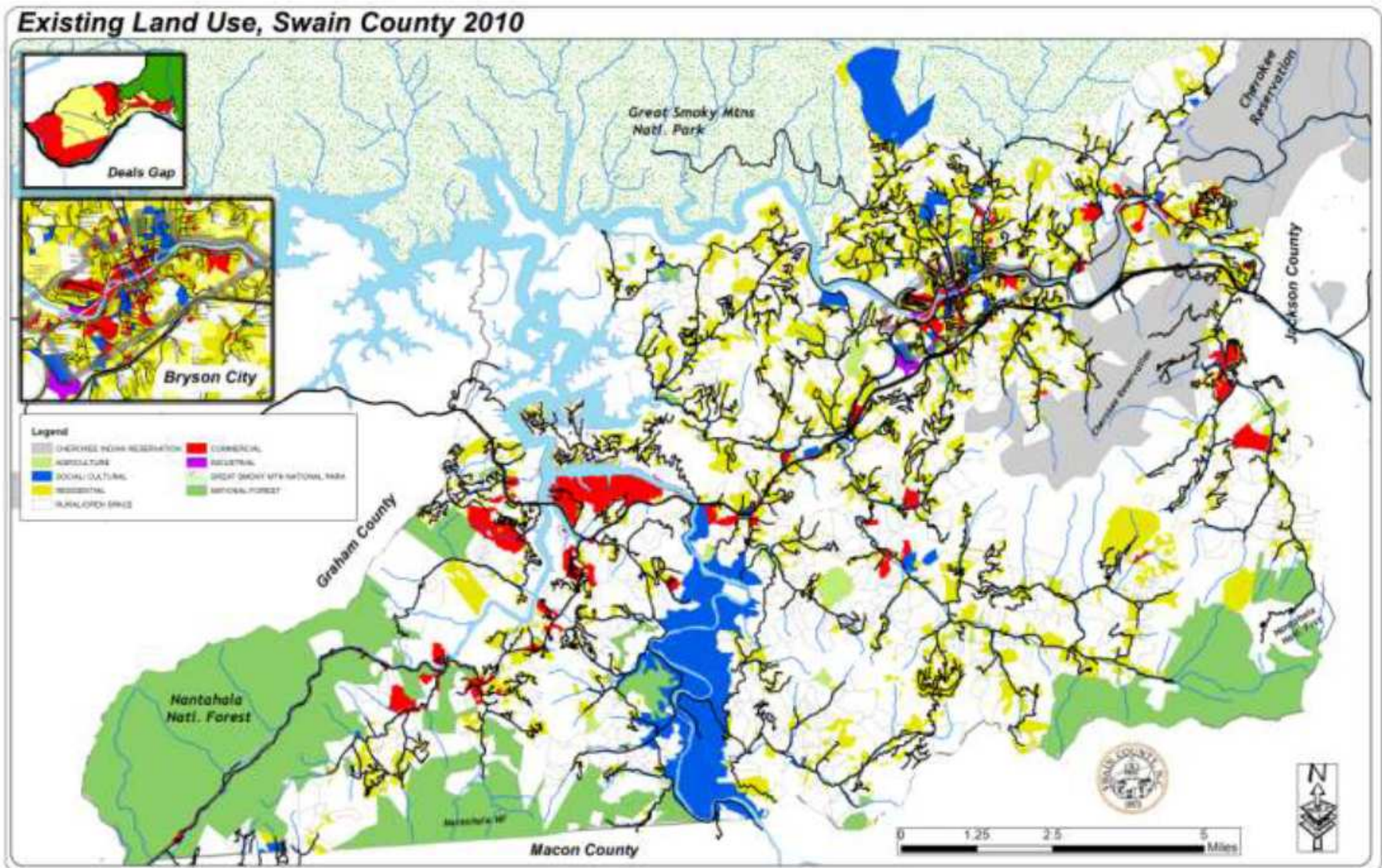


Figure 6: Existing Land Use
 Sheet 1 of 2

Map 5: Existing Land Use

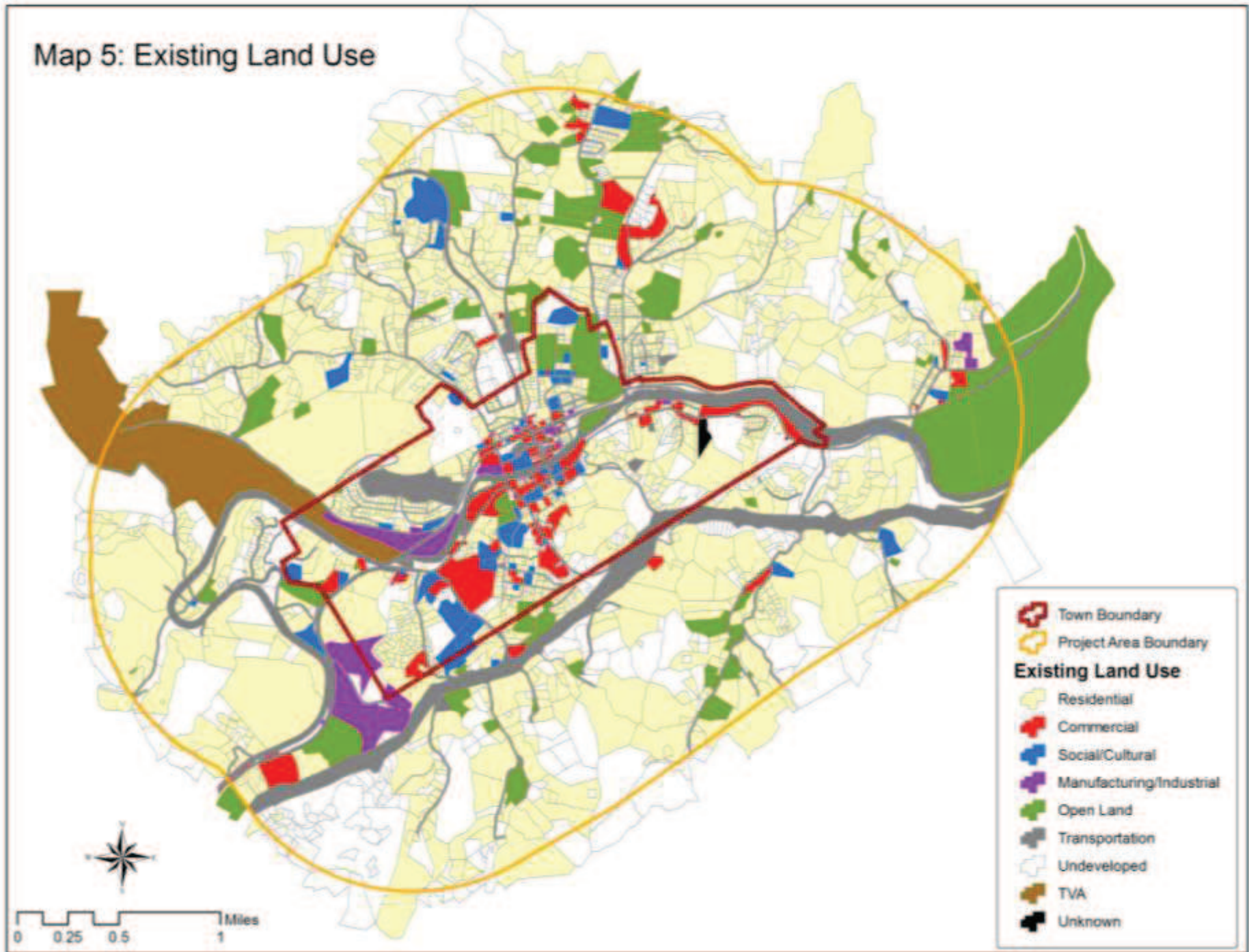


Figure 6: Existing Land Use
Sheet 2 of 2

Map 8: Possible Future Growth Areas

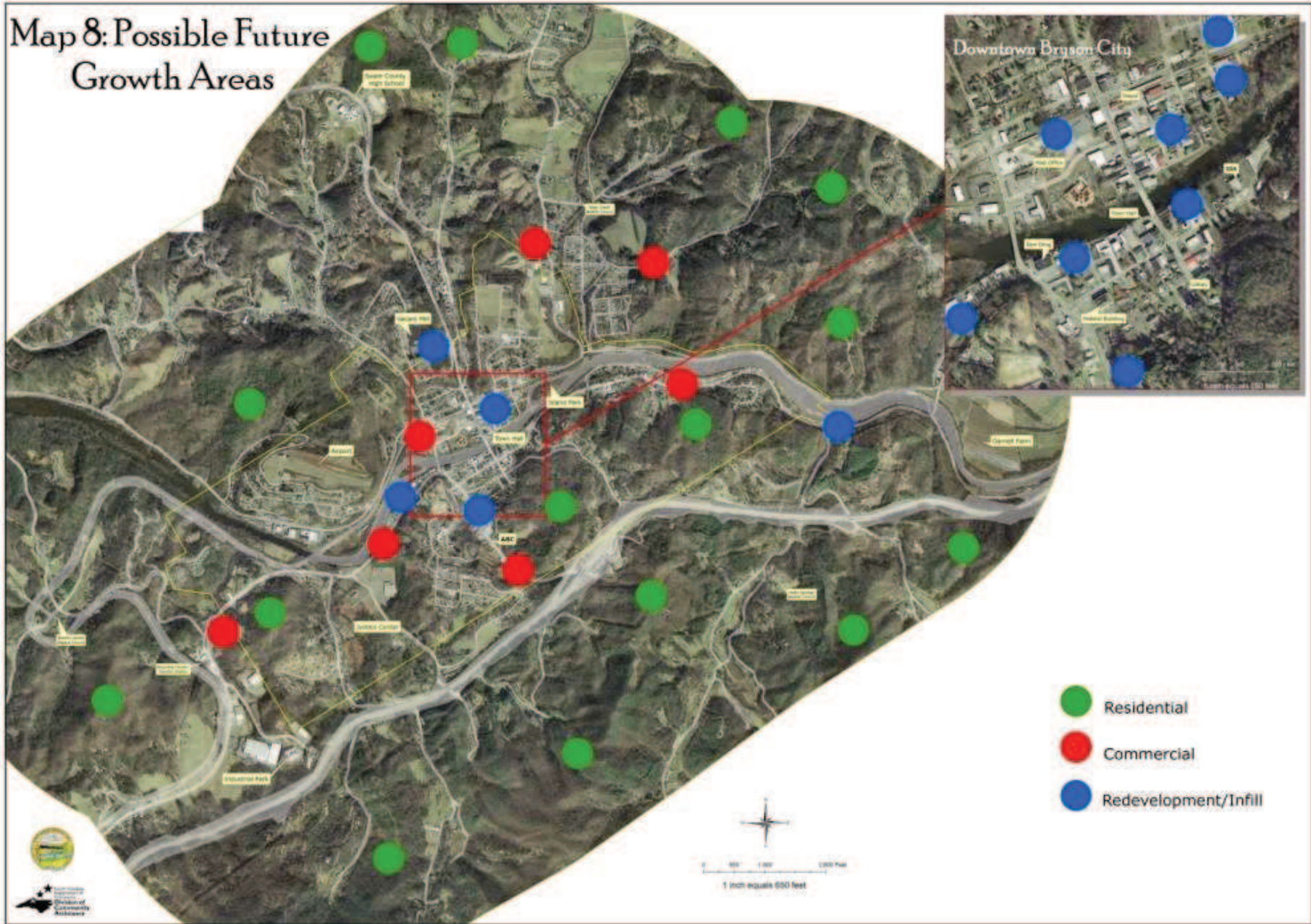


Figure 7: Future Land Use

Consideration of Natural and Human Environment

Environmental features are a key consideration in the transportation planning process. Section 102 of the National Environmental Policy Act² (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.

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 Swain County are shown in Figure 8 and highlighted in Tables 1 and 2.

Table 1 – Environmental Features

- | | |
|---|---|
| <ul style="list-style-type: none"> • Airport Boundaries • Anadromous Fish Spawning Areas • Bike Routes (NCDOT) • Colleges and Universities • Conservation Tax Credit Properties • Eastern Band of Cherokee Indian Land • Emergency Operation Centers • Federal Land Ownership • Fisheries Nursery Areas • Geology (including Dikes and Faults) • Hazardous Substance Disposal Sites • Hazardous Waste Facilities • High Quality Water and Outstanding Resource Water Management Zones • Hospital Locations • Hydrography (1:24,000 scale) • Land Trust Priority Areas | <ul style="list-style-type: none"> • National Heritage Element Occurrences • National Wetlands Inventory Railroads (1:24,000 scale) • Recreation Projects – Land and Water Conservation Fund • Sanitary Sewer Systems – Discharges, Land Application Areas, Pipes, Pumps and Treatment Plants • Schools – Public and Non-Public • Significant Natural Heritage Areas • State Parks • Submersed Rooted Vasculars • Target Local Watersheds - EEP • Trout Streams (DWQ) • Trout Waters (WRC) • Water Distribution Systems – Pipes, Pumps, Tanks, Treatment Plants, and Wells • Water Supply Watersheds • Wild and Scenic Rivers |
|---|---|

² For more information on NEPA, go to: <http://ceq.hss.doe.gov/>.

Additionally, the following environmental features were considered but are not mapped due to restrictions associated with the sensitivity of the data.

Table 2 – Restricted Environmental Features

- **Archaeological Sites**
- **Historic National Register Districts**
- **Historic National Register Structures**
- **Macrosite Boundaries**
- **Managed Areas**
- **Megasite Boundaries**

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.

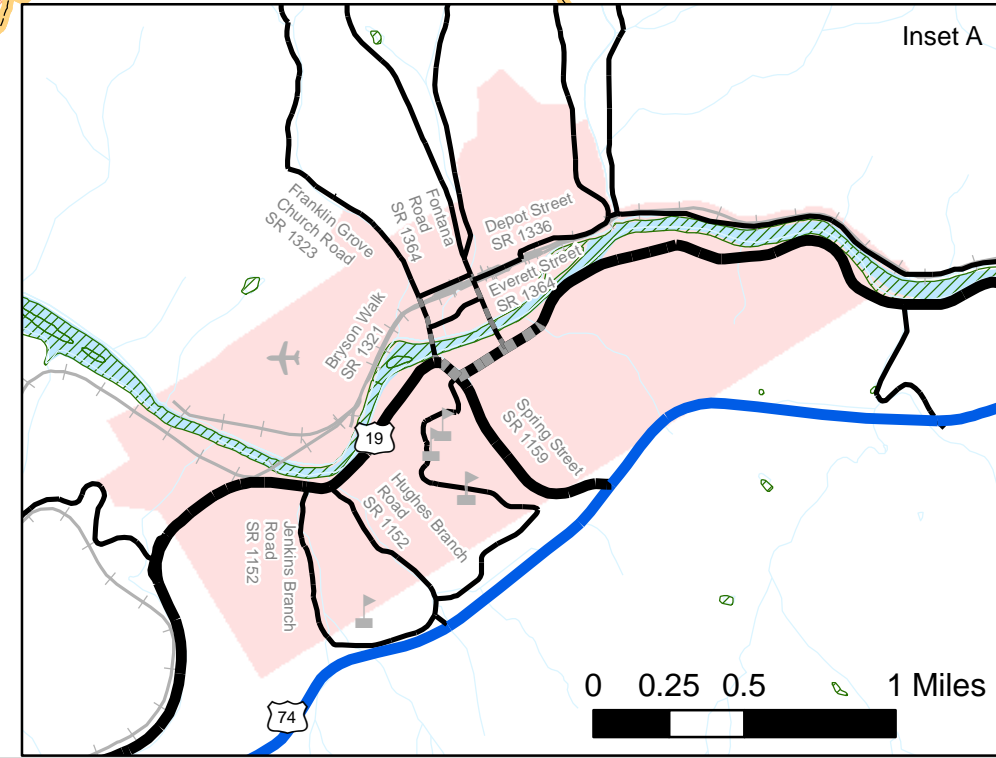
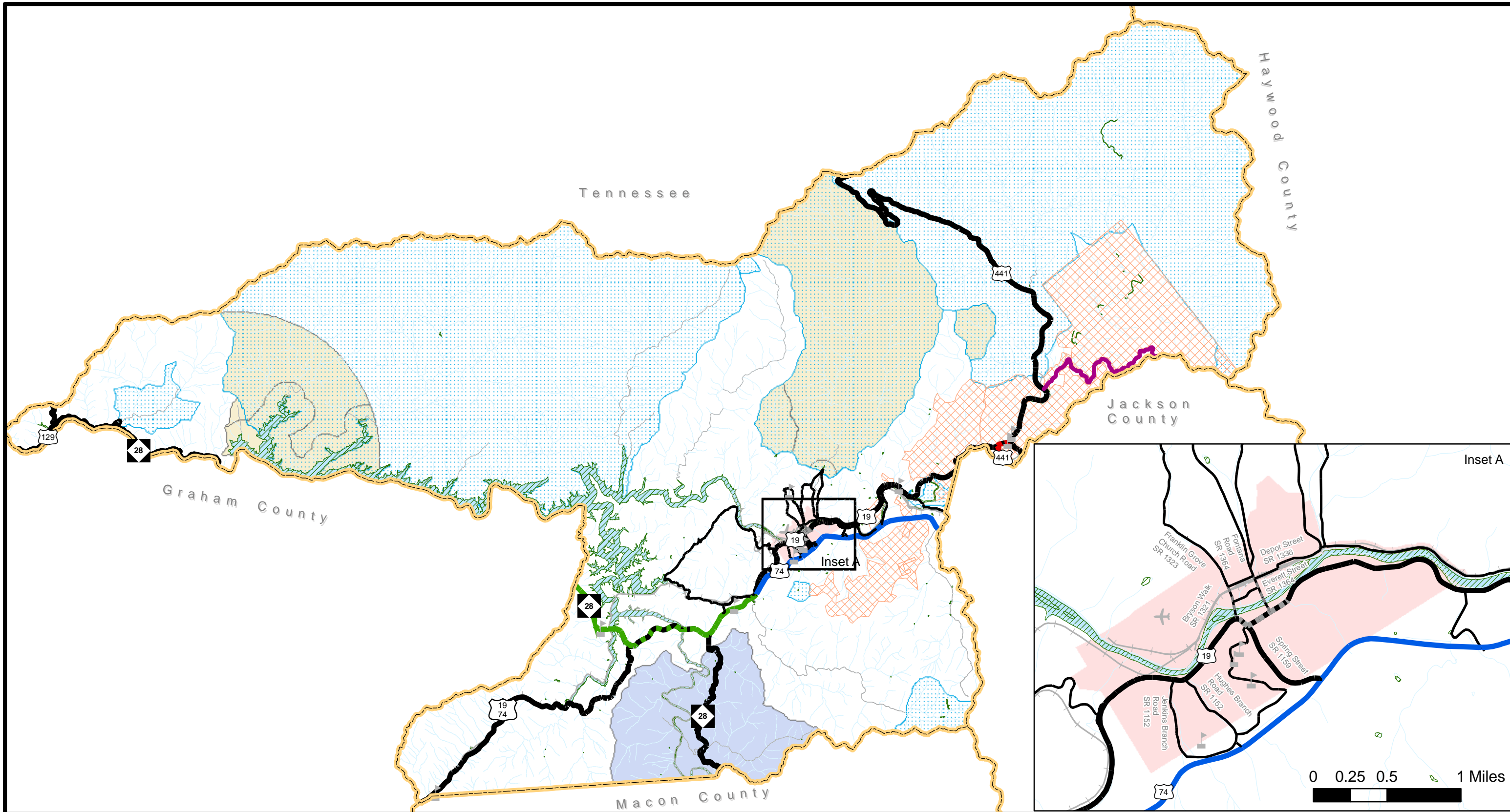
The Southwestern RPO requested the development of a comprehensive transportation plan for Swain County through a prioritized list of regional needs. A meeting was held with the Swain County Board of Commissioners in June 2010 to formally initiate the study, provide an overview of the transportation planning process, and to gather input on area transportation needs.

Throughout the course of the study, the Transportation Planning Branch cooperatively worked with the Swain County Steering Committee, which included a representative from each municipality, county staff, the RPO and others, to provide information on current local plans, to develop transportation vision and goals, to discuss population and employment projections, and to develop 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 one public drop-in session in Swain County to present the proposed CTP to the public and solicit comments. The meeting was held on March 6, 2012 at the Administrative Building in Bryson City. The session was publicized in the local newspaper and was held from 5:00pm to 7:00pm. No comment forms were submitted during the session.

A public hearing was held on May 14, 2012 during the Swain County Commissioner's meeting and on June 4, 2012 during the Bryson Town Council meeting. The purpose of these meetings was to discuss the plan recommendations and to solicit further input from the public. The CTP was adopted during these meetings.

The Southwestern RPO endorsed the CTP on May 15, 2012. The North Carolina Department of Transportation mutually adopted the Swain County CTP on September 6, 2012.



Legend					
	Airport		National Wetlands Inventory		Water Supply Watershed
	School		Eastern Band of Cherokee Indian Land		Target Local Watershed
	Blue Ridge Parkway		Body of Water		
	Railroad		24k Hydro Lines		
	Reference Road		High Quality Water Outstanding Resource Water Management Zone		

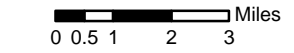
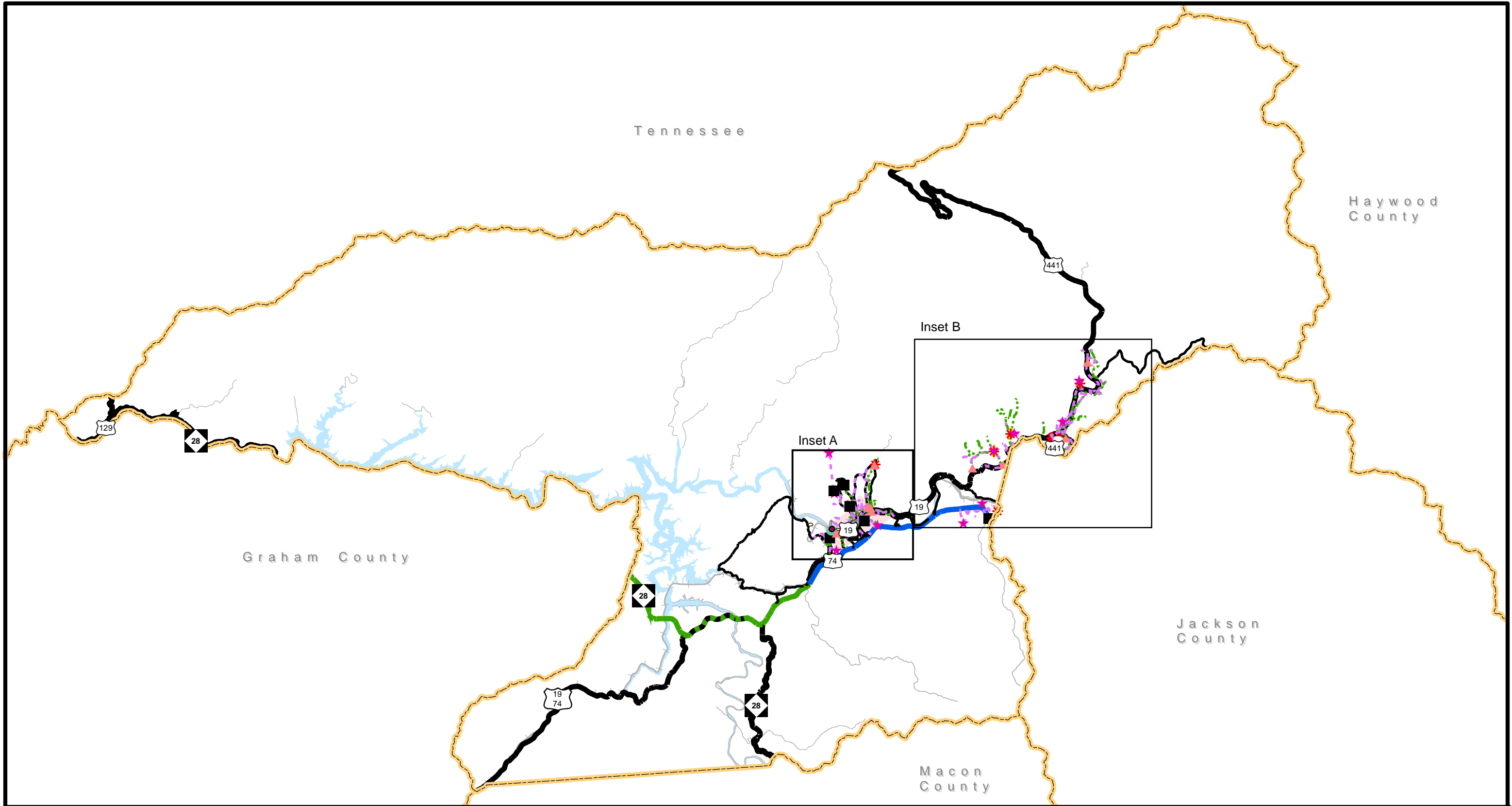












Figure 8
Sheet 1 of 5

Base map date: June 6, 2011

Environmental Map
Swain County
Comprehensive
Transportation Plan



Legend

- | | |
|---|---|
|  Hazard Substance Disposal Site |  Water Distribution System - Pump |
|  Sanitary Sewer System - Pump |  Water Distribution System - Tank |
|  Sanitary Sewer System - Discharge |  Water Distribution System - Treatment Plant |
|  Sanitary Sewer System - Treatment Plant |  Water Distribution System - Well |
|  Sanitary Sewer System - Pipe |  Water Distribution System - Pipe |

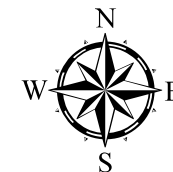
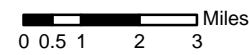


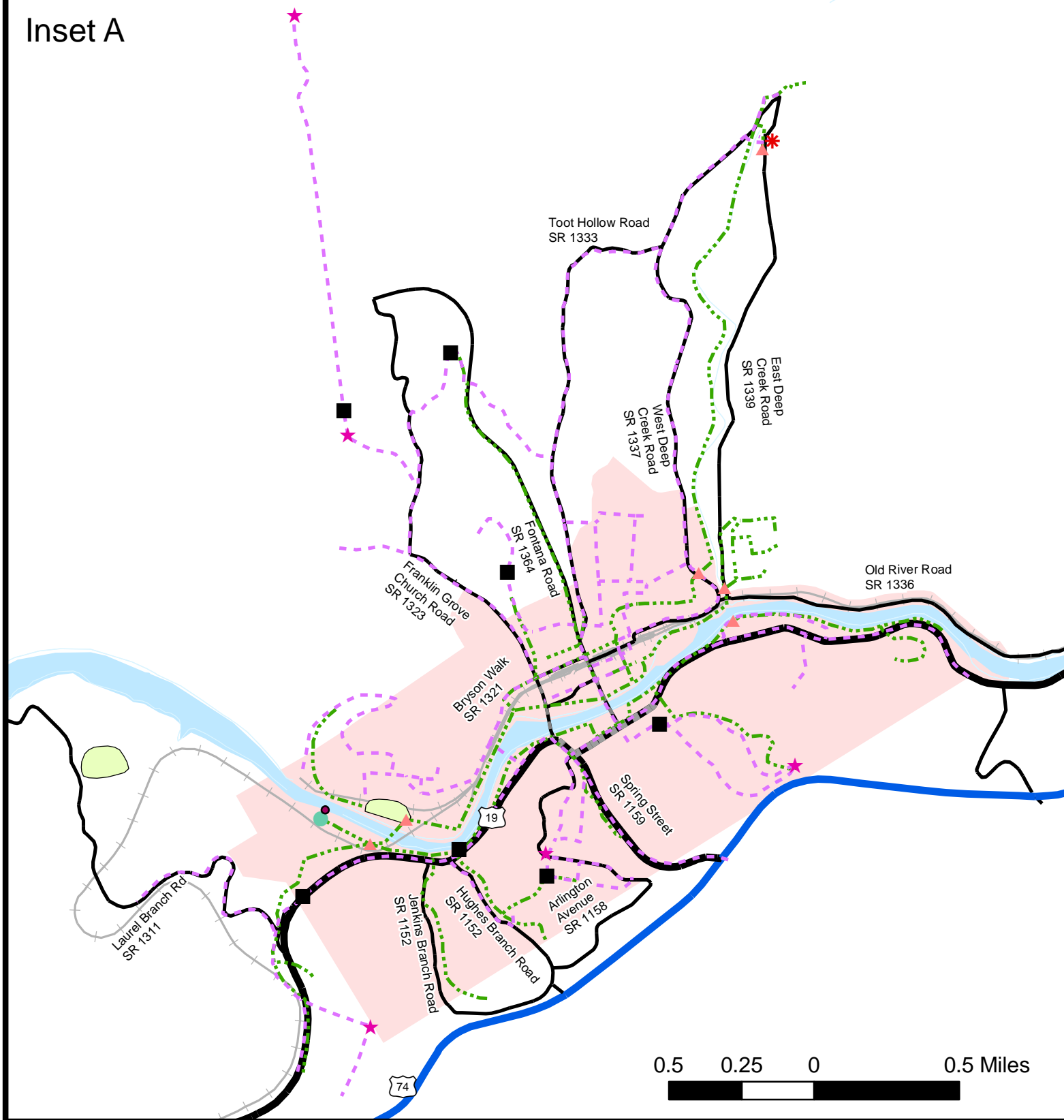
Figure 8

Sheet 2 of 5

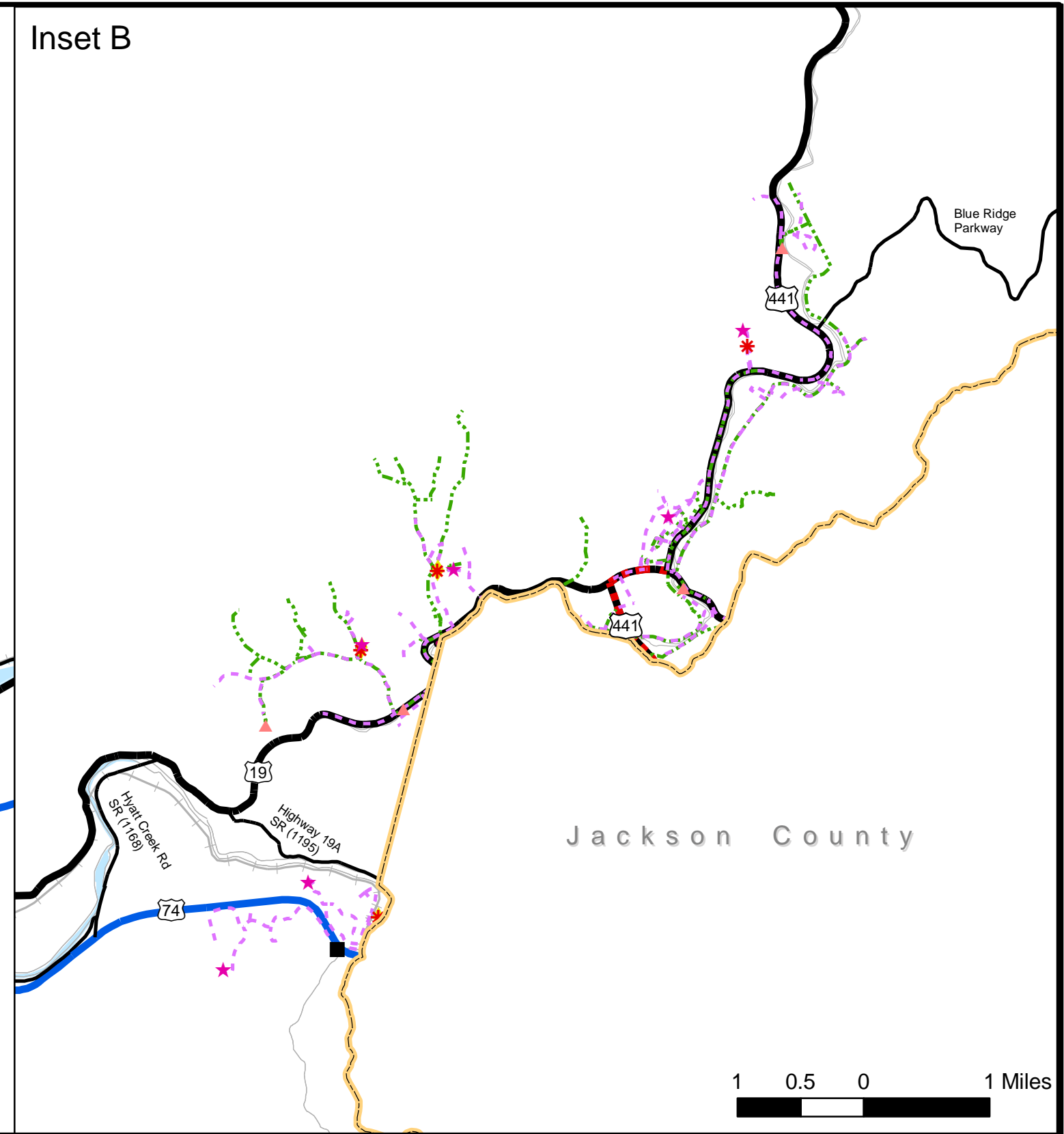
Base map date: June 6, 2011

**Environmental Map
Swain County
Comprehensive
Transportation Plan**

Inset A



Inset B



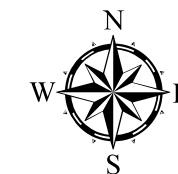
Legend

- | | |
|---|---|
| Hazard Substance Disposal Site | Water Distribution System - Pump |
| Sanitary Sewer System - Pump | Water Distribution System - Tank |
| Sanitary Sewer System - Discharge | Water Distribution System - Treatment Plant |
| Sanitary Sewer System - Treatment Plant | Water Distribution System - Well |
| Sanitary Sewer System - Pipe | Water Distribution System - Pipe |

Figure 8

Sheet 3 of 5

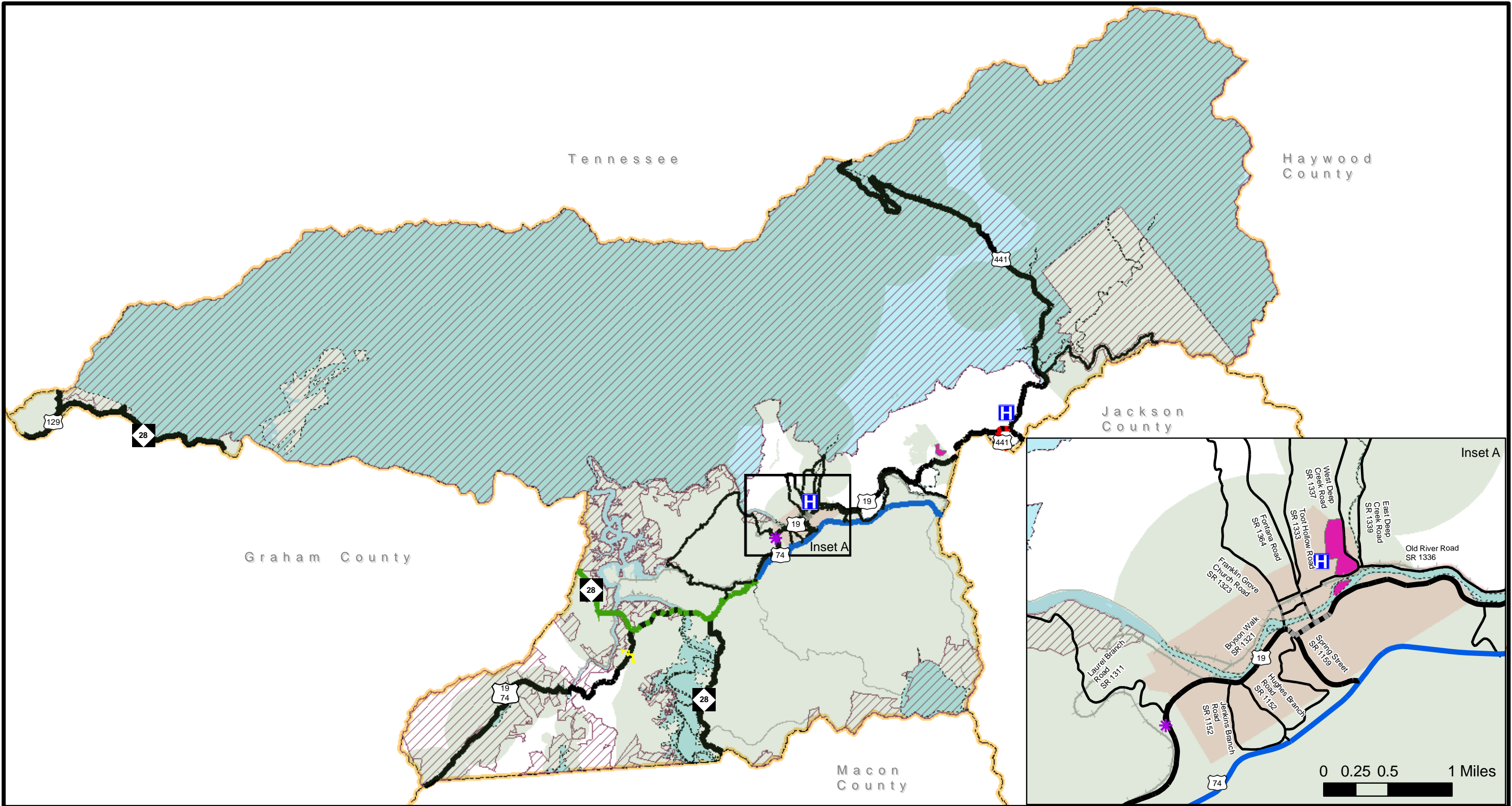
Base map date: June 6, 2011



Environmental Map

Swain County

**Comprehensive
Transportation Plan**



Legend

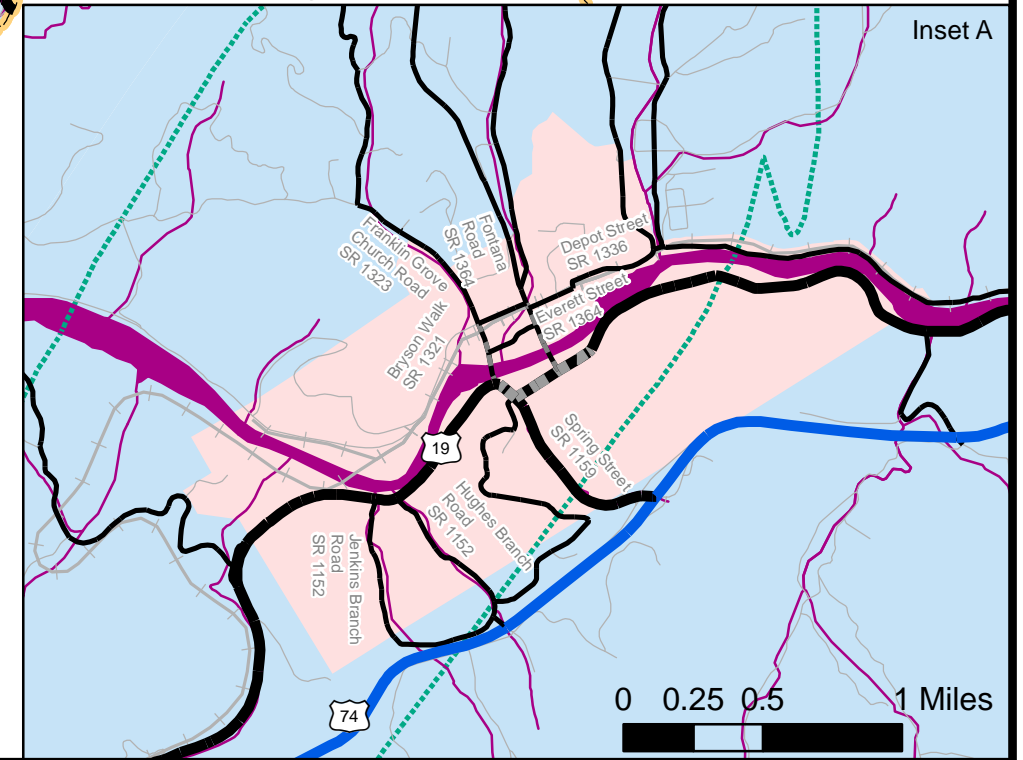
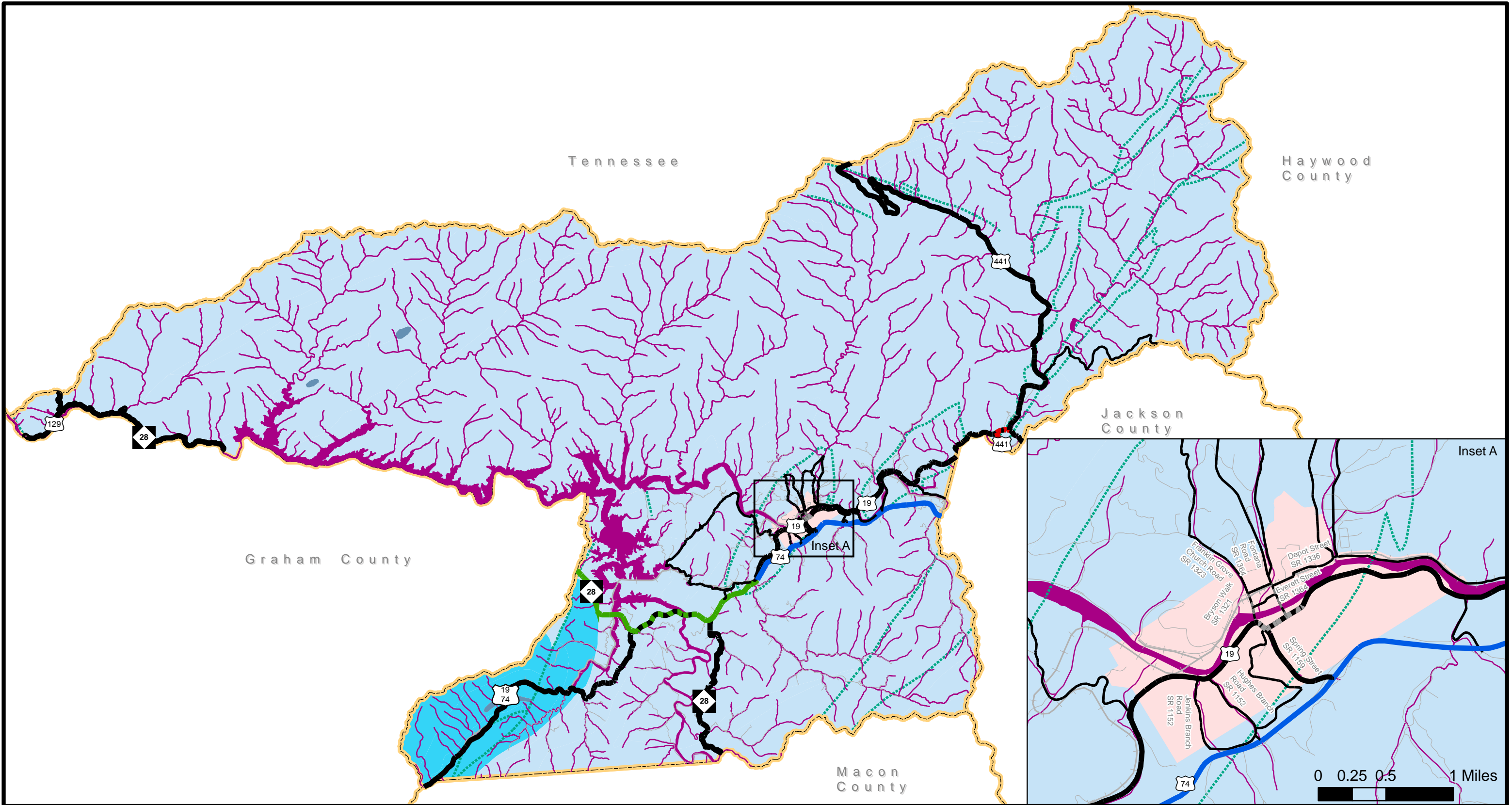
Emergency Operation Center	Federal Land Ownership
Hospital	Recreation Projects - Land and Water Conservation Fund
Conservation Tax Credit Properties	Significant Natural Heritage Area
Natural Heritage Element Occurrence	

0 0.5 1 2 3 Miles

Figure 8
Sheet 4 of 5

Base map date: June 6, 2011

Environmental Map
Swain County
Comprehensive
Transportation Plan



Legend

- | | | |
|--|-----------------|-----------------------------------|
| | Trout Waters | Geology - Formations |
| | Trout Waters | Intrusive Rocks |
| | Geology - Fault | Metamorphic Rocks |
| | | Sedimentary and Metamorphic Rocks |

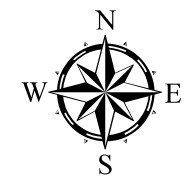


Figure 8
Sheet 5 of 5

Base map date: June 6, 2011

Environmental Map
Swain County
Comprehensive
Transportation Plan

II. Recommendations

This chapter presents recommendations for each mode of transportation in the 2012 Swain County CTP as shown in Figure 1. More detailed information on each recommendation is tabulated in Appendix C. Refer to Appendix I for documentation of project alternatives and scenarios that were studied, but are not included in the adopted CTP.

The N.C. Department of Transportation adopted a "Complete Streets¹" 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.

Unaddressed Deficiencies

The following deficiencies were identified during the development of the CTP, but remain unaddressed.

Everett Street (SR 1363), Slope Street (SR 1321) and US 19 (Main Street) in the central business district of Bryson City are currently over capacity and without improvement will remain over capacity in 2035. Solutions to address this deficiency, including one-way pairs and on-street parking removal, were not supported by the locals. Refer to Appendix I for more detailed information.

¹ For more information on Complete Streets, go to: <http://www.nccompletestreets.org/>

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 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 Swain County and Bryson City. 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 Southwestern 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 government 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.

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 Act² (SEPA). This CTP may be used to provide information in the NEPA/SEPA process.

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.

Problem Statements

HIGHWAY

US 19/74/NC 28, SWAI0001-H

US 19/74/NC 28, from US 19/NC 28 to 1700 feet east of the Little Tennessee River in Swain County does not meet the future mobility and connectivity needs in western North Carolina.

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

This corridor is intended to provide connectivity between Chattanooga, Tennessee and Asheville, North Carolina. This section of US 19/74/NC 28 is designated as an expressway on the Strategic Highway Corridor Vision (SHC) plan adopted by NCDOT on September 2, 2004. The existing facility has a five lane undivided cross section with 12 foot lanes. Improvements to this facility shall align with the goals of the SHC Vision Plan and include converting the existing facility to a four lane divided facility with bicycle accommodations.

Based on a planning level environmental assessment using available GIS data, a portion of the proposed project crosses a wetland area, trout waters, federal lands and is within the vicinity of a natural heritage element occurrence.

The 1978 Swain County Thoroughfare did not include any improvements to this section of US 74.

US 441, Local ID: SWAI0002-H

US 441 from Jackson County to the US 441/US 19 split does not meet the future mobility and connectivity needs in western North Carolina and into Tennessee.

This corridor is intended to provide connectivity between Atlanta, Georgia and Tennessee. The existing facility has a five lane undivided cross section with 12 foot lanes from Jackson County to the US 441/US 19 merge, and a three lane cross section with 12 foot lanes from this point to the US 441/US 19 split.

NCDOT's Strategic Highway Corridor (SHC) Vision Plan designates US 441 as a boulevard from Jackson County to the US 441/US 19 split. The CTP proposal (SWAI0002-H) includes converting/widening the existing facility to a four lane divided boulevard.

Based on a planning level environmental assessment using available GIS data, the proposed project is within the Eastern Band of Cherokee Indian Boundary. Additionally, there are water and sewer distribution pipes along this facility.

The 1978 Swain County Thoroughfare did not include any improvements to this section of US 441.

PUBLIC TRANSPORTATION & RAIL

The Public Transportation and Rail elements of the Swain County CTP are shown in Figure 1, Sheet 3. The following recommendation was identified during the development of the CTP and will help achieve the CTP goals of creating a choice of transportation modes and coordinating multi-modal routes.

- SWAI0001-T: Construct a new, paved, park-and-ride lot at the intersection of SR 1168 (Hyatt Creek Road) and US 74 to serve locals and commuters.

BICYCLE

The Bicycle element of the Swain County CTP is shown in Figure 1, Sheet 4. The following routes identified by the committee will help achieve the CTP goals of creating a choice of transportation modes and developing and maintaining a transportation system that runs smoothly and timely.

- **SWAI0001-B:** US 19/US 74 from Macon County to US 74/US 19/NC 28
- **SWAI0001-H:** US 74/US 19/NC 28 from NC 28 to 1700 feet east of the Little Tennessee River
- **SWAI0002-B:** US 19 from 1700 feet east of the Little Tennessee River to Slope Street (SR 1323)
- **SWAI0003-B:** US 19 from 2100 feet west of Shuler Road (SR 1354) to Jackson County
- **SWAI0004-B:** East Deep Creek Road (SR 1339) from SR 1336 (Depot Street) to Great Smoky Mountains National Park
- **SWAI0005-B:** Fontana Road (SR 1364) from SR 1336 (Depot Street) to end of road
- **SWAI0006-B:** Laurel Branch Road (SR 1311) from US 19 to US 19

In accordance with the American Association of State Highway and Transportation Official (AASHTO), roadways identified as bicycle routes should incorporate the following standards as roadway improvements are made and funding is available:

- Curb and gutter sections require, at minimum, 4 foot bike lanes or 14 foot outside lanes.
- Shoulder sections require a minimum 4 foot paved shoulder.
- All bridges along roadways where bike facilities are recommended shall be equipped with 54 inch railings.

Additionally, multi-use path recommendations from the 2001 Bryson City/Swain County Greenway System Plan were incorporated as a part of the CTP. They are shown on Figure 1, Sheets 4 and 5.

PEDESTRIAN

The Pedestrian element of the Swain County CTP is shown in Figure 1, Sheet 5. The 2007 Town of Bryson City Pedestrian Plan was utilized in the development of the CTP.

APPENDICES

Appendix A Resources and Contacts

North Carolina Department of Transportation

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)

<https://apps.dot.state.nc.us/dot/directory/authenticated/ToC.aspx>

Secretary of Transportation

1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2800
<http://www.ncdot.org/about/leadership/secretary.html>

Board of Transportation

1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-2820
<http://www.ncdot.gov/about/board/>

Highway Division

253 Webster Road Sylva, NC 28779 (828) 586-2141
<http://www.ncdot.gov/doh/operations/division14/>

Contact the:

- Division Engineer with general questions concerning NCDOT activities within each Division and for information on Small Urban Funds.
- Division Construction Engineer for information concerning major roadway improvements under construction.
- Division Traffic Engineer for information concerning traffic signals, highway signs, pavement markings, and crash history.
- Division Operations Engineer for information concerning facility operations.
- Division Maintenance Engineer information regarding maintenance of all state roadways, improvement of secondary roads and other small improvement projects. The Division Maintenance Engineer also oversees the District Offices, the Bridge Maintenance Unit and the Equipment Unit.
- District Engineer for information on outdoor advertising, junkyard control, driveway permits, road additions, subdivision review and approval, Adopt-A-Highway program, encroachments on highway right of way, issuance of oversize/overwidth permits, paving priorities, secondary road construction program and road maintenance.

345 Toot Hollow Road Bryson City, NC 28713 (828) 488-2131

Transportation Planning Branch (TPB)

Contact the Transportation Planning Branch for information on long-range multi-modal planning services.

1554 Mail Service Center Raleigh, NC 27699-1554 (919) 707-0900
<http://www.ncdot.gov/doh/preconstruct/tpb/>

Southwestern Rural Planning Organization (RPO)

Contact the RPO for information on long-range multi-modal planning services.

125 Bonnie Lane Sylva, NC 28779 (828) 586-1962
<http://www.regiona.org/transportation-planning-rpo/>

Strategic Planning Office

Contact the Strategic Planning Office for information concerning prioritization of transportation projects.

1501 Mail Service Center Raleigh, NC 27699-1501 (919) 707-4740
<http://www.ncdot.gov/performance/reform/prioritization/>

Project Development & Environmental Analysis (PDEA)

Contact PDEA for information on environmental studies for projects that are included in the TIP.

1548 Mail Service Center Raleigh, NC 27699-1548 (919) 707-6000
<http://www.ncdot.gov/doh/preconstruct/pe/>

Secondary Roads Unit

Contact the Secondary Roads Unit for 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 27699-1535 (919) 707-2500
<http://www.ncdot.gov/doh/operations/secondaryroads/>

Program Development Branch

Contact the Program Development Branch for information concerning Roadway Official Corridor Maps, Feasibility Studies and the Transportation Improvement Program (TIP).

1534 Mail Service Center Raleigh, NC 27699-1534 (919) 707-4610
<http://www.ncdot.org/planning/development/>

Public Transportation Division

Contact the Public Transportation Division for information public transit systems.

1550 Mail Service Center Raleigh, NC 27699-1550 (919) 707-4670
<http://www.ncdot.org/transit/nctransit/>

Rail Division

Contact the Rail Division for rail information throughout the state.

1553 Mail Service Center Raleigh, NC 27699-1553 (919) 707-4700
<http://www.bytrain.org/>

Division of Bicycle and Pedestrian Transportation

Contact this Division for bicycle and pedestrian transportation information throughout the state.

1552 Mail Service Center Raleigh, NC 27699-1552 (919) 707-2600
<http://www.ncdot.gov/transit/bicycle/>

Structures Management Unit

Contact the Structures Management Unit for information on bridge management throughout the state.

1581 Mail Service Center Raleigh, NC 27699-1581 (919) 707-6400
http://www.ncdot.gov/doh/operations/dp_chief_eng/maintenance/bridge/

Roadway Design Unit

Contact the Roadway Design Unit for information regarding design plans and proposals for road and bridge projects throughout the state.

1582 Mail Service Center Raleigh, NC 27699-1582 (919) 707-6200
<http://www.ncdot.org/doh/preconstruct/highway/roadway/>

Transportation Mobility and Safety Division

Contact the Traffic Safety Unit for information regarding crash data throughout the state.

1561 Mail Service Center Raleigh, NC 27699-1561 (919) 773-2800
<https://connect.ncdot.gov/resources/safety/Pages/default.aspx>

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/en/CommunityServices/>

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

For visual depiction of facility types for the following CTP classification, visit <http://www.ncdot.gov/doh/preconstruct/tpb/SHC/facility/>.

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

Revised: October 4, 2012

- **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 high speed rail service is provided (there are currently no existing high speed corridors in North Carolina).
 - Recommended – Proposed corridor for high speed rail service.
- **Rail Stop** – A railroad station or stop along the railroad tracks.
- **Intermodal 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 or a bus station.
- **Park and Ride Lot** – A strategically located parking lot that is free of charge to anyone who parks a vehicle and commutes by transit or in a carpool.
- **Existing Grade Separation** – Locations where existing rail facilities and 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 '(ft)' is the approximate width of the roadway from edge of pavement to edge of pavement. Listed under 'lanes' is the total number of lanes, with the letter 'D' if the facility is divided.
- **Existing ROW:** The estimated existing right-of-way is based on NCDOT inventory. 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 using the Mountains Methodology, as documented in Chapter 1.
- **Existing and Proposed AADT** (Annual Average Daily Traffic) volumes, given in vehicles per day (vpd), are estimates only based on a systems-level analysis. The '2035 AADT E+C' is an estimate of the volume in 2035 with only existing plus committed projects assumed to be in place, where committed is defined as projects programmed for construction in the 2012 – 2018 Transportation Improvement Program (TIP). The '2035 AADT with CTP' is an estimate of the volume in 2035 with all proposed CTP improvements assumed to be in place. The '2035 AADT 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 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 Multitmodal Investment Network (NCMIN). Abbreviations are Sta= statewide tier, Reg= regional tier, Sub= subregional tier.
- **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, and P= pedestrian).

Table 3

CTP INVENTORY AND RECOMMENDATIONS

		HIGHWAY																
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2010 Existing System					2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section (ft)	lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)			
	US 19	Macon County to NC 28	Swain County	11.70	20	2	60	40	11700	4400	5000	5000	ADQ	ADQ	ADQ	Maj	Reg	-
SWA10001-H	US 19	US 19/US 74/NC 28 merge to Needmore Rd (SR 1113)	Swain County	0.20	60	5	180	45	46400	7500	10900	10900	4A	ADQ	ADQ	E	Sta	B
SWA10001-H	US 19	Needmore Rd (SR 1113) to Johnson Rd (SR 1123)	Swain County	2.00	60	5	180	55	48900	7500	10900	10900	4A	ADQ	ADQ	E	Sta	B
	US 19	Johnson Rd (SR 1123) to US 19/US 74/NC 28 split	Swain County	1.10	100	4D	200	55	49700	7500	10900	10900	ADQ	ADQ	ADQ	E	Sta	-
	US 19	NC 28 to Parrish Rd (SR 1305)	Swain County	1.20	100	4D	160	55	52200	8700	12500	12500	ADQ	ADQ	ADQ	E	Sta	-
	US 19	Parrish Rd (SR 1305) to US 19/US 74 split	Swain County	1.00	100	4D	180	45	47200	8600	11000	11000	ADQ	ADQ	ADQ	E	Sta	-
	US 19	US 74 to Bryson City Limit	Swain County	2.10	24	2	60	45	15800	5100	6500	6500	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	Bryson City Limit to School Bus Shop	Bryson City	0.90	20	2	80	20	11500	6700	8500	8500	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	School Bus Shop to Slope Street (SR 1323)	Bryson City	0.30	30	3	60	20	19900	9700	13700	13700	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	Slope Street (SR 1323) to Main Street (US 19)	Bryson City	0.10	36	2	60	20	8600	9900	11500	11500	-	-	-	Maj	Reg	-
	US 19 (Main Street)	Main Street (US 19) to Everett St (SR 1364)	Bryson City	0.20	24	2	60	20	8600	8800	10000	10000	-	-	-	Maj	Reg	-
	US 19 (Main Street)	Everett St (SR 1364) to 0.1 miles east of Everett St. (SR 1364)	Bryson City	0.50	24	2	60	20	8600	8800	9300	9300	-	-	-	Maj	Reg	-
	US 19	0.1 miles east of Everett St (SR 1364) to Walker Woody Rd (SR 1168)	Bryson City/Swain County	3.10	20	2	60	35	11500	6000	7600	7600	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	Walker Woody Rd (SR 1168) to EBCI Reservation	Swain County	4.70	22	2	70	45	12500	4800	5700	5700	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	EBCI Reservation to Owl Branch Rd	Swain County	2.40	20	2	60	45	12500	6800	9400	9400	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	Owl Branch Rd to US 441	Swain County	0.30	34	3	60	35	31900	12000	13700	13700	ADQ	ADQ	ADQ	Maj	Reg	-
SWA10002-H	US 19	US 19/US 441 split to Hospital Rd (SR 1390)	Swain County	0.30	60	4	100	35	31900	12000	13700	13700	4A	ADQ	ADQ	B	Sta	-
SWA10002-H	US 19	Hospital Rd (SR 1390) to US 19/US 441 split	Swain County	0.20	30	2	60	35	16700	12000	13700	13700	4A	ADQ	ADQ	B	Sta	-
	US 19	US 19/US 441 split to SR 1391	Swain County	0.50	48	4	60	20	13000	12000	13700	13700	ADQ	ADQ	ADQ	Maj	Reg	-
	US 19	SR 1391 to Jackson County	Swain County	0.20	48	4	60	35	14600	9500	12500	12500	ADQ	ADQ	ADQ	Maj	Reg	-

HIGHWAY

Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2010 Existing System					2035 Proposed System					Other Modes		
					Cross-Section (ft)	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)		CTP Classification	
																	(lanes)
	US 74	Macon County to NC 28															
SWAI0001-H	US 74	US 19/US74/NC 28 merge to Needmore Rd (SR 1113)															
SWAI0001-H	US 74	Needmore Rd (SR 1113) to Johnson Rd (SR 1123)															
US 74	US 74	Johnson Rd (SR 1123) to US 19/US 74/US 28 split															
US 74	US 74	NC 28 to Parrish Rd (SR 1305)															
US 74	US 74	Parrish Rd (SR 1305) to US 19/US 74 split															
US 74	US 74	US 19 to Jackson County	Swain County	7.90	90	4D	150	45	52200	10000	16900	16900	ADQ	ADQ	ADQ	F	Sta
US 129		Graham County to Tennessee	Swain County	2.90	20	2	60	50	11700	690	900	900	ADQ	ADQ	ADQ	Maj	Reg
SWAI0002-H	US 441	Jackson County to US 19	Swain County	0.70	60	5	100	45	46500	9000	16500	16500	43900	4A	180	B	Sta
SWAI0002-H	US 441	US 19/US 441 to Hospital Rd (SR 1390)															
SWAI0002-H	US 441	Hospital Rd (SR 1390) to US 19/US 441															
US 441	US 441	US 19 to Great Smoky Mountains National Park Bndry	Swain County	2.00	22	2	60	35	14600	12000	13700	13700	ADQ	ADQ	ADQ	Maj	Sta
NC 28	NC 28	US 129 to Graham County	Swain County	7.90	20	2	60	50	11700	430	500	500	ADQ	ADQ	ADQ	Maj	Reg
NC 28	NC 28	Graham County to US 19/US 74	Swain County	3.40	24	2	150	55	11700	3700	5800	5800	ADQ	ADQ	ADQ	E	Sta
SWAI0001-H	NC 28	US 19/US74/NC 28 merge to Needmore Rd (SR 1113)															
SWAI0001-H	NC 28	Needmore Rd (SR 1113) to Johnson Rd (SR 1123)															
NC 28	NC 28	Johnson Rd (SR 1123) to US 19/US 74/US 28 split															
NC 28	NC 28	US 74 to Macon County	Swain County	7.20	20	2	100	55	11700	1400	2300	2300	ADQ	ADQ	ADQ	Maj	Reg
Alarka Rd (SR 1140)		US 19 to Deep Gap Rd (SR 1137)	Swain County	4.10	18	2	40	35	8300	2200	2700	2700	ADQ	ADQ	ADQ	Min	Sub
Arlington Ave/School Dr (SR 1158)		Hughes Branch Rd (SR 1152) to Bryson City limit	Swain County	0.50	16	2	50	25	8300	340	500	500	ADQ	ADQ	ADQ	Min	Sub
Arlington Ave/School Dr (SR 1158)		Bryson City limit to Slope Street (SR 1323)	Bryson City	0.50	24	2	50	25	8300	1200	1400	1400	ADQ	ADQ	ADQ	Min	Sub

HIGHWAY

Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2010 Existing System					2035 Proposed System					CTP Classification	Other Tier Modes	
					Cross-Section (ft) lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)			
																	(ft)
	Bryson Branch Rd (SR 1328)	Sherril Rd (SR 1365) to Fontana Rd (SR 1364)	Bryson City	0.40	16	2	30	25	7100	470	600	600	ADQ	ADQ	ADQ	Min	Sub
	Bryson Walk Rd (SR 1321)	End of road to Bryson City limit	Swain County	1.30	18	2	30	35	6100	440	700	700	ADQ	ADQ	ADQ	Min	Sub
	Bryson Walk Rd (SR 1321)	Bryson City limit to Balltown Rd (SR 1323)	Bryson City	1.10	16	2	30	35	5900	1700	2000	2000	ADQ	ADQ	ADQ	Min	Sub
	Bryson Walk Rd (SR 1321)	Balltown Rd (SR 1323) to Everett St (SR 1364)	Bryson City	0.20	24	2	40	35	6800	3500	4000	4000	ADQ	ADQ	ADQ	Min	Sub
	Buckner Branch Rd/Laurel Branch Rd/Grassy Branch Rd/Lower Alarka Rd (SR 1309)	US 19 to Cold Springs Rd (SR 1304)	Swain County	1.00	20	2	40	55	11700	1300	1500	1500	ADQ	ADQ	ADQ	Min	Sub
	Buckner Branch Rd/Laurel Branch Rd/Grassy Branch Rd/Lower Alarka Rd (SR 1309)	Cold Springs Rd (SR 1304) to US 19	Swain County	10.00	16	2	40	55	11700	1800	2050	2050	ADQ	ADQ	ADQ	Min	Sub
	Cold Springs Rd (SR 1304)	Lower Alarka Rd (SR 1309) to US 74	Swain County	0.60	20	2	40	40	8600	360	500	500	ADQ	ADQ	ADQ	Min	Sub
	Deep Creek Rd (SR 1336)	Everett St (SR 1364) to Wells St (SR 1348)	Bryson City	0.60	18	2	50	35	10400	4800	5500	5500	ADQ	ADQ	ADQ	Min	Sub
	E. Deep Creek Road (SR 1339)	W. Deep Creek Rd to Great Smoky Mountain National Park	Swain County	1.70	16	2	30	35	10400	1400	1600	1600	ADQ	ADQ	ADQ	Min	Sub
	Everett Street (SR 1364)	US 19 (Main Street) to Bryson Walk (SR 1321)	Bryson City	0.50	24	2	100	20	8600	8800	10000	10000	-	-	-	Min	Sub
	Everett Street (SR 1364)	Bryson Walk (SR 1321) to Toot Hollow Rd (SR 1333)	Bryson City	<0.1	24	2	100	35	11600	2600	3000	3000	ADQ	ADQ	ADQ	Min	Sub
	Everett Street (SR 1364)	Toot Hollow Rd (SR 1333) to Black Hill Rd (SR 1366)	Bryson City	0.20	20	2	50	35	11600	2600	3000	3000	ADQ	ADQ	ADQ	Min	Sub

HIGHWAY

Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2010 Existing System					2035 Proposed System					CTP Classification	Other Modes	
					Cross-Section (ft) lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)	CTP Classification			
																	(ft)
	Fontana Rd (SR 1364)	Black Hill Rd (SR 1366) to Bryson Branch Rd (SR 1328)	Bryson City/Swain County	0.80	20	2	100	35	11600	2600	3000	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Fontana Rd (SR 1364)	Bryson Branch Rd (SR 1328) to Great Smoky Mountain National Park	Swain County	1.70	20	2	100	45	12500	2300	2900	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Franklin Grove Church Rd/ Balltown Rd (SR 1323)	Bryson Walk (SR 1321) to Bryson Branch Rd (SR 1328)	Bryson City	0.60	16	2	60	30	10400	2500	2900	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Highway 19A (SR 1195)	Jackson County to Jess Nations Rd (SR 1359)	Swain County	0.90	18	2	60	45	8300	1400	1600	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Highway 19A (SR 1195)	Jess Nations Rd (SR 1359) to US 19	Swain County	0.50	18	2	60	35	8000	1400	1600	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Hyatt Creek (SR 1168)	Walker Woody Rd (SR 1168) to US 19	Swain County	1.70	24	2	100	45	12500	1800	2500	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Jenkins Branch Rd/ Hughes Branch Rd (SR 1152)	US 19 to pavement change	Bryson City	0.30	20	2	50	35	8300	1900	4600	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Jenkins Branch Rd/ Hughes Branch Rd (SR 1152)	Pavement change to Bryson City Limit	Swain County	0.70	18	2	50	35	8000	1900	4600	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Jenkins Branch Rd/ Hughes Branch Rd (SR 1152)	Bryson City Limit to US 19	Bryson City	0.50	16	2	50	35	7700	560	900	ADQ	ADQ	ADQ	ADQ	Min	Sub
	Needmore Rd (SR 1113)	US 19/US 74/NC 28 to Macon County	Swain County	7.80	16	2	60	35	7700	1000	1150	ADQ	ADQ	ADQ	ADQ	Min	Sub

HIGHWAY

Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2010 Existing System					2035 Proposed System					CTP Classification	Other Modes	
					Cross-Section (ft) lanes	ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2010 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)			
																	CTP Classification
	Shepherds Creek Rd (SR 1166)	End of Pavement to US 74 bridge	Swain County	2.00	16	2	0	NP	7700	1600	1850	1850	ADQ	ADQ	ADQ	Min	Sub
	Shepherds Creek Rd (SR 1166)	Under US 74 bridge	Swain County	<0.1	24	2	0	35	8300	1600	1850	1850	ADQ	ADQ	ADQ	Min	Sub
	Shepherds Creek Rd (SR 1166)	US 74 bridge to US 19	Swain County	0.60	16	2	0	35	7700	1600	1850	1850	ADQ	ADQ	ADQ	Min	Sub
	Sherril Rd (SR 1365)	Franklin Grove Church Rd (SR 1323) to Fontana Rd (SR 1364)	Swain County	1.00	16	2	60	25	8300	470	600	600	ADQ	ADQ	ADQ	Min	Sub
	Spring Sr/Veteran's Blvd (SR 1159)	US 74 to Speed Limit Change (North of Burger King)	Bryson City/Swain County	0.40	52	4	100	35	14600	8300	9500	9500	ADQ	ADQ	ADQ	Min	Sub
	Spring Sr/Veteran's Blvd (SR 1159)	Speed Limit Change (North of Burger King) to US 19	Bryson City	0.20	52	4	80	20	14600	9100	10000	10000	ADQ	ADQ	ADQ	Min	Sub
	Slope St (SR 1323)	US 19 to Bryson Walk (SR 1321)	Bryson City	0.20	24	2	60	20	8600	9900	11500	11500	-	-	-	Min	Sub
	Toot Hollow Rd/Water St (SR 1333)	Everett St (SR 1364) to Bryson Branch Rd (SR 1328)	Bryson City/Swain County	0.70	18	2	40	35	8300	1000	1300	1300	ADQ	ADQ	ADQ	Min	Sub
	Toot Hollow Rd/Water St (SR 1333)	Bryson Branch Rd (SR 1328) to W. Deep Creek Rd (SR 1337)	Swain County	1.00	16	2	30	35	7700	1000	1300	1300	ADQ	ADQ	ADQ	Min	Sub
	Walker Woody (SR 1168)	Hyatt Creek Rd (SR 1168) to US 19	Swain County	1.30	20	2	80	45	12500	2100	2900	2900	ADQ	ADQ	ADQ	Min	Sub
	W. Deep Creek Road (SR 1337)	Deep Creek Rd (SR 1336) to Great Smoky Mountain National Park	Bryson City/Swain County	1.90	18	2	40	35	8300	2500	5600	5600	ADQ	ADQ	ADQ	Min	Sub

PUBLIC TRANSPORTATION AND RAIL

PUBLIC TRANSPORTATION ¹									
Local ID	Facility/ Route	Section (From - To)	Speed Limit (mph)	Distance (mi)	Existing System		Proposed System		Other Modes
					Type	Type	Type	Type	
	US 19/US 74 ²	Almond - Jackson County	55-65	15	Van	-	-	-	-
	US 19/Slope Street (SR 1323)/Bryson Walk (SR 1321) Everett St (SR 1364)/W. Deep Creek Rd (SR 1337)	Mountain View Manor Nursing Home - Swain County Recreation Center	15-45	-	Van Circulator	-	-	-	-
	US 19	Southwestern Community College - Harrah's Casino	31-65	15.5	Van	-	-	-	-

¹ Only major public transportation routes and proposals are shown here. For more information refer to the Swain County Public Transit Department (www.swaintransit.com)

² SWAI0001-T Park and Ride Lot at Hyatt Creek Rd (SR 1168) at US 74

RAIL											
Local ID	Facility/ Route	Section (From - To)	Class	Speed Limit (mph)	Distance (mi)	Existing System			Proposed System		
						Type	ROW (ft)	Trains per day	Type	ROW (ft)	Trains per day
	Great Smoky Mountain Railroad	Jackson County to Macon County	III	25	30	Freight and Tourist	15-300	varies	-	-	-

BICYCLE AND PEDESTRIAN ¹

BICYCLE									
Local ID	Facility/ Route	Section (From - To)	Distance (mi)	Existing System		Proposed System		Other Modes	
				Cross-Section (ft)	lanes	Type	Cross-Section		
SWAI0001-B	US19/US 74	Macon County - NC 28	12	20	2	On Road	2A	-	
SWAI0001-H	US 19/US 74/NC 28	NC 28 - 1700 feet east of Little Tennessee River	2.2	Concurrent with US 19/US 74/NC 28 - see Highway Table				H	
SWAI0002-B	US 19	1700 feet east of Little Tennessee River - Slope St (SR 1323)	6.5	24	2	On Road	2B	-	
SWAI0003-B	US 19	2100 feet west of Shuler Road (SR 1354) to Jackson County	3.7	22	2	On Road	2B	-	
SWAI0004-B	Laurel Branch Rd (SR 1311)	US 19 - US 19	10	16	2	On Road	2B	-	
SWAI0005-B	E. Deep Creek Rd (SR 1339)	Depot St (SR 1336) to Great Smoky Mountains National Park Boundary	1.7	16	2	On Road	2C	-	
SWAI0006-B	Fontana Rd (SR 1364)	Depot St (SR 1336) to end of road	8.2	20	2	On Road	2B	-	

¹ Only major routes and proposals are shown here. For further documentation of bicycle and pedestrian facilities and proposals, refer to the 2007 Town of Bryson City Pedestrian Plan and the 2001 Bryson City/Swain County Greenway System Plan.

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 typical cross sections were updated on December 7, 2010 to support the Department's "Complete Streets"¹ policy that was adopted in July 2009. This guidance established design elements that emphasize safety, mobility, and accessibility for multiple modes of travel. These "typical" cross sections should be used as preliminary 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 (NEPA) documentation and through final plan 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:

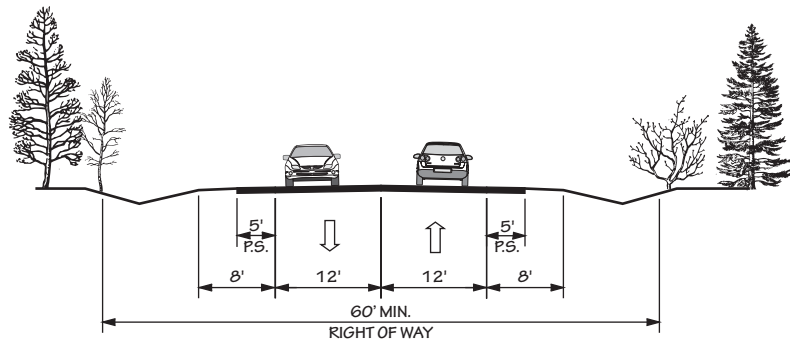
- roadways which may require widening after the current planning period,
- roadways which are borderline adequate and accelerated traffic growth could render them deficient,
- roadways where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment,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

¹ For more information on Complete Streets, go to: <http://www.nccompletestreets.org/index.asp>.

FIGURE 9 TYPICAL HIGHWAY CROSS SECTIONS 2 LANES

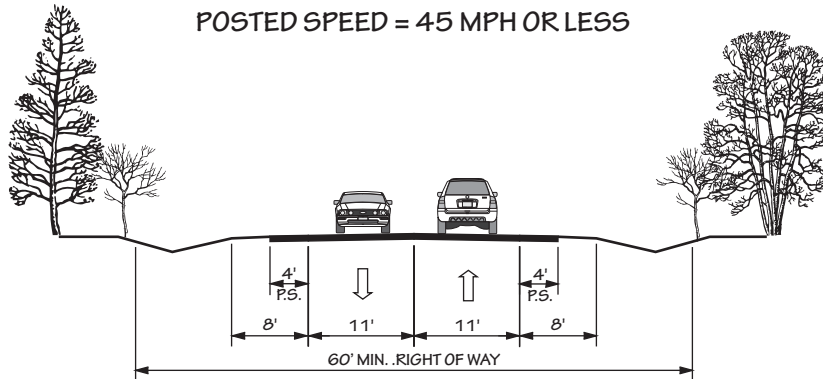
2 A

WIDE PAVED SHOULDERS
POSTED SPEED = 55 MPH



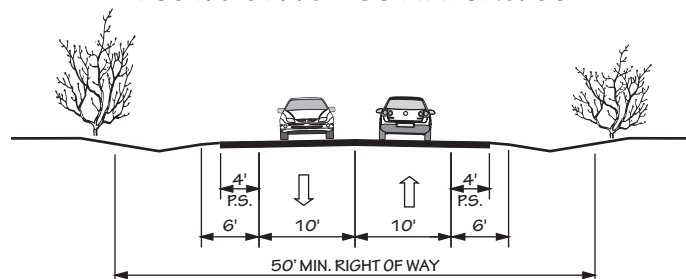
2 B

WIDE PAVED SHOULDERS
POSTED SPEED = 45 MPH OR LESS



2 C

WIDE PAVED SHOULDERS
POSTED SPEED = 35 MPH OR LESS

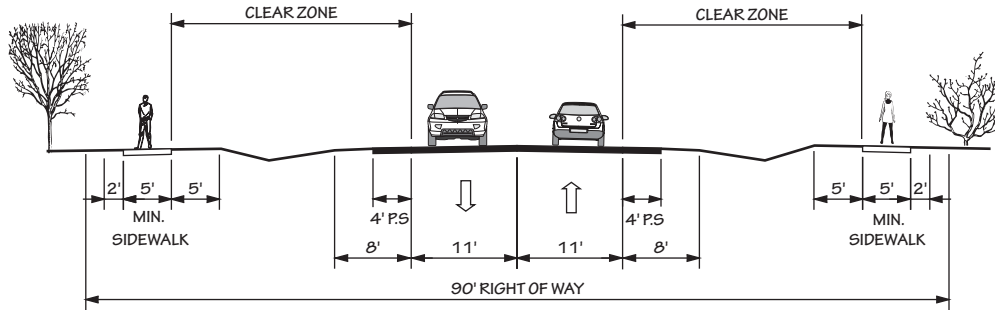


TYPICAL HIGHWAY CROSS SECTIONS

2 LANES

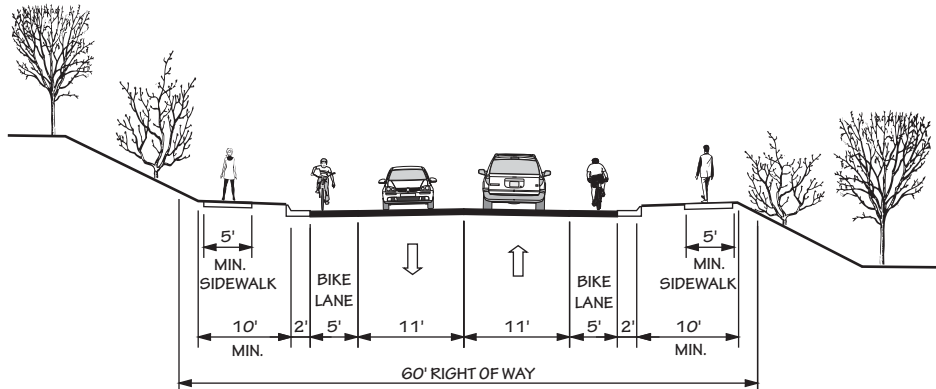
2 D

SIDEWALK PLACEMENT BEHIND A ROADWAY DITCH



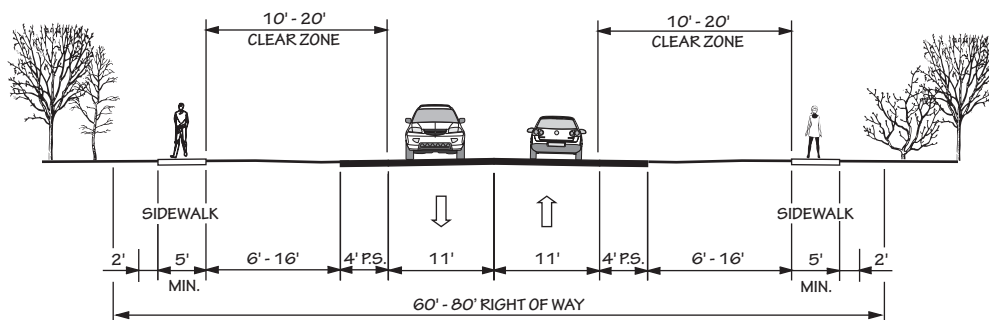
2 E

CURB AND GUTTER WITH BIKE LANES AND SIDEWALKS



2 F

BUFFERS AND SIDEWALKS WITHOUT A ROADWAY DITCH
(20 MPH TO 45 MPH)
(TYPICALLY COASTAL AREA MANAGEMENT ACT COUNTIES)

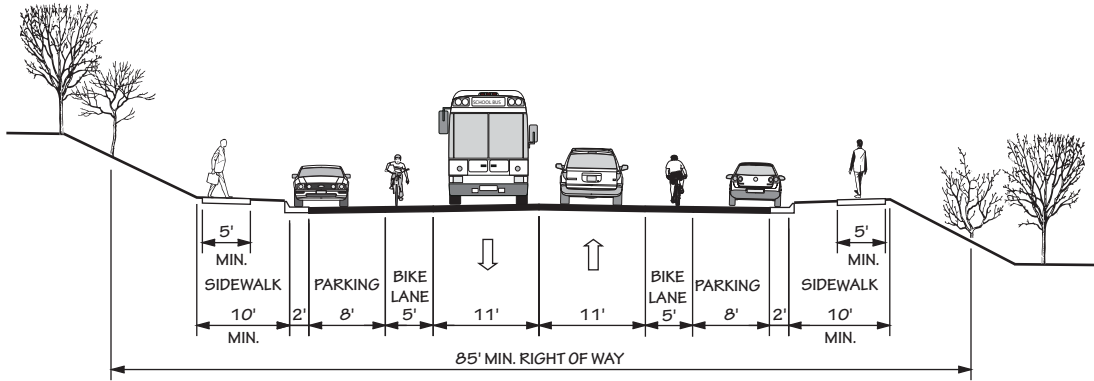


TYPICAL HIGHWAY CROSS SECTIONS

2 LANES

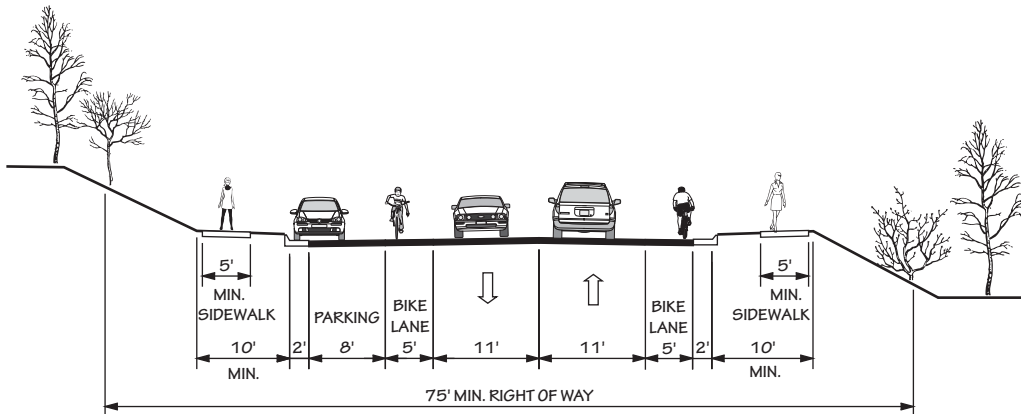
2 G

CURB & GUTTER - PARKING ON EACH SIDE



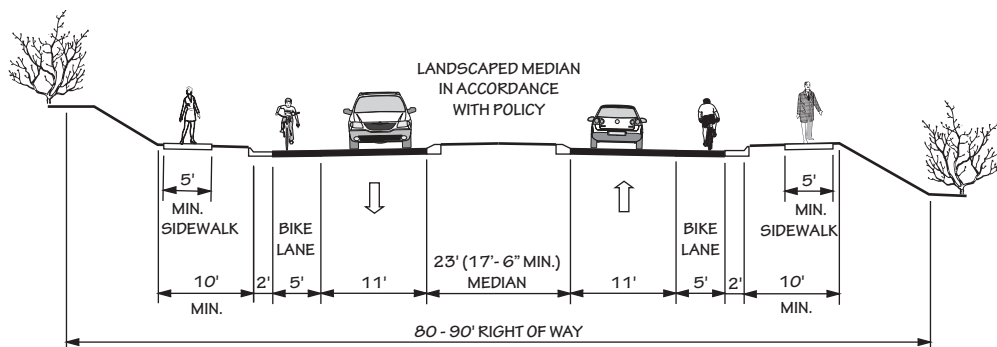
2 H

CURB & GUTTER - PARKING ON ONE SIDE



2 I

RAISED MEDIAN WITH CURB & GUTTER

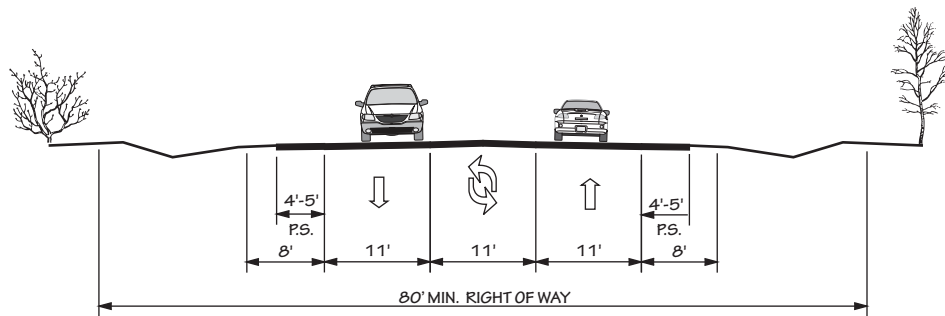


TYPICAL HIGHWAY CROSS SECTIONS

3 LANES

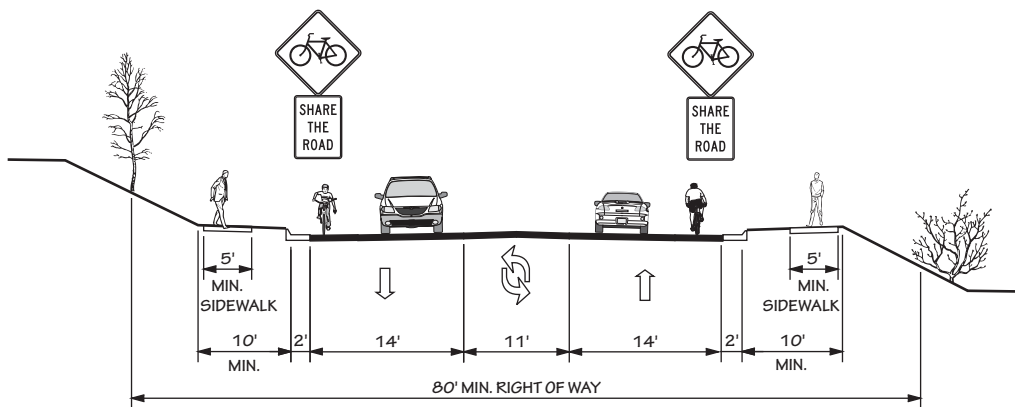
3 A

WIDE PAVED SHOULDERS



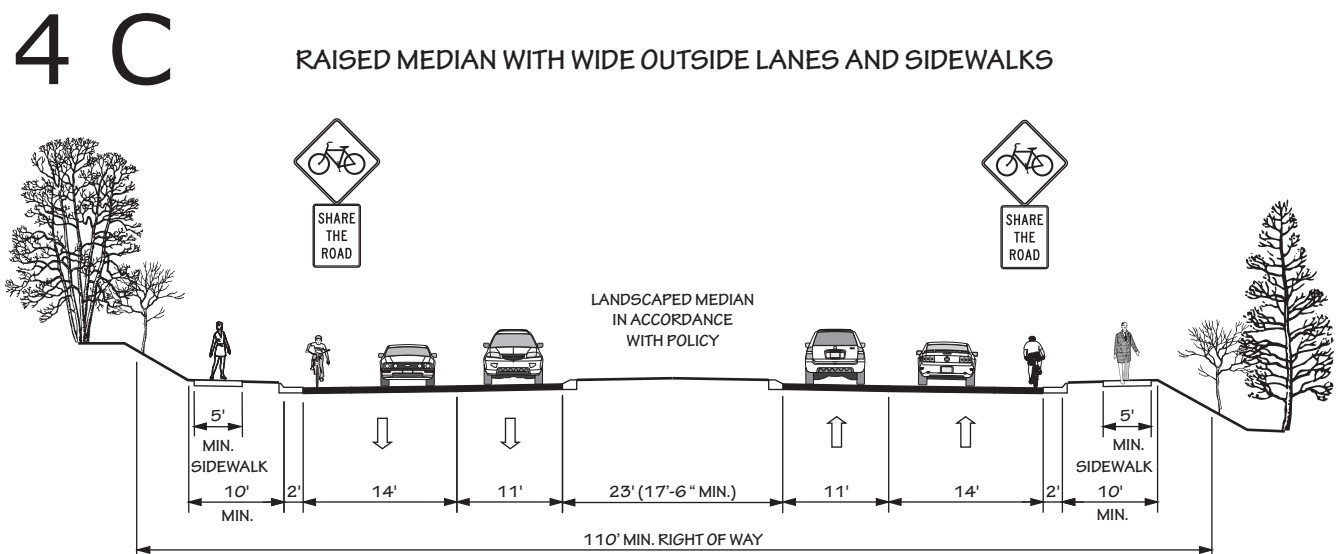
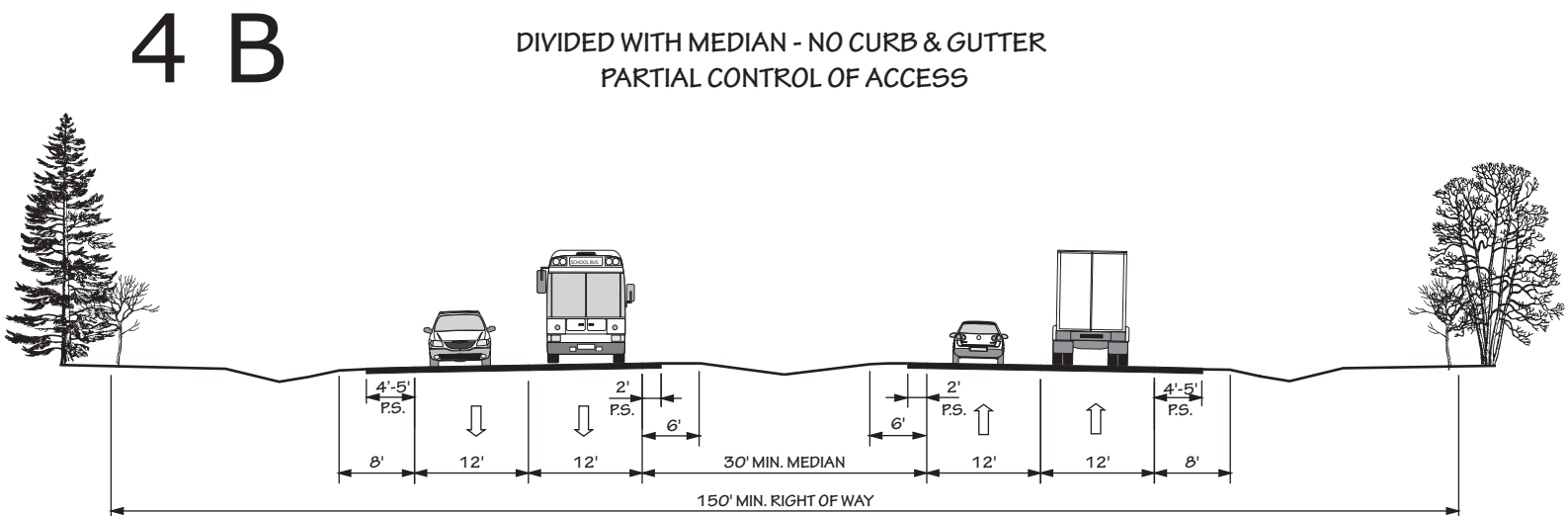
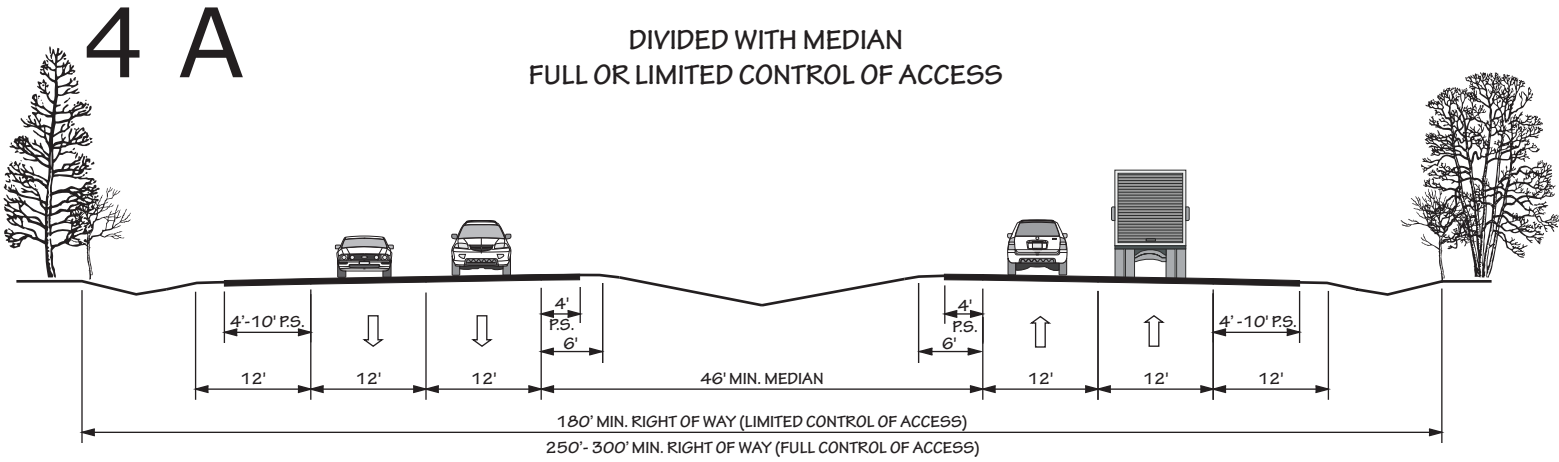
3 B

CURB & GUTTER WITH WIDE OUTSIDE LANES AND SIDEWALKS



TYPICAL HIGHWAY CROSS SECTIONS

4 LANES

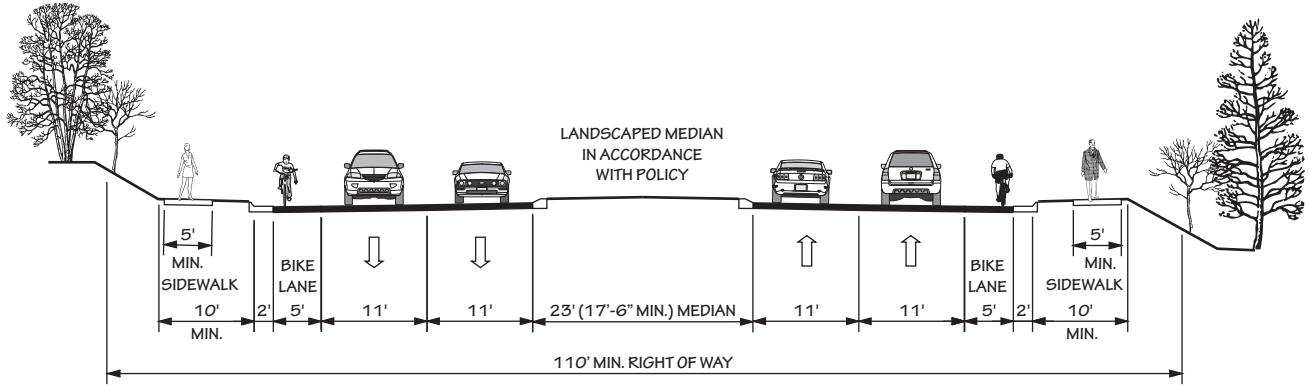


TYPICAL HIGHWAY CROSS SECTIONS

4 LANES

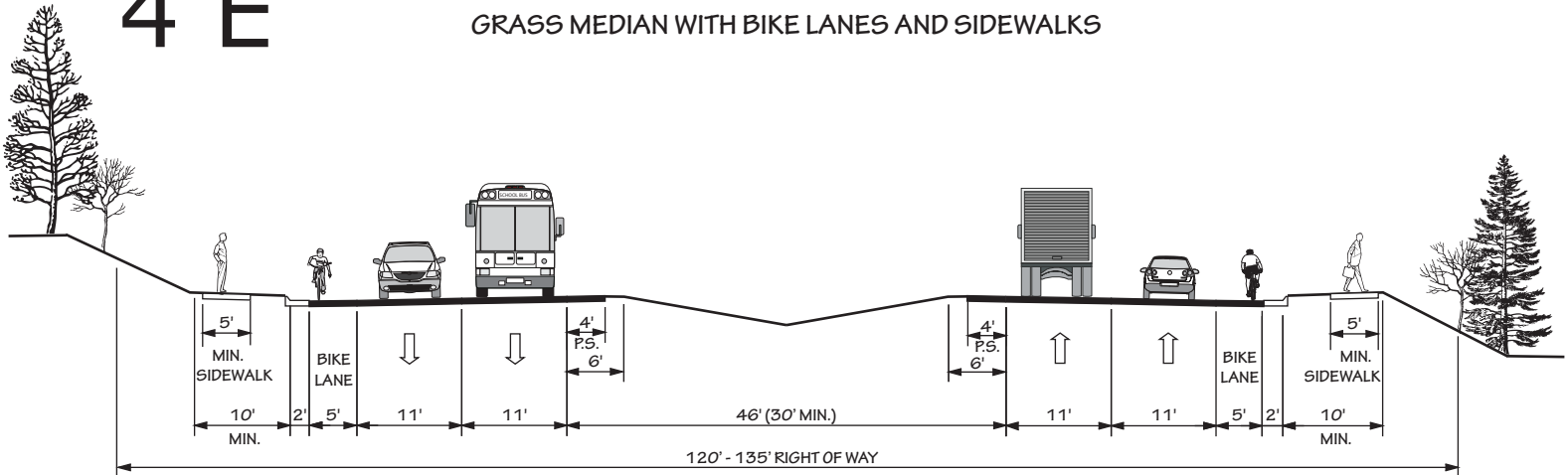
4 D

RAISED MEDIAN - CURB & GUTTER WITH BIKE LANES AND SIDEWALKS



4 E

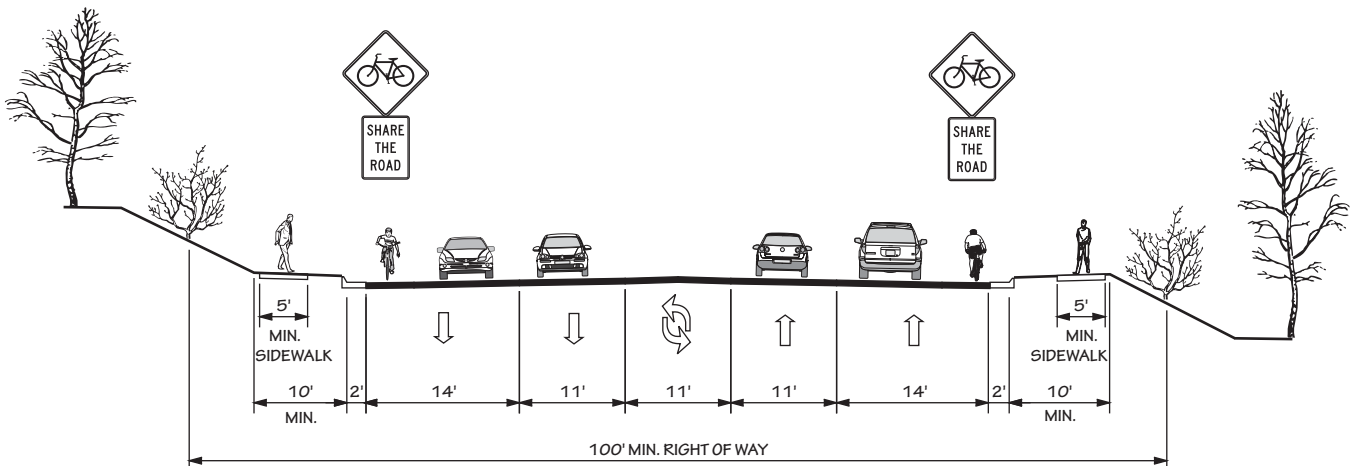
GRASS MEDIAN WITH BIKE LANES AND SIDEWALKS



5 LANES

5 A

WIDE OUTSIDE LANES

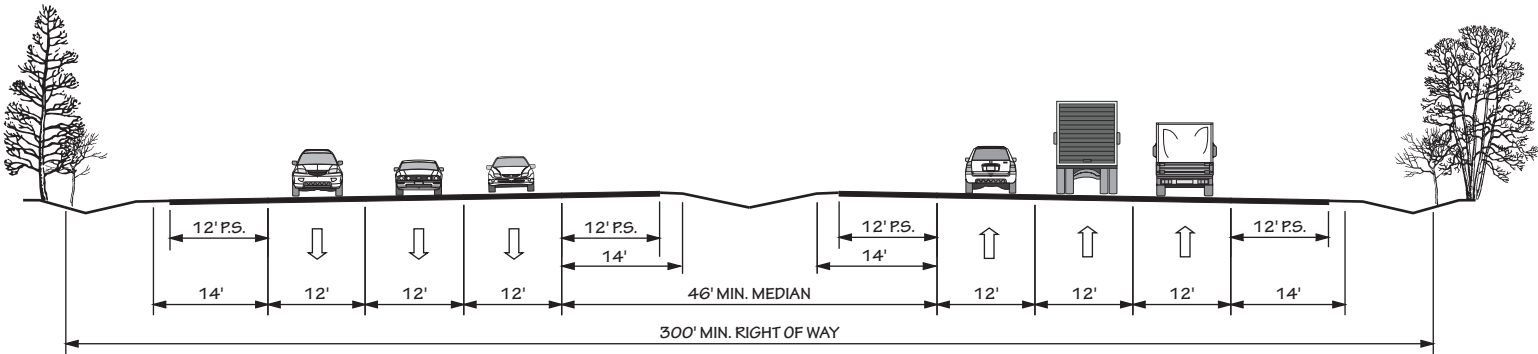


TYPICAL HIGHWAY CROSS SECTIONS

6 LANES

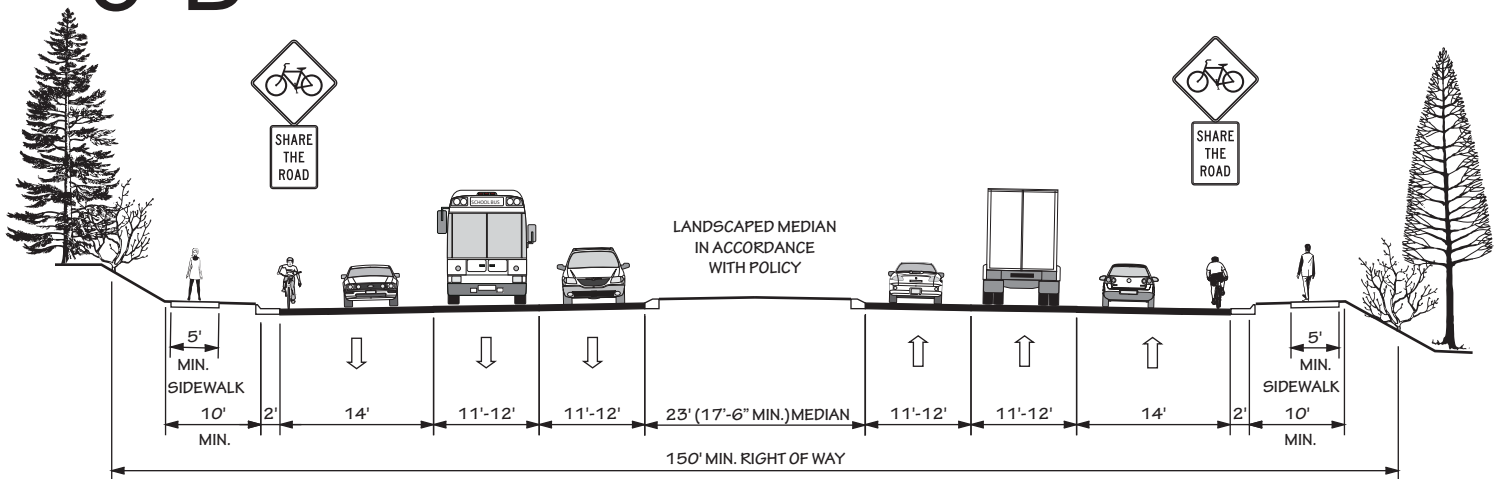
6 A

DIVIDED WITH GRASS MEDIAN



6 B

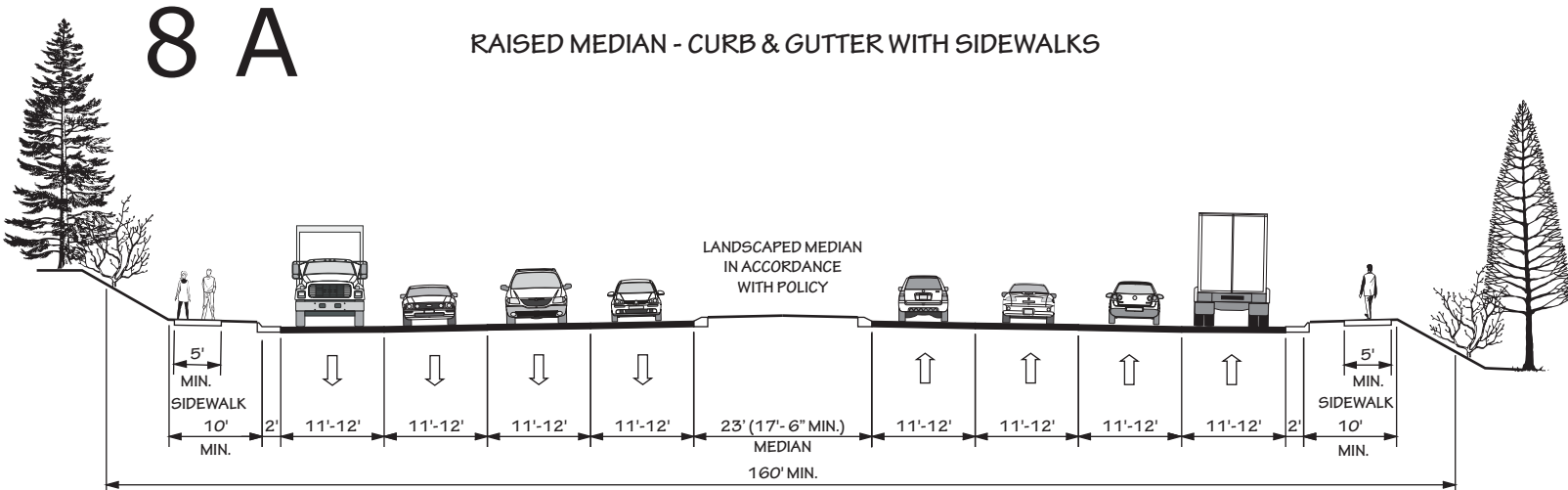
RAISED MEDIAN - CURB & GUTTER WITH WIDE OUTSIDE LANES AND SIDEWALKS



8 LANES

8 A

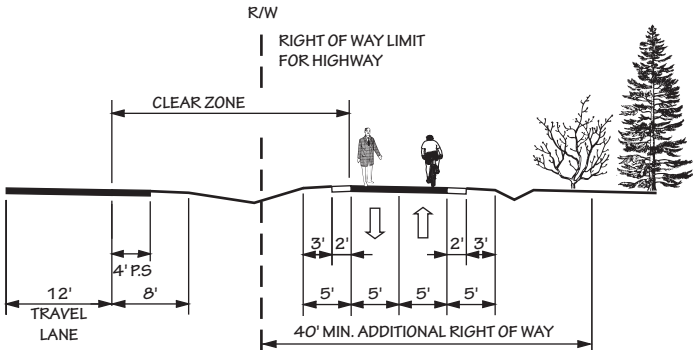
RAISED MEDIAN - CURB & GUTTER WITH SIDEWALKS



TYPICAL MULTI - USE PATH

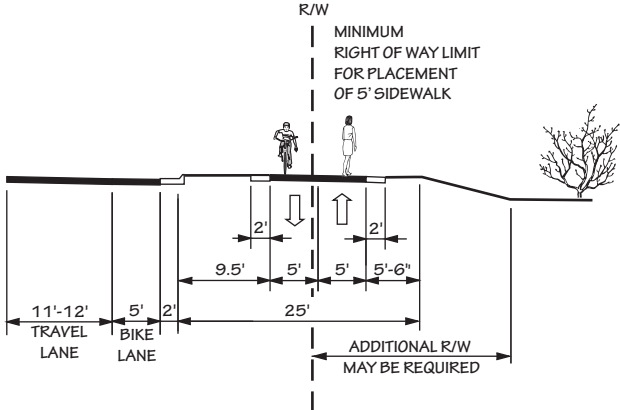
MULTI - USE PATH
ADJACENT TO RIGHT OF WAY OR SEPARATE PATHWAY

M A



MULTI - USE PATH ADJACENT TO CURB AND GUTTER

M B



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 10.

- **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 10 - Level of Service Illustrations



LOS A



LOS B



LOS C



LOS D



LOS E



LOS F

Source: 2010 Highway Capacity Manual, Exhibit 11-4

Appendix F Traffic Crash Analysis

A crash analysis performed for the Swain County CTP factored crash frequency, crash type, and crash severity. Crash frequency is the total number of reported crashes and contributes to the ranking of the most problematic intersections. Crash type provides a general description of the crash and allows the identification of any trends that may be correctable through roadway or intersection improvements. Crash severity is the crash rate based upon injuries and property damage incurred.

The severity of every crash is measured with a series of weighting factors developed by the NCDOT Division of Highways (DOH). These factors define a fatal or incapacitating crash as 76.8 times more severe than one involving only property damage, and a crash resulting in minor injury is 8.4 times more severe than one with only property damage. In general, a higher severity index indicates more severe crashes. Listed below are levels of severity for various severity index ranges.

<u>Severity</u>	<u>Severity Index</u>
low	< 6.0
average	6.0 to 7.0
moderate	7.0 to 14.0
high	14.0 to 20.0
very high	> 20.0

Table 4 depicts a summary of the crashes occurring in the planning area between January 1, 2007 and December 31, 2009. The data represents locations with 10 or more crashes and/or a severity average greater than the state's 4.56 index. The "Total" column indicates the total number of crashes reported within 150-ft of the intersection during the study period. The severity listed is the average crash severity for that location.

Table 4 - Crash Locations

Map Index	Intersection	Average Severity	Total Crashes
1	SR 1321 (Bryson Walk) at SR 1364 (Everett St)	2.23	12
2	US 19 at SR 1168 (Hyatt Creek Rd)	1.67	11
3	SR 1364 (Everett St) at Main St	1.53	14

The NCDOT is actively involved with investigating and improving many of these locations. To request a more detailed analysis for any of the locations listed in Table 4, or other intersections of concern, contact the Division Traffic Engineer. Contact information for the Division Traffic Engineer is included in Appendix A.

Appendix G

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 or functionally obsolete. 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 5. For more details on deficient bridges within the planning area, contact the Structures Management Unit using the information in Appendix A.

Table 5 - Deficient Bridges

Bridge Number	Facility	Feature	Condition	Local ID
3	US 19, 74	Nantahala River	Functionally Obsolete	B-4286
22	US 74 West Bound Lanes	SR 1173, Railroad, Tuckasegee River	Functionally Obsolete	
24	US 19	Oconaluftee River	Functionally Obsolete	B-4696 ²
42	SR 1152	Jenkins Branch Creek	Functionally Obsolete	
55	SR 1113	Wiggins Creek	Structurally Deficient	
58	SR 1307	Alarka Creek	Structurally Deficient	
104	SR 1309	Alarka Creek	Structurally Deficient	
105	SR 1309	Alarka Creek	Functionally Obsolete	
129	SR 1364	Tuckasegee River	Functionally Obsolete	

² TIP Project B-4696 was completed in November 2010.

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 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 Swain County CTP is given below.

Larry Callicutt	Town of Bryson City
Phil Carson	Swain County Board of Commissioners – Chair
Kevin King	Swain County Manager
Damon Lambert	Eastern Band of Cherokee Indians
Ken Mills	Swain County Economic Development
Ryan Sherby	Southwestern RPO
Jonathan Woodard	NCDOT Division 14 – District Engineer
Andy Zivinsky	Bryson City Bicycles

CTP Vision, Goals, Objectives and MOEs

The CTP vision, goals and objectives are developed as part of the public involvement process and help identify how the people within an area would like to develop the transportation system (all modes). The CTP steering committee develops the draft vision, goals, objectives, and MOEs 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. MOEs are established to enable the area to track the progress of each objective.

Vision Statement

Swain County desires a safe, efficient, multi-modal, and environmentally (natural and human) sensitive transportation system for residents, that also supports economic development, aides in the capitalization of tourism, and has strong regional connectivity.

Goal: Develop and maintain a transportation system that flows smoothly and timely.

Objectives:

- ❖ Achieve volume/capacity < 0.8 on rural roads by 2035.
- ❖ Achieve volume/capacity less than 1.0 in downtown Bryson City (Central Business District) by 2017.
- ❖ Construct bike facilities (dedicated bike lanes or wider hard shoulders) along roads NCDOT is widening or constructing by 2035.
- ❖ Provide sidewalks along both sides of roads within one (1) mile of schools by 2035.
- ❖ Provide pedestrian accommodations along both sides of roads in the Central Business District and shopping areas within town limits by 2035.
- ❖ Increase public parking areas by more than 50 spaces by 2035.
- ❖ Provide sidewalks and crosswalks from parking areas to CBD by 2035.

Goal: Create a choice of transportation modes.

Objectives:

- ❖ Provide bicycle accommodations to connect town centers (Bryson City and Cherokee) as well as important local attractions and destinations such as the Great Smoky Mountain National Park, Tsali Trail, Nantahala Outdoor Center (NOC), Little Tennessee River, and community schools by 2035.
- ❖ Provide sidewalks along both sides of roads within one (1) mile of schools by 2035.
- ❖ Provide pedestrian accommodations along both sides of roads in the Central Business District and shopping areas within town limits by 2035.

Goal: Coordinate multi-modal routes.

Objectives:

- ❖ Increase the number of coordinated routes with surrounding counties by 2035.

Goal: Create and maintain a transportation system that is easy to navigate.

Objectives:

- ❖ Post signage to direct drivers and pedestrians to local attractions such as the Great Smoky Mountain National Park and Railroad, Deep Creek, and downtown Bryson City by 2035.

Goals and Objectives Survey

A G&O 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 G&O 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 G&O survey early in the planning process allows the survey to serve as an introduction to the transportation planning process. The survey usually 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. A summary of the Swain County G & O survey is given below.

1. Select which most closely matches your residency status:

Response	Percentage
I live in Swain County year-round.	79.2
I live in Swain County for part of the year, and another location for part of the year.	0.70
I do not live in Swain County.	20.1

2. Which area/community do you consider your residence to be in or closest to?

Response	Percentage
NC 28 South	9.5
NC 28 North/Fontana	6.1
Upper Alarka	7.5
Lower Alarka	6.1
Nantahala area	5.4
Qualla Boundary (Cherokee Reservation)	2.0
Whittier	10.9
Bryson City	40.8
Other	11.6

3. On a typical day, does the majority of your travel take place within Swain County?

Response	Percentage
Yes	84.6
No	15.4

4. Which area/community do you work in and/or commute to most often?

Response	Percentage
Bryson City	72.5
Whittier	9.9
Qualla Boundary (Cherokee Reservation)	2.1
Nantahala area	3.5

Jackson County	6.3
Graham County	0.7
Macon County	1.4
Haywood County	2.1
Buncombe County/Asheville	0
Sevier County, Tennessee	0
Other Tennessee	0
Great Smoky Mountains National Park	1.4
Other:	
<ul style="list-style-type: none"> • I commute to Swain from Jackson • I travel between Jackson County and Swain County • Live in Waynesville, commute to Swain • Cullowhee • I live in Haywood 	

5. For the following transportation goals, please indicate how important you feel each one is. *Results are given in percentages.*

Response	Least Important	Not Very Important	Neutral	Very Important	Most Important
Safety	0	0	3	23	74
Service of special needs	4	3	24	52	17
Consistent travel times	3	8	25	49	15
Faster travel times	8	16	41	32	3
Transportation mode choice (walking, cycling, transit, personal vehicle)	5	3	30	35	27
Economic growth	3	5	24	49	19
Environmental protection	2	7	12	51	28
Community and cultural preservation	1	7	23	47	22
Integration with regional community	3	7	31	49	10
Public transit options	6	10	28	42	14
Other (please specify):					
<ul style="list-style-type: none"> • Better access for bicycles. Better shoulders. • It is difficult to provide public transportation when we live in such a rural area. • Bike lanes to Deep Creek and to Cherokee • Health and Physical activity. We need sidewalks and bike lanes to encourage people to be more active. • Availability of public transport for doctor visits in the afternoon hours. The rides stop at 12 noon---students need late afternoon doctor appts. so as not to miss so much vital class time. The fact that Swain County Transport stops at 12 noon for medical appts. is not serving our county at all. • Greenways (especially between Natl. Park and City) immense importance for safety, environment, recreation, and economic development. 					

6. Which of the above issues is single Most Important to you, and the Least Important to you?

Response	Most Important (%)	Least Important (%)
Safety	62.4	0
Service of special needs	3.0	1.5
Consistent travel times	1.5	2.3
Faster travel times	3.0	40.2
Transportation mode choice (walking, cycling, transit, personal vehicle)	10.5	9.8
Economic growth	6.8	5.3
Environmental protection	6.0	6.1
Community and cultural preservation	3.8	4.5
Integration with regional community	0	15.9
Public transit options	3.0	14.4

7. What routes in Swain County do you most commonly use?

Response:

- US 74, US 19, NC 28
- Old US 19
- Alarka Road
- East and West Deep Creek Road
- 'downtown' roads

8. Where do you perceive traffic as being a problem in Swain County?

Response:

- In the city limits; near the train depot
- Ingles intersection
- Veteran's Blvd near schoolhouse hill and Kerr
- Drug (US 19)
- Bryson Walk at Depot Street on Everett Street
- Nowhere!

9. To address traffic problems in the area, which improvements should be considered? (Select all that apply)

Response	Percentage
Widen existing roads	40.7
Add turn lanes at specific intersections	37.9
Improve pavement and bridges	30.0
Build new roads	4.3
Increase number of one-way streets	2.1
Expand, improve, or build new sidewalks	31.4
Add on-road bike lanes	42.1

Greenways and off-roadway paths	35.7
Provide or increase public transit	20.7
Access control (limited driveways, right-turn-only facilities)	10.0
Improve intersection design (add stoplights, improve signal timing, create roundabouts)	45.7
Other ideas/comments:	
<ul style="list-style-type: none"> • Pave roads that are not paved • Parallel access roads to businesses on 74 • Improve the entrance to and from the Swain County Bus Garage • Add mirrors at blind intersections 	

10. Please list your top two choices from the options in Question 9 and beside each one indicate where you would like to see it implemented. (Example: Widen existing road - through downtown on Main Street)

Response:

- Intersection improvements at Ingles intersection, Veteran’s Blvd at Main Street, Veteran’s Blvd at Slope Street (Kerr Drug intersection)
- Build sidewalks to schools
- Improve/add bike lanes system wide (downtown, NC 28, Alarka, etc.)
- Widen secondary roads
- Safety improvements to Alarka Road

11. When traveling in your area, do you often go out of your way to get to your destination because the most direct route is too congested?

Response	Percentage
Yes	24.5
No	75.5
If you answered YES above, please list specific locations of problems and alternate routes taken.	
<ul style="list-style-type: none"> • Only by the train station during peak season. A turning lane and a bike lane would help. • Depot St is often congested and it is hard to see traffic coming from Fontana Rd. VERY DANGEROUS!! • There is a bottle-neck with the train station. Often one of my routes is blocked by the train and the other is slow due to the traffic and there is no left signal at Depot Street onto Everett. • US19 between Lower Alarka and Bryson City is dangerous for cyclists due to fast and impatient drivers. I take Robinson Gap Road to Buckner Branch to avoid most of it. 	

12. If additional money were needed to fund transportation projects, which of the following would you support? (Select all that apply)

Response	Percentage
Charging transportation fees to develop properties	56.3

Local bond referendum	37.9
Gasoline tax increase	17.2
Toll roads	13.8
Other (please specify):	
<ul style="list-style-type: none"> • Interest money from North Shore Settlement • User fees and grant money for the development of a bike/greenway trail along the river front from West to East Swain • Seek state funding-no tax or fuel increases • None/Work with what you have 	

13. Given the limited funding available for addressing transportation issues, please indicate the level of prioritization you feel is appropriate for each of the following approaches. *Results are given in percentages.*

Response	Low Priority	Less Priority	Neutral	More Priority	High Priority
Maintaining existing residential streets	3	7	17	46	27
Building new major roads	39	26	21	10	4
Maintaining major streets and highways	3	3	8	53	33
Creating or expanding bus service	22	17	29	25	7
Creating or expanding carpooling programs	18	17	35	25	5
Building new sidewalks	10	17	24	32	17
Building new greenways	18	17	24	22	19
Building bike lanes	18	15	21	20	26
Creating interconnected transit routes between tourist areas (TN and NC) and Swain County	19	13	26	25	17

14. How did you find out about the survey?

Response	Percentage
Newspaper	0.7
Utility bill	2.1
Radio	0
Library	0
Town Hall	0
Church	0.7
Planning Department	1.4
School system	63.3
Word of Mouth	8.6
Online	18.0
Other (please specify):	0

Public Meetings

Brief summaries of public meetings held within the planning area are given below.

Swain County CTP Public Workshop

Tuesday March 6, 2012, 5:00-7:00pm

An open public workshop was held at the Administrative Building in downtown Bryson City in Swain County from 5pm to 7pm. Several maps and handouts were available for review and comments. All CTP maps with recommendations developed by the committee were displayed and explained to attendees. Highway capacity deficiency maps for both the base year, 2010 and plan year, 2035, were displayed and explained to attendees as well.

Along with the comment sheet was a one page handout describing the locations in Bryson City that were studied by NCDOT's Congestion Management Section for roundabout installation. This included a map of the locations and noted that only operational feasibility was studied and further analyses would be necessary should the locals desire.

The recommendation of implementing one-way pairs in the CBD was removed from the plan after strong objections from the town board. Some attendees inquired about this and were told by NCDOT staff that the recommendations were no longer included in the plan. A few attendees commented on providing a third river crossing via a new bridge. This concept was discussed at length with the committee during the process, and no transportation problem could be identified that adding an additional bridge to the network would solve. Many of the traffic attractions are in downtown Bryson City, including the Great Smoky Mountain Railroad and shops. A new river crossing was not recommended as part of the plan.

Twelve people attended the workshop including two NCDOT staff and one SWRPO staff.

Swain County CTP Public Hearing

A public hearing was held on May 14, 2012 during the Swain County Commissioner's meeting and on June 4, 2012 during the Bryson Town Council meeting. The purpose of these meetings was to discuss the plan recommendations and to solicit further input from the public. The CTP was adopted during these meetings.

Appendix I

Additional Transportation Alternatives & Scenarios Studied

This appendix includes documentation for alternatives and scenarios that were studied but not included in the CTP.

US 19

US 19 from Slope Street (SR 1323) to 700 feet east of Everett Street (SR 1364) is projected to be over capacity by 2035. Improvements are needed to accommodate projected traffic volumes such that a minimum Level of Service (LOS) D can be achieved.

Currently, US 19 is a two-way road with a single 12 foot lane in each direction. Parallel parking is provided on both sides of the roadway from Spring Street to approximately 700 feet east of Everett Street. Average Annual Daily Traffic (AADT) is projected to increase in range from 8,800 vehicles per day (vpd) in 2010 to 10,000 vpd in 2035, compared to a LOS D capacity of 8,600 vpd. US 19 is a major east-west connector and provides a parallel route to US 74 through Bryson City. This facility is relied upon heavily by locals, visitors, and carries some truck traffic. There is heavy commercial development along both sides of US 19 from Slope Street to Everett Street, restricting the width of the roadway.

Goals for the Swain County CTP include a transportation system that flows smoothly and timely. Accomplishing this goal requires a volume to capacity ratio of less than one ($v/c < 1.0$) on US 19 in the central business district. The CTP project proposal consisted of restriping the existing roadway to provide a three lane cross section with a single, 11'-12' lane in each direction, a center turn lane, and parallel parking on one side of the road from Slope Street to 700 feet east of Everett Street.

To further alleviate congestion, the CTP committee requested that roundabouts at the US 19/Spring Street and US 19/Everett Street intersections be evaluated. NCDOT's Congestion Management Section conducted an analysis of the existing signalized intersections versus roundabouts. Roundabouts were found to perform better than the signals. Further analysis of the roundabouts, including geometric feasibility is recommended.

In conjunction with the Everett Street (SR 1364), Slope Street (SR 1323 and Bryson Walk (SR 1321) improvements, this traffic pattern would reduce the volume to capacity ratio on US 19 as well as maintain access to local businesses.

This alternative produced an acceptable volume to capacity ratio, as set by the CTP committee. Additionally, this alternative did not meet the objective of preserving the integrity of the CBD as it removed on-street parking.

Bryson Walk (SR 1321)

There is a need to improve mobility within the central business district (CBD) of Bryson City.

Bryson Walk is a two-way road with a single 12 foot lane in each direction. This facility runs east-west in the CBD of Bryson City, connecting Everett Street (SR 1364) on the east and Slope Street (SR 1323) on the west.

The CTP project proposal consisted of restriping the existing footprint to provide a single travel lane in each direction and a center turn lane to accommodate left turns from Bryson Walk onto Slope Street. This would allow Bryson Walk to serve as a cross over for the proposed one way pairs recommended on Everett Street and Slope Street.

To further alleviate congestion, the CTP committee requested that a roundabout at the Bryson Walk/Slope Street intersection be evaluated. NCDOT's Congestion Management Section conducted an analysis of the existing stop controlled intersection versus a roundabout. A roundabout was found to perform better than the existing control. Further analysis of the roundabout, including geometric feasibility is recommended.

In conjunction with the proposed improvements to US 19, Everett Street and Slope Street, this traffic pattern would allow traffic in the central business district to flow smoothly. Although this would achieve the CTP committee's goal of a volume to capacity ratio of less than 1.0 in the CBD, this alternative is not supported by local officials.

Everett Street (SR 1364) / Slope Street (SR 1323)

Everett Street (SR 1364) and Slope Street (SR 1323) in downtown Bryson City are currently over capacity. Improvements are needed to relieve congestion such that a minimum Level of Service (LOS D) can be achieved.

Everett Street (SR 1364) is currently a two-way road, with a single 12 foot lane in each direction. Parallel parking is provided on both sides of the roadway. Average Annual Daily Traffic (AADT) is projected to increase from 8,800 vehicles per day (vpd) in 2010 to 10,000 vpd in 2035, compared to a LOS D capacity of 8,600 vpd. The width of the road is restricted by the bridge over the Tuckasegee River and existing buildings along both sides. Locals and visitors rely heavily on this route, as Everett Street is a main road for the central business district and provides connectivity between northern and southern parts of town, over the Tuckasegee River. Key tourist destinations that generate heavy traffic on this facility include the Great Smoky Mountain Railroad and Deep Creek Campground. Many businesses, shops, and restaurants are also located along this section of the facility. Updated sidewalks and streetscapes along Everett Street create a pedestrian friendly downtown.

Slope Street (SR 1323) is currently a two-way road, with a single 12 foot lane in each direction. AADT is projected to increase from 9,900 vpd in 2010 to 11,500 vpd in 2035,

compared to a LOS D capacity of 8,600 vpd. The width of the road is restricted by the two-lane bridge over the Tuckasegee River. Locals and visitors both rely on this route, as Slope Street provides connectivity between northern and southern parts of town, over the Tuckasegee River, and access to several businesses in the central business district.

Goals for the Swain County CTP include a transportation system that flows smoothly and timely. Accomplishing this goal in the central business district, as set by the CTP committee, requires a volume to capacity ratio of less than one ($v/c < 1.0$) on Everett Street and Slope Street. The CTP project proposal consisted of removing parking from one side of Everett Street and restriping the existing footprint to provide a three lane cross section of one-way traffic (northbound) from US 19 to Bryson Walk (SR 1321). It is recommended that one lane be designated as a right-turn-only onto Depot Street, one lane be designated as a through lane, and the third lane be designated as a left-turn-only lane onto Bryson Walk. This traffic pattern would reduce the volume to capacity ratio to less than 1.0 as well as maintain convenient access to merchants along Everett Street. Along Slope Street, restriping the existing footprint is recommended to provide a two lane cross-section of one-way traffic (southbound) from Bryson Walk to US 19. This traffic pattern would reduce the volume to capacity ratio as well as maintain access to local businesses.

To further alleviate congestion, the CTP committee requested that roundabouts at the Everett Street/Depot Street and Everett Street/Bryson Walk intersections be evaluated. NCDOT's Congestion Management Section conducted an analysis of the existing stop controlled intersections versus roundabouts. Roundabouts were found to perform better than the stop control. Additionally, a roundabout at the US 19/Slope Street intersection was evaluated. A roundabout was found to perform better than the existing signalized intersection. Further analysis of the roundabouts, including geometric feasibility, as well as installing one roundabout to capture the offset of Depot Street at this location, is recommended.

In conjunction with the proposed US 19 and Bryson Walk improvements, this traffic pattern would reduce the volume to capacity ratio on Everett Street and Slope Street, allow traffic in the central business district to flow smoothly as well as maintain access to local businesses. Although this would achieve the CTP committee's goal of a volume to capacity ratio of less than 1.0 in the CBD, this alternative is not supported by locals.

Everett Street (SR 1364)

Initially, Everett Street (SR 1364) was analyzed as a two lane, one-way facility (northbound) with parallel parking provided on both sides of the road to preserve downtown parking spaces and a high level of accessibility to businesses within the central business district (CBD) of Bryson City. Maintaining the character of downtown Bryson City was of noted importance to the CTP committee. This alternative did not meet the objective of having a volume to capacity ratio less than 1.0 in the CBD.

Proposed River Crossing

A new crossing of the Tuckasegee River was discussed several times during the CTP process. The suggested location was US 19 at Hughes Branch Road (SR 1152) north to Bryson Walk (SR 1321). The purpose of the river crossing was to help alleviate congestion in downtown Bryson City by providing an alternate route for locals and tourists visiting specific attractions (Great Smoky Mountain Rail Road). This alternative alone does not decrease the volume to capacity ratio of roads in the CBD to less than 1.0 since the downtown area is a key destination. Since the proposed project does not address the identified problem, it was not included as part of the CTP.

Bryson City Roundabouts

The NCDOT Congestion Management Section analyzed roundabouts at the seven following locations, at the request of the CTP steering committee.

1. US 19/SR 1159 (Spring Street) and US 19 (Main Street)/SR 1198 (School Drive)
2. US 19/Kerr Drug and US 19/SR 1323 (Slope Street)
3. SR 1323 (Slope Street) and SR 1321 (Bryson Walk)
4. SR 1364 (Everett Street) and SR 1321 (Bryson Walk)
5. SR 1364 (Everett Street) and SR 1336 (Depot Street)
6. US 19 (Main Street) and SR 1364 (Everett Street)/Rector Street
7. US 19 and SR 1152 (Hughes Branch Road)
8. US 19 and Ingles Market Entrance

It was determined that traffic would flow better at each intersection with a roundabout instead of the current traffic signal or stop signs. The geometric feasibility of each roundabout will need additional analysis.