



**North Carolina Department of Transportation
Transportation Planning Branch**

Comprehensive Transportation Plan



Study Report for Yancey County and the Town of Burnsville

July 2008

**Comprehensive Transportation Plan
Study Report
for
Yancey County and Town of Burnsville**

Prepared by the: Transportation Planning Branch
N.C. Department of Transportation

In Cooperation with: The Town of Burnsville
Yancey County
The Federal Highway Administration
U.S. Department of Transportation

July 2008

Acknowledgments

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Executive Summary

In 2004, the Transportation Planning Branch of the North Carolina Department of Transportation, the Town of Burnsville, and Yancey County made an agreement to cooperatively develop the Yancey County and Town of Burnsville Comprehensive Transportation Plan. The resulting Comprehensive Transportation Plan is shown in **Figure 1**.

This report documents the findings of this study, along with the resulting recommendations for improvements. In addition, this report presents transportation cross-section recommendations and environmental features in the study area.

After coordination with town and county officials and several informational meetings with the elected officials and citizens, the Yancey County and Town of Burnsville Comprehensive Transportation Plan was adopted by Yancey County on March 11, 2008 and by the Burnsville Town Council on April 3, 2008. The High Country Rural Planning Organization endorsed the plan on May 21, 2008. The North Carolina Department of Transportation adopted this plan on July 11, 2008.

Implementation of the plan rests largely with the town and the citizens. The town and county should work with the High Country Rural Planning Organization (RPO) to prioritize their transportation needs. The RPO is responsible for presenting the needs to the North Carolina Department of Transportation. Transportation needs throughout the State exceed the available funding; therefore, local areas should aggressively pursue funding for the projects they desire.

I. Introduction

Transportation is a key element for any area's economic stability. The means by which people move themselves and goods provide the basis for trade, commerce and lifestyle. A transportation plan that utilizes multi-modal opportunities provides a comprehensive network that a community can develop their land use and future around. Yancey County and the Town of Burnsville agreed to work with the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) to conduct a joint study in 2004.

Yancey County (known throughout the document as the planning area) is located in the western part of North Carolina and borders Mitchell, Madison and Caldwell counties as well as the State of Tennessee to the North. The Town of Burnsville is located in the center of the county and remains the only incorporated municipality within the county borders. The planning area is approximately 25 miles northeast of Asheville. The geographical location of the planning area is shown in **Figure 2**. Yancey County is a member of the High Country Council of Governments and the High Country Rural Planning Organization (RPO) housed in Boone, North Carolina. The county is in NCDOT's Division 13 based in Asheville, NC.

This report documents the development of the Yancey County and Town of Burnsville Comprehensive Transportation Plan shown in **Figure 1**. In addition, this report presents a set of recommendations for each mode of transportation considered foreseeable given the future needs of the study area. A Comprehensive Transportation Plan (CTP) is developed to ensure that the transportation system will be progressively developed to meet the needs of the planning area. It will serve as an official guide to providing a well-coordinated, efficient, and economical transportation system that utilizes all modes of transportation. This document will be used by local officials to ensure that planned transportation facilities reflect the needs of the public, while minimizing the disruption to local residents, businesses, and the environment.

The purpose of this study is to examine present and future transportation needs of the planning area and develop a CTP to meet these needs. The plan recommends those improvements that are necessary to provide an efficient transportation system within the 2003-2030 planning period. The recommended cross-sections outlined in **Appendix B** for these improvements are based on existing conditions and projected traffic volumes over the planning period horizon.

Successful implementation of the CTP is predominately the responsibility of the policy boards and citizens within the planning area. Yancey County, Town of Burnsville and the North Carolina Department of Transportation share the responsibility for proposed construction of the multi-modal recommendations

contained here. As transportation needs throughout the state exceed available funding, it is imperative that the local planning areas aggressively pursue funding for desired projects both within NCDOT and from other sources.

The proposed CTP is based on expected growth for the planning area as indicated in the 2001 Yancey County and Town of Burnsville Land Development Plan with the net population growth controlled by projections for Yancey County produced by the North Carolina State Data Center. The projections used for this CTP were confirmed with staff from both the County and Town of Burnsville as well as endorsed by both governing boards. It is possible that actual growth patterns will differ from those anticipated; however, the growth rates reflected in this CTP are reasonable given the rural nature of the planning area and physical limits to development. Should growth accelerate unexpectedly ahead of the planning horizon, it may be necessary to re-evaluate the timeframe of recommendations within the plan. Any changes made to one element of the CTP should be consistent with the other elements.

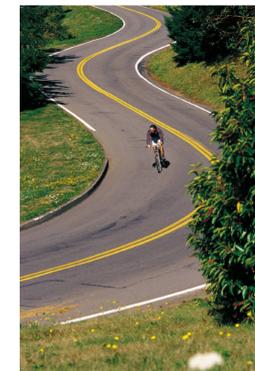
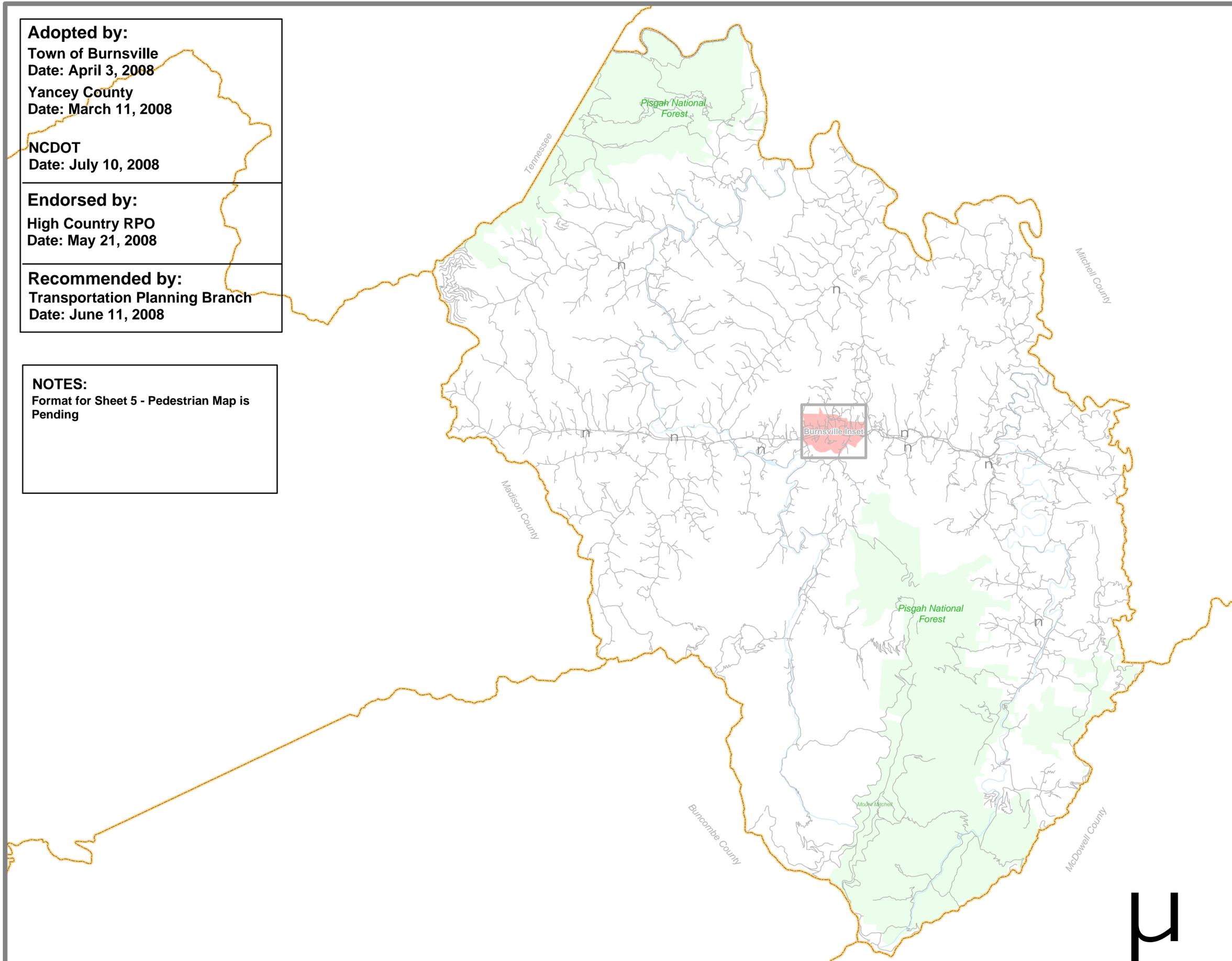
Adopted by:
Town of Burnsville
Date: April 3, 2008
Yancey County
Date: March 11, 2008

NCDOT
Date: July 10, 2008

Endorsed by:
High Country RPO
Date: May 21, 2008

Recommended by:
Transportation Planning Branch
Date: June 11, 2008

NOTES:
Format for Sheet 5 - Pedestrian Map is Pending



Yancey County & Town of Burnsville Comprehensive Transportation Plan

Plan date: March 3, 2008

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

Legend

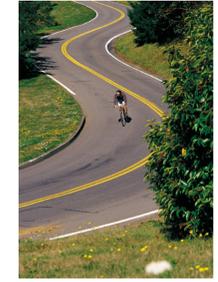
-  Schools
-  Roads
-  Railroads
-  County Boundary
-  Rivers & Streams
-  Waterbodies
-  Cities
-  Forest and Parks



Sheet 1 of 5
 Base map date: September 2005

Refer to CTP document for more details

Highway Map



Yancey County & Town of Burnsville Comprehensive Transportation Plan

Plan date: March 3, 2008

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

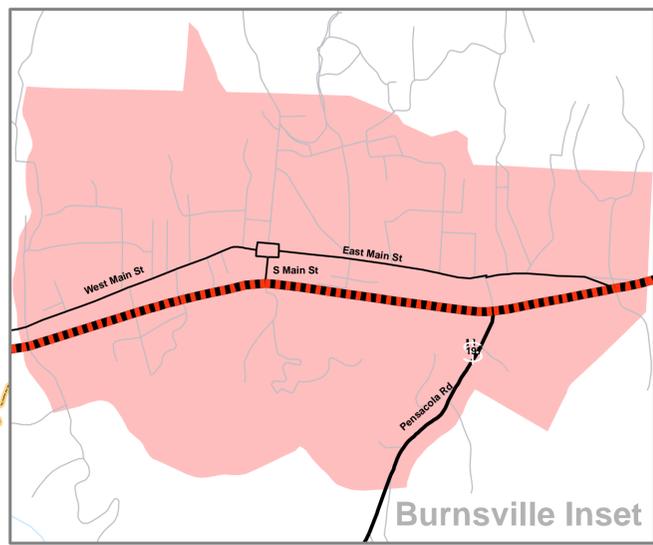
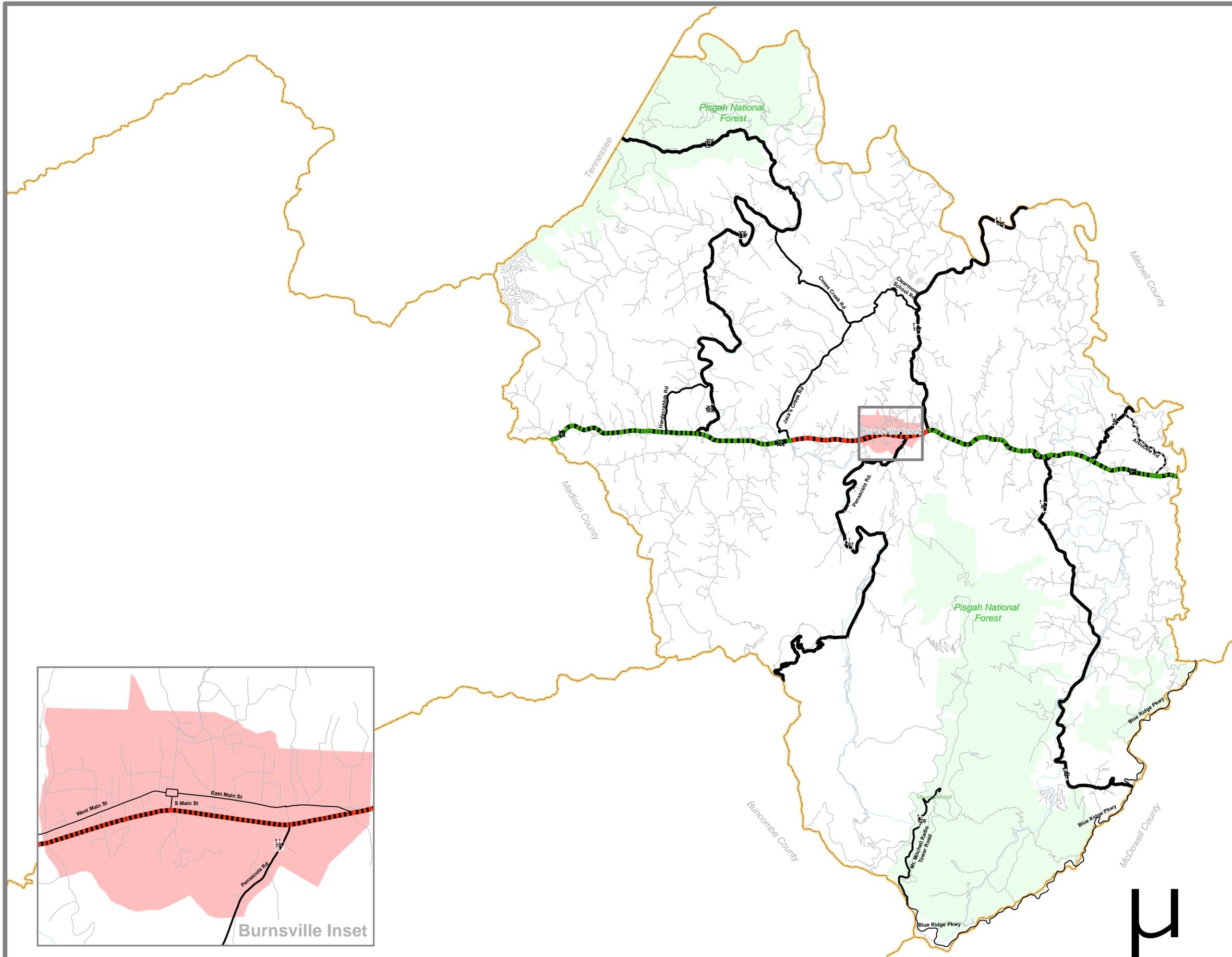
Proposed Grade Separation



Sheet 2 of 5

Base map date: September 2005

Refer to CTP document for more details



Bicycle Map



Yancey County & Town of Burnsville Comprehensive Transportation Plan

Plan date: March 3, 2008

On-road

- Existing
- Needs Improvement
- Recommended

Off-road

- Existing
- Needs Improvement
- Recommended

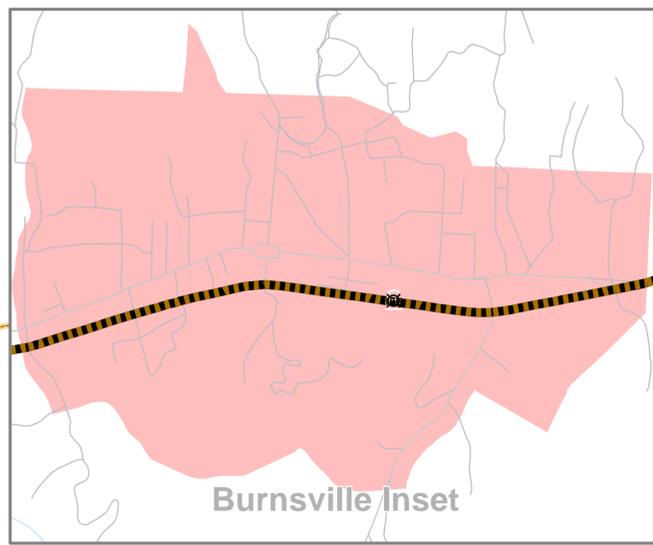
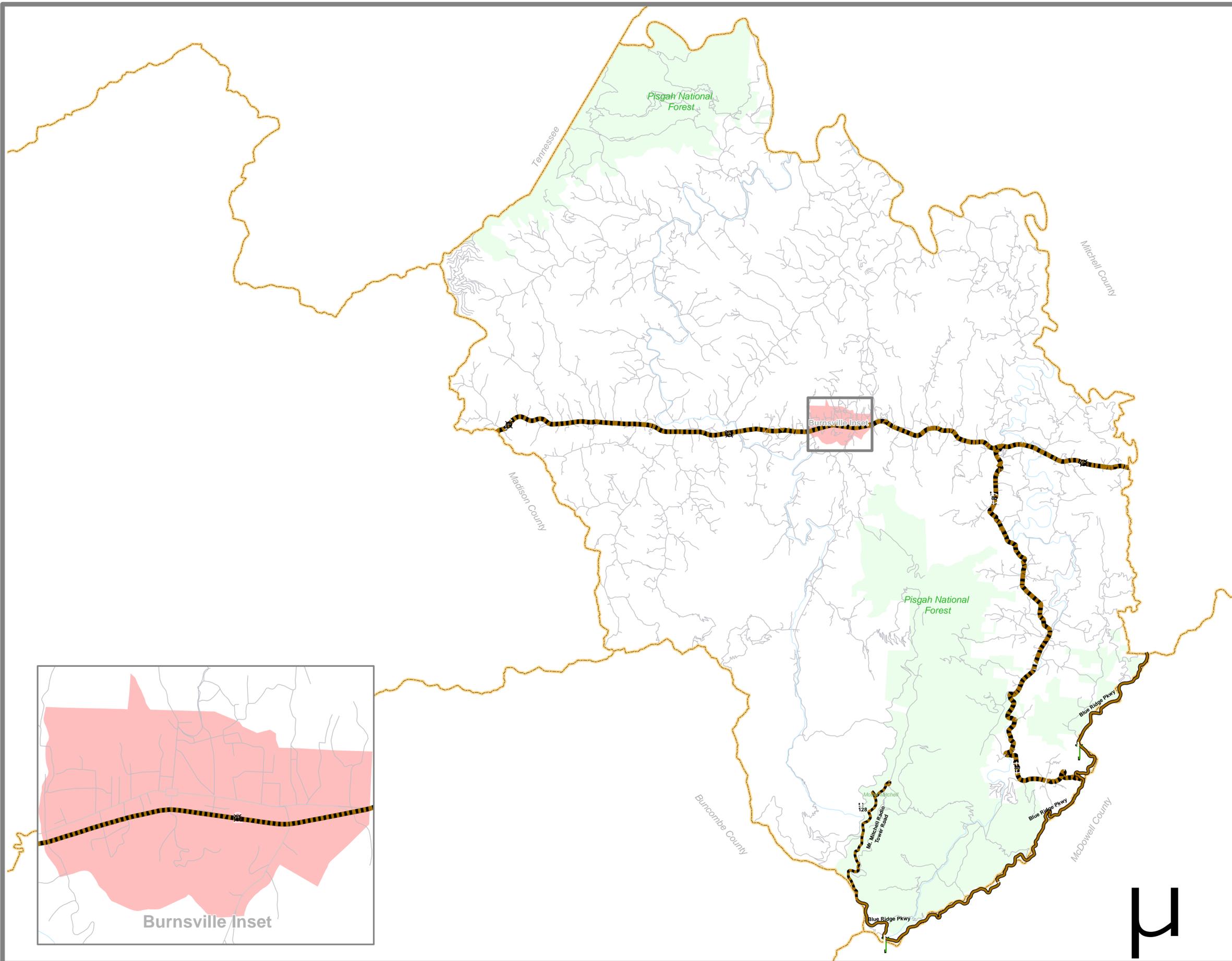
- Existing Interchange
- Proposed Interchange
- Existing Grade Separation
- Proposed Grade Separation

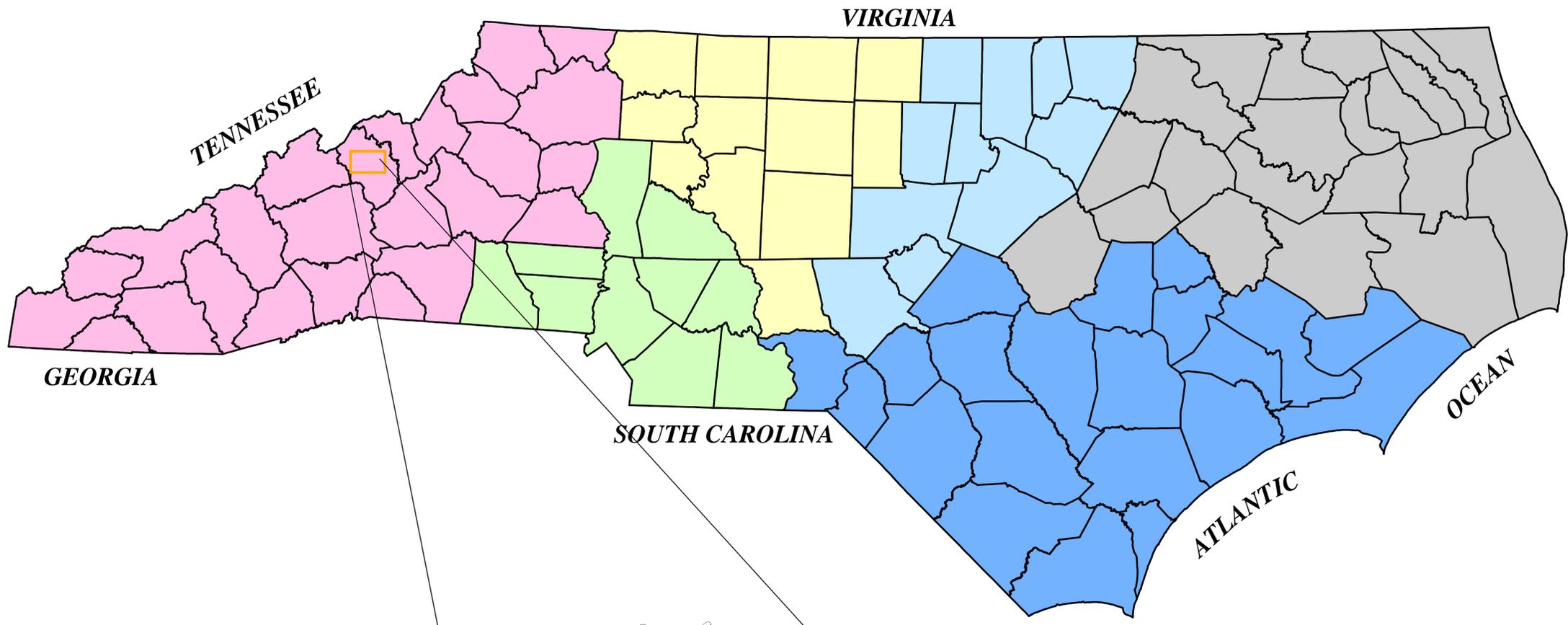


Sheet 4 of 4

Base map date: September 2005

Refer to CTP document for more details



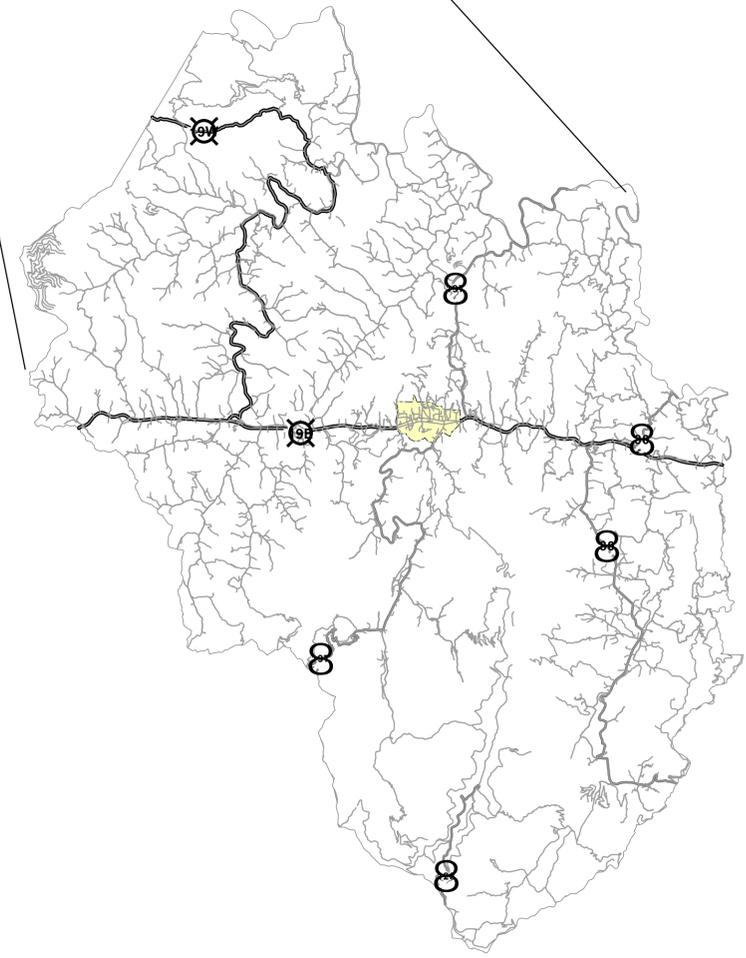


**FIGURE 2
GEOGRAPHIC
LOCATION MAP**



LEGEND

- METROLINA
- MOUNTAINS
- NORTHEAST
- SOUTHEAST
- TRIAD
- TRIANGLE



**YANCEY COUNTY AND
TOWN OF BURNSVILLE**

NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH

IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

BASE MAP DATE: SEPTEMBER 2005

II. Recommendations

A key step in developing recommendations occurs when transportation needs are identified based on current and projected growth in both development and transportation. This future needs assessment helps identify what actions should be pursued and the implications involved if a project is not implemented. The problem statements resulting from this assessment and included in this CTP help to justify recommended actions and help to define practicable alternatives to support future projects as they go into the National Environmental Policy Act (NEPA) process for analysis. This chapter presents the recommended improvements resulting from the transportation needs assessment conducted during the development of the recommended CTP for Yancey County and the Town of Burnsville. These improvements are needed to enable the transportation system to serve anticipated travel needs as this area continues to grow and look for economic development opportunities.

Highway Map

The recommended highway plan for the planning area is presented in **Sheet 2 of Figure 1**. This sheet classifies the major highway system into five categories, depending on the type of service each roadway provides. These classifications - freeways, expressways, boulevards, other major thoroughfares, and minor thoroughfares – are described in detail in **Appendix A**. The recommended improvements are also inventoried in **Appendix B**.

The recommended highway map includes two improvements to meet future travel needs. These improvements were developed based on the needs assessment, the goals and objectives of the area and the known environmental features of the planning area. US 19E is shown on the CTP maps as an Expressway Needs Improvement and Boulevard Needs Improvement. The existing capacity of this road is approximately 15,800 vehicles per day (vpd). The 2003 average annual daily traffic (AADT) along the facility ranges from 8,500 vpd to 15,000 vpd. The traffic volumes are projected to increase in the year 2030 to 16,000 vpd to 17,500 vpd. The 2009-2015 Transportation Improvement Plan (TIP) funds projects R-2518 and R-2519 to make improvements to this facility. These projects are designated in the TIP to widen US 19E to multi lanes throughout Yancey County. Completion of these projects will meet the need as assessed by this study for the year 2030.

Arbuckle Rd (SR 1300) is classified as a Minor Thoroughfare Needs Improvement. It is recommended that Arbuckle Rd (SR 1300) be widened from NC 80 to US 19E to improve safety. This section of roadway currently has lane widths of 8 feet, which is less than the minimum tolerable lane width for safety. It is recommended that this facility to be widened to two 10-foot lanes at a minimum.

Public Transportation and Rail Map

The Public Transportation and Rail map within the CTP is included to consider other modes of transportation and offer the public other options of traveling aside from by personal vehicle. Increasingly, rural and urban areas alike are looking for ways to provide different modes of transportation for citizens. The recommended public transportation and rail map for the planning area is presented in **Sheet 3 of Figure 1**. The classifications for this map are described in detail in **Appendix A**. There are no recommended improvements shown on this map.

The Yancey County Transportation Authority (YCTA) currently provides individually scheduled transit services to all citizens of the county. YCTA coordinates with human service agencies to provide this service throughout the workweek. No fixed route bus service is currently planned for Yancey County.

Railroads were the backbone of the transportation system in the United States in the early 1800s. In the 1920s, society moved toward the automobile as their source of transportation. Today, there is more of an interest in utilizing the railroad as an alternative mode of transportation for commuting to work in urban areas; however, the rural nature of the planning area does not appear to necessitate this on the 2030 planning horizon. There is currently no passenger train service on any rail lines in this area, and no service is planned in the future.

The planning area currently has one active rail freight corridor that runs along the county line between Yancey and Mitchell Counties. The CSX Railroad owns 1,200 miles of track in North Carolina. The CSX Z-line travels from Erwin, TN through North Carolina to Spartanburg, SC. A second rail line shown on the map is the Toe River Railroad. This was formerly known as Yancey Railroad and Black Mountain Railroad before that. Operation on this line was halted in 1977 following flood damage to a major bridge and is currently involved in a legal dispute. There are no rail recommendations for Yancey County.

Bicycle Map

The NCDOT envisions that all citizens of North Carolina and visitors to the state should be able to walk and bicycle safely and conveniently to their chosen destinations with reasonable access to roadways. Information on events, funding, maps, policies, projects, and processes dealing with these modes of transportation is available by contacting the NCDOT Division of Bicycle and Pedestrian Transportation. Their contact information is listed in **Appendix D**.

The recommended bicycle map for the planning area is presented in **Sheet 4 of Figure 1**. This map classifies the bicycle routes into two categories depending on the type of service each route provides. These classifications – on-road and off-road – are described in detail in **Appendix A**.

The planning area is well known as a tourist destination for outdoor recreation and this continues to be a major segment of the local economy with both state

and federal parklands located there. Bicycle enthusiasts gather annually for the “Assault on Mt. Mitchell”, an annual bike race originating in the City of Marion and following NC 80 to the Blue Ridge Parkway to access Mt Mitchell.

The recommended bicycle map includes several improvements needed to meet future travel. These improvements were developed based on the needs assessment, the goals and objectives of the area and the known environmental features of the planning area. The recommended improvements are inventoried in **Appendix B**.

The recommendations include on-road needs improvements for US 19E, NC 80, and NC 128. It should be noted that the recommended improvements for on-road bicycle facilities can include a wide array of potential solutions. These improvements could range from minor projects, such as installing “Share the Road” signs or adding some extra pavement in curves with limited sight distance, to major improvements, such as constructing bicycle lanes or wide shoulders.

NC Bicycle Route #2 is the only officially designated on-road bicycle route in Yancey County. It follows the Blue Ridge Parkway along the Yancey County/McDowell County border.

III. Population, Land Use, and Traffic

In order to fulfill the objectives of an adequate long range transportation plan, reliable forecasts of future travel patterns must be achieved. Such forecasts depend on careful analysis of the following items: historic and potential population changes, significant economic trends, character and intensity of land development; and the ability of the existing transportation system to meet existing and future travel demand. Secondary items that influence forecasts include the effects of legal controls such as zoning ordinances and subdivision regulations, availability of public utilities and transportation facilities, and topographic and other physical features of the urban area.

Population

The base year for the Yancey County and Town of Burnsville study is 2003. This year was selected because when the study began it was the latest year that had complete socio-economic and traffic data available. For this CTP, traffic is projected to year the 2030. Recommendations are made for multi-modal transportation improvements based on future year traffic and the ability of existing facilities to function with the future volumes. Population growth over the past 20-30 years, along with accepted population projections, was the primary factor in determining future year traffic volumes. Other factors considered were employment and regional growth expectations.

Table 1: Historical and Base Year Population by Census Boundary

	1980	1990	2000	2003**
Yancey County	14,934	15,419	17,774	17,908
Town of Burnsville	3,499*	1,482	1,623	1,636
Subareas				
Price Creek, Egypt & Ramseytown	2,727	3,664	4,449	4,486
Green Mountain, North Burnsville and Jack's Creek	3,457	4,243	4,401	4,435
Pensacola and South Burnsville	2,119	2,396	3,067	3,090
Brush Creek, Crabtree and South Toe	4,597	5,116	5,857	5,897

* This figure is based on the 1980 Census and includes population that was not in the town limits of Burnsville.

**These numbers are approximate based on NC Data Center information and adjustments using judgment where appropriate.

The future population estimates are controlled by the North Carolina State Data Center's Population projections for the county. The projection for the county as a whole was divided among the subareas for the future year traffic analysis based on knowledge of the local area's development history, economic environment, developable land area and land use plans. The 2001 Yancey County and Town of Burnsville Land Development Plan Document and Maps were used during this analysis.

Table 2 shows the proportion of the total county population growth per projection year that was applied for each subarea. The proportions used for each subarea do not constitute dramatic differences in actual population growth because the county-wide projections do not net a lot of new people to the county. The Pensacola and South Burnsville Subarea has the lowest proportion year to year due to the amount of recreational forest acreage, developable slopes and available area for new development as shown in the Land Development Plan. Proportions were higher in the Price Creek, Egypt & Ramseytown Subarea as well as the Brush Creek, Crabtree and South Toe areas during the first half of the projection period to account for anticipated development along US 19E to the West and East of Burnsville. The later half of the projection period directs a little more growth towards downtown to account for a future increase in densities. **Table 3** shows the future year net increase per subarea and **Table 4** shows the projected future year population.

Subareas	Table 2: Future Year Proportion of the County Projected Population		
	2010	2020	2030
Price Creek, Egypt & Ramseytown	0.36	0.25	0.25
Green Mountain, North Burnsville and Jack's Creek	0.25	0.25	0.27
Pensacola and South Burnsville	0.15	0.15	0.15
Brush Creek, Crabtree and South Toe	0.30	0.35	0.33

Table 3: Future Year Net Increase per Subarea of the County Projected Population			
	2010	2020	2030
Yancey County	931	1,300	1,040
Subareas			
Price Creek, Egypt & Ramseytown	279	325	260
Green Mountain, North Burnsville and Jack's Creek	233	325	281
Pensacola and South Burnsville	140	195	156
Brush Creek, Crabtree and South Toe	279	455	343

Table 4: Future Year Population by Census Boundary *			
	2010	2020	2030
Yancey County	18,839	20,139	21,179
Town of Burnsville	1,886	2,256	2,601
Subareas			
Price Creek, Egypt & Ramseytown	4,765	5,090	5,350
Green Mountain, North Burnsville and Jack's Creek	4,668	4,993	5,274
Pensacola and South Burnsville	3,230	3,425	3,581
Brush Creek, Crabtree and South Toe	6,176	6,631	6,974

* County numbers are from NC State Data Center. Others result from analysis based on those projections.

For the CTP, it is assumed that all commercial and industrial development will be concentrated within the Town of Burnsville Limits along US 19E as well as to the immediate east and west of the current town limits along the 19E Corridor. Primary destinations for future employment trips are distributed between the Town of Burnsville, west into Madison County or the City of Asheville, and east towards the Town of Spruce Pine, similarly to the current emerging pattern.

The North Carolina Department of Transportation's Transportation Planning Branch developed a tool, named STEP-UP, to aid in projecting traffic volumes on roadways by correlating past population growth rates within a subarea with the historic traffic volume growth within the same area. This correlation coefficient is then used in conjunction with anticipated growth rates for each subarea to provide a horizon year projection of traffic. This tool also calculates a trend line for each traffic data point used in order to compare the projections that

accommodate population growth trends with a base line. Each traffic data point is then examined to make sure that the STEP-UP projection is reasonable based on historic and expected trends.

For the Yancey County and Town of Burnsville study, the STEP-UP tool was used to project traffic volumes in the year 2030. The population figures in **Table 4** were used as inputs to the tool and a total of 38 stations on the network were used with 20 years worth of Annual Average Daily Traffic (AADT) information collected to establish the base trend line. The 38 stations chosen represent the higher AADTs reported along each corridor.

Existing Roadway System

An important stage in the development of a CTP is the analysis of the existing roadway 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. Travel deficiencies may be localized, resulting from problems with inadequate pavement width, intersection geometry, or intersection controls. Travel deficiencies may also result from system problems, such as the need to construct missing travel links, bypass routes, loop facilities, or additional radial routes.

An analysis of the roadway system looks at both current and future travel patterns and identifies existing and anticipated deficiencies. This is usually accomplished through a traffic collision analysis, roadway capacity deficiency analysis, and a system deficiency analysis. This information is used to analyze factors that will impact the future system, including population growth, economic development potential, and land use trends.

Traffic Crash Analysis

Traffic crashes may be an indicator of congestion problems. While often the result of drivers or vehicle performance, crashes may also be a result of the physical characteristics of the roadway. Roadway conditions and obstructions, traffic conditions, and weather may all lead to a crash. While some crashes are the fault of the driver, others may be prevented with physical design or traffic control changes such as the installation of stop signs or traffic signals.

Crash data for the period from January 2003 to December 2003 was studied as part of the CTP analysis. The collision analysis included both collision frequency and severity. Crash frequency is the total number of reported collisions while crash severity is the crash rate based upon injuries and property damage incurred. These two factors helped to determine the worst intersections within the planning area that are summarized in **Table 5**.

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 5**, or other intersections of concern, town or county representatives may

contact the Division Traffic Engineer. Contact information for the Division Traffic Engineer is included in **Appendix D**.

Table 5: Crash Locations

Route	From	To	Total Collisions
NC 80	SR 1158	SR 1199	1
NC 80	SR 1163	SR 1155	1
NC 80	SR 1155	SR 1163	1
NC 80	SR 1154	SR 1152	1
NC 80	SR 1170	SR 1152	1
NC 80	SR 1153	SR 1152	2
NC 80	SR 1152	SR 1153	2
NC 80	SR 1152	SR 1139	1
NC 80	SR 1148	SR 1153	1
NC 80	SR 1148	SR 1186	2
NC 80	SR 1186	SR 1153	2
NC 80	SR 1304	SR 1305	1
NC 80	SR 1305	US 19	1
NC 80	SR 1302	SR 1305	1
NC 80	NC 80	SR 1158	1
NC 80	SR 1167	SR 1154	1
NC 80	SR 1167	SR 1167	1
NC 80	SR 1199	SR 1158	2
NC 80	SR 1205	SR 1164	1
NC 80	SR 1205	SR 1199	1
NC 80	SR 1205	SR 1164	1
NC 80	US 19	SR 1186	1
US 19	NC 80	SR 1186	1
US 19	NC 80	SR 1434	1
US 19	NC 80	SR 1424	1
US 19	NC 80	SR 1435	1
*LCL CLEARMONT SCH RD	NC 197	SR 1419	1
NC 197	SR 1100	CL- BUNCOMBE	1
NC 197	SR 1112	SR 1179	1
NC 197	SR 1139	SR 1112	1
NC 197	SR 1139	SR 1113	3
NC 197	SR 1139		1
NC 197	SR 1139	SR 1109	2
NC 197	SR 1369	SR 1330	1
NC 197	SR 1330	SR 1369	1
NC 197	SR 1330	SR 1416	3

Route	From	To	Total Collisions
NC 197	SR 1416	SR 1333	1
NC 197	SR 1333	SR 1416	1
NC 197	SR 1333	SR 1422	1
NC 197	SR 1336	SR 1308	2
NC 197	SR 1422	SR 1333	1
NC 197	SR 1336	SR 1333	1
NC 197	SR 1308	SR 1317	1
NC 197	SR 1308	SR 1336	1
NC 197	SR 1308	SR 1307	1
NC 197	SR 1109	SR 1108	1
NC 197	SR 1184	SR 1107	1
NC 197	SR 1330	SR 1445	1
NC 197	SR 1330	SR 1338	1
NC 197	SR 1330	SR 1330	1
NC 197	SR 1338	SR 1308	2
NC 197	SR 1447	SR 1369	1
NC 197	SR 1447	SR 1330	1
NC 197	US 19	SR 1329	1
US 19	NC 197	SR 1329	1
US 19	NC 197	SR 1327	1

Roadway Capacity Deficiencies

Roadway capacity deficiencies occur wherever the travel demand volume of a roadway is close to or more than the capacity of that roadway. Travel demand volume is the total number of vehicles that wish to use a roadway on a daily basis. The existing travel demand volumes for the planning area are based upon traffic count data taken annually by the NCDOT Traffic Surveys Unit and are shown in **Figure 3** for the year 2003. The projected 2030 travel demand volumes, which are based upon historic and anticipated population, economic growth patterns, and land use trends, are shown in **Figure 4**.

Capacity is the maximum number of vehicles that can pass over a given section of roadway during a given time period under prevailing roadway and traffic conditions while still maintaining a service level that is acceptable to drivers.

Many factors contribute to the capacity of a roadway, including:

- 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 of the road, including residential, commercial, 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.

2003 Traffic Capacity Analysis

The comparison of the 2003 travel demand volumes for the major roadways in the planning area to the current practical capacities for these roadways did not identify any deficiencies in the planning area.

2030 Traffic Capacity Analysis

The capacity deficiency analysis for the 2030 design year is based upon the “no build” alternative. This analysis examined the existing street system and determined that US 19E will be the only road that will exceed practical capacity within the planning area by the design year.

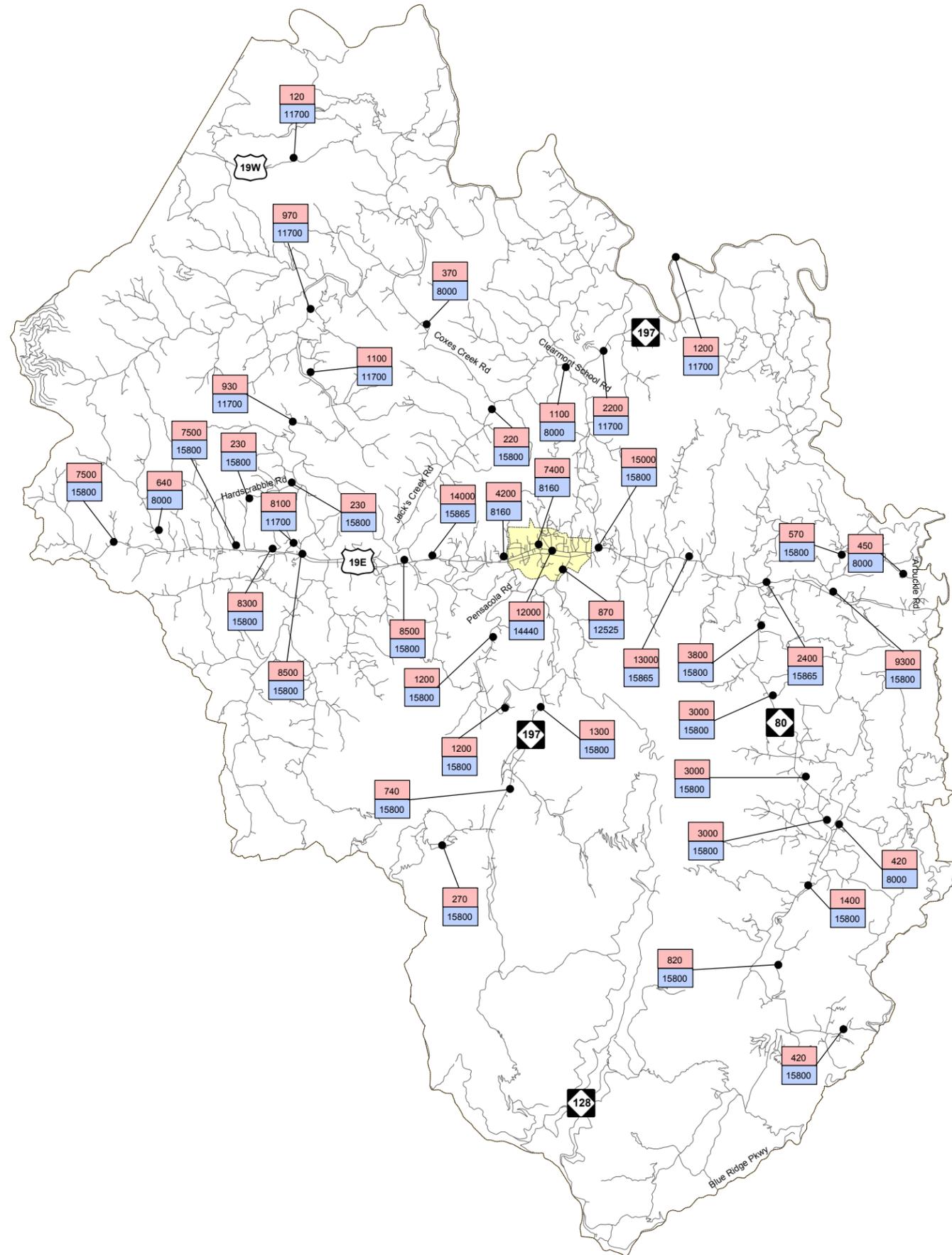
FIGURE 3

2003 AADT COUNTS



Legend

- Yancey Roads
- ▭ Municipal Boundary
- ▭ County Boundary
- ▭ 2003 Volume
- ▭ Capacity

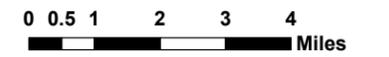


YANCEY COUNTY AND TOWN OF BURNSVILLE

NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH

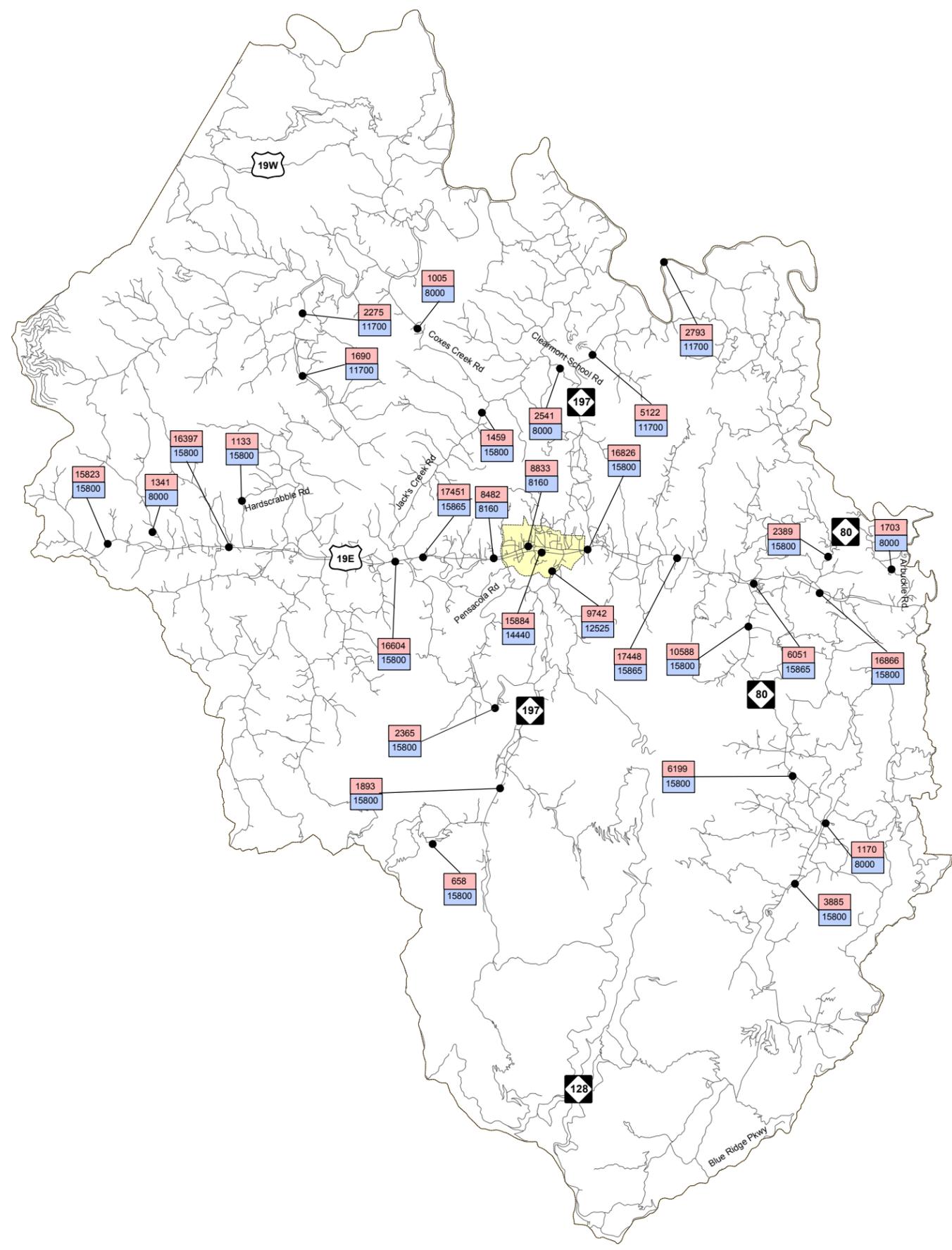
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



BASE MAP DATE: SEPTEMBER 2005

FIGURE 4

2030 VOLUME & CAPACITY



- Legend**
- Yancey Roads
 - ▭ Municipal Boundary
 - ▭ County Boundary
 - ▭ 2030 No Build Volume
 - ▭ Capacity

YANCEY COUNTY AND TOWN OF BURNSVILLE

NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH

IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



BASE MAP DATE: SEPTEMBER 2005

Bridge Conditions

Bridges are an important element of a highway system. Any bridge deficiency will affect the efficiency of the entire transportation system. In addition, bridges present the greatest opportunity of all potential highway failures for disruption of community welfare and loss of life. Therefore, bridges must be constructed to the same, or higher, design standards as the system of which they are a part and must be inspected regularly to ensure the safety of the traveling public.

The NCDOT Bridge Maintenance 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. A bridge at least ten years old is considered structurally deficient if it is in relatively poor condition or has insufficient load-carry capacity, due to either the original design or to deterioration. The bridge is considered to be functionally obsolete if it is narrow, has inadequate under-clearances, has insufficient load-carrying capacity, is poorly aligned with the roadway, and can no longer adequately serve existing traffic. A bridge must be classified as deficient in order to qualify for Federal replacement funds. In addition, the bridge must have a certain sufficiency rating to qualify for these funds. To qualify for replacement, the sufficiency rating must be less than 50%; for rehabilitation, the sufficiency rating must be less than 80%. Deficient bridges within the planning area are given in **Table 6**.

Table 6: Deficient Bridges

Number	Route	Across	Structurally Deficient	Functionally Obsolete
3	SR 1128	POSSUM TROT CREEK		FO
17	SR 1114	CREEK		FO
21	SR 1142	LITTLE CRABTREE CREEK	SD	
23	SR1147	CREEK		FO
25	SR 1323	SHOAL CREEK		FO
26	SR 1323	SHOAL CREEK		FO
31	SR 1308	CREEK	SD	
35	US 19E	SR 1308		FO
36	SR 1317	CREEK		FO
38	NC 80	SOUTH TOE RIVER		FO
39	SR 1333	LOWER PIGPEN CREEK	SD	
47	SR 1416	MINE FORK CREEK		FO

Number	Route	Across	Structurally Deficient	Functionally Obsolete
60	SR 1154	BROWNS CREEK		FO
61	NC 197	NORTH TOE CREEK	SD	
70	SR 1404	ROARING CREEK	SD	
73	SR 1391	CREEK		FO
92	SR 1340	CREEK		FO
100	SR 1153	CREEK	SD	
105	SR 1411	LITTLE CREEK	SD	
106	SR 1411	LITTLE CREEK		FO
112	SR 1124	INDIAN CREEK		FO
116	SR 1395	BALD MTN CREEK	SD	
119	SR 1395	BALD MTN CREEK	SD	
120	SR 1395	CREEK		FO
121	SR 1395	BALD MTN CREEK		FO
126	SR 1395	BALD MTN CREEK		FO
134	SR 1379	CANE RIVER		FO
144	SR 1317	CREEK	SD	
156	SR 1158	CREEK		FO
171	SR 1336	JACKS CREEK		FO
202	SR 1401	BALD MTN CREEK		FO
219	SR 1414	BIG CREEK		FO
267	SR 1154	CREEK	SD	
269	SR 1421	BALD CREEK		FO
274	SR 1410	LITTLE CREEK		FO
288	SR 1425	LITTLE CREEK		FO
289	SR 1158	CREEK		FO
291	SR 1335	LOWER PIGPEN CREEK	SD	
306	SR 1358	CREEK		FO
313	SR 1199	CLEAR CREEK		FO
314	SR 1205	CREEK		FO

IV. Environmental Screening

In recent years, the environmental (human and natural) considerations associated with transportation construction have come to the forefront of the planning process. Section 102 of the National Environmental Policy Act (NEPA) requires the completion of an Environmental Impact Statement (EIS) for projects that have a significant impact on the environment. The EIS includes impacts on wetlands, wildlife, water quality, historic properties, and public lands. While this report does not cover the environmental concerns in as much depth as an EIS would, consideration for many of these factors were incorporated into the development of the CTP and related recommended improvements.

Environmental features found in the planning area are shown in **Figure 5**. The environmental data used in the evaluation of the CTP was obtained in 2004 from the NCDOT Geographic Information and Analysis (CGIA) and reflects the most current data available at that time. Prior to implementing any transportation projects, further environmental analysis is necessary.

Wetlands

Wetlands are those lands where saturation with water is the dominant factor in determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands are crucial ecosystems in our environment. They help regulate and maintain the hydrology of our rivers, lakes, and streams by storing and slowly releasing floodwaters. Wetlands help maintain the quality of water by storing nutrients, reducing sediment loads, and reducing erosion. They are also critical to fish and wildlife populations by providing an important habitat for approximately one-third of the plant and animal species that are federally listed as threatened or endangered. The National Wetland Inventory showed several wetlands throughout Yancey County, mostly associated with rivers and streams. Further study of the CTP recommendations will be required, once the projects are funded, to determine what, if any, impacts the projects will have on wetlands.

Threatened and Endangered Species

The Threatened and Endangered Species Act of 1973 allows the U.S. Fish and Wildlife Service to impose measures on the Department of Transportation to mitigate the environmental impacts of a transportation project on endangered animal and plant species, as well as critical wildlife habitats. Locating any rare species that exist within the planning area during this early planning stage will help to avoid or minimize impacts.

A preliminary review of the Federally Listed Threatened and Endangered Species in the planning area was completed to determine what effects, if any, the recommended improvements may have on wildlife. Mapping from the N.C. Department of Environment and Natural Resources revealed occurrences of threatened or endangered plant and/or animal species in the planning area which

are summarized in **Table 7**. These species are not impacted by any recommendations found in the CTP.

Table 7: Yancey County Threatened and Endangered Species				
Designation	Vertebrates	Invertebrates	Vascular Plants	Nonvascular Plants
Federally Endangered or Threatened	Carolina northern flying squirrel Eastern cougar Virginia big-eared bat	Appalachian elktoe Spruce-fir moss spider	Roan Mountain Bluet Spreading avens Virginia spiraea	Rock Gnome Lichen
Federal Species of Concern	Alleghany woodrat Appalachian cottontail Blotched chub Eastern small-footed myotis Hellbender Olive darter Olive-sided Flycatcher Sharphead darter Southern Appalachian black-capped chickadee Southern Appalachian red crossbill Southern Appalachian saw-whet owl Southern Appalachian yellow-bellied sapsucker Southern rock vole	Fragile glyph Roan supercoil Yancey Sideswimmer	Butternut Cain's reedgrass Carolina saxifrage Fraser fir Glade spurge Gray's lily Mountain bittercress Mountain catchfly	Three types of liverwort
Threatened due to similarity of appearance	Bog turtle			

Historic Sites

Section 106 of the National Historic Preservation Act requires the Department of Transportation to identify historic properties listed in, as well as eligible for, the National Register of Historic Places (NRHP). The NCDOT must consider the impacts of transportation projects on these properties and consult with the Federal Advisory Council on Historic Preservation.

N.C. General Statute 121-12(a) requires the NCDOT to identify historic properties listed on the National Register, but not necessarily those that are eligible to be listed. The NCDOT must consider the impacts and consult with the N.C. Historical Commission, but is not bound by their recommendations. The location of historic sites within the planning area was investigated to determine any possible impacts resulting from the recommended improvements. It was determined that the historic properties should not be negatively impacted.

Educational Facilities

The location of educational facilities in the planning area was considered during the development of the CTP. Yancey County hosts a satellite facility for Mayland Community College in the Town of Burnsville. The implementation of the transportation plan should result in positive effects on educational facilities in the study area by improving the safety and capacity of the roadways around the educational facilities, and avoiding existing schools.

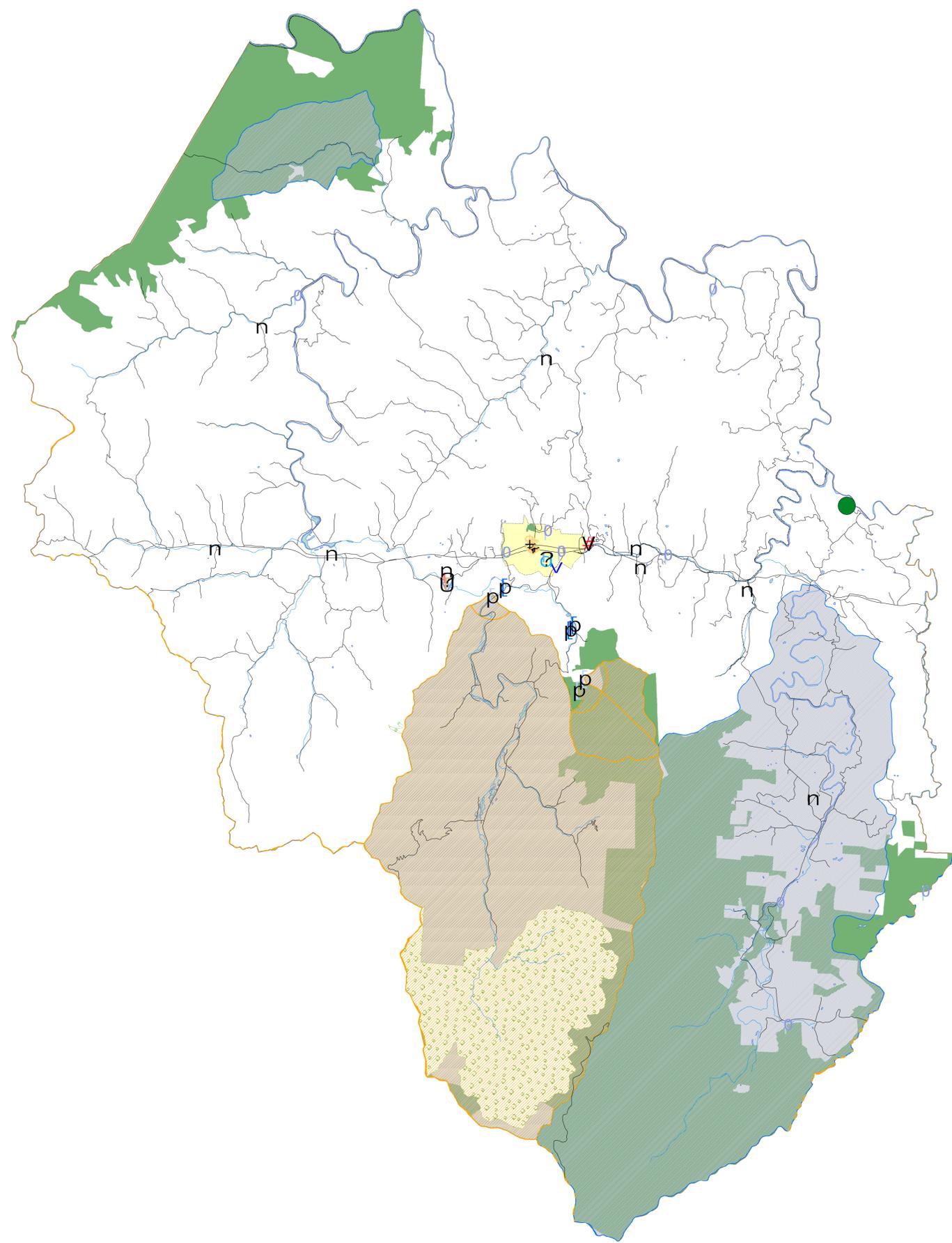
Demographics

As mandated by Title VI of the Civil Rights Act of 1964 and Executive Order 12898, the proposed actions recommended in the CTP have been reviewed with respect to impacts to minority and low-income populations established in the 2000 Census. Yancey County had a 2004 population of 18,071 people, 1.7% more than in 2000. The area is a growing destination for retirees and in the 2000 U.S. Census had 18.2% of its population over 65, compared to the state's 12% in this age demographic. The population is predominately white (98%) with a small, but growing Hispanic population comprising 2.7% in 2000.

Parks and Open Spaces

The location of parks and open spaces in the planning area was considered during the development of the CTP. Yancey County hosts 38,320 acres of National Forest and the 1,855 acre Mt. Mitchell North Carolina State Park, located in the crest of the Black Mountains.

FIGURE 5
ENVIRONMENTAL FEATURES



LEGEND

- Water Distribution Systems Water Treatment Plants
- Water Distribution Systems Water Storage Tanks
- Water Distribution Systems Intakes Surface Water
- Surface Water Intakes
- Historic National Register Structures
- Groundwater Incidents Unverified
- Hazardous Substance Disposal Sites Points
- Solid Waste Facilities
- Sanitary Sewer Systems Treatment Plants
- Sanitary Sewer Systems Discharges
- Schools
- Hospital Locations
- Roads State System
- Railroads
- National Wetland Inventory
- Water Supply Watershed
- National Wetland Inventory
- Conservation Tax Credit Properties
- High Quality Outstanding Resource Waters
- Lands Managed Conservation Open Space
- County Boundary
- Municipal Boundary
- Rivers

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BASE MAP DATE: SEPTEMBER 2005



V. Public Involvement

Since the passage of the Federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the emphasis on public involvement in transportation has taken on a new role. Although public participation has been an element of long range transportation planning in the past, these regulations call for a much more proactive approach. The NCDOT's Transportation Planning Branch has a long history of making public involvement a key element in the development of any long range transportation plan, no matter the size of the municipality and/or planning area.

The Yancey County and Town of Burnsville CTP study was started in 2004. There were opportunities for public involvement and comment throughout the course of this study. Public input was used in the development of the CTP recommendations. A Future Transportations Expectations Workshop was held on March 28, 2006. A workshop to comment on the final plan was held on March 11, 2008. The Yancey County Board of Commissioners held a public hearing on the plan on March 11, 2008. The Town of Burnsville held a public hearing on the plan on April 3, 2008.

VI. Conclusion

Yancey County and the Town of Burnsville are growing areas that will require improvements to their transportation systems over the next thirty years. It is the responsibility of the County and the Town to take the initiative for the implementation of the CTP. It is imperative that the local areas aggressively pursue funding for desired projects. Questions regarding funding, projects, planning, and modes of transportation should be addressed to the appropriate branch within NCDOT. **Appendix D** includes contact information for many of these branches. If changes are required for any element of the CTP, then all other elements must be reviewed for resulting impacts. Prior to implementation of any transportation projects, additional public involvement and analysis of impacts to the natural and human environment will need to be conducted.

Appendix A: Comprehensive Transportation Plan Definitions

Highway Map

Category Definitions

- Freeways^x
 - 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/High Occupancy Transit 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 1,000 feet or for 350 feet plus 650 feet 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^x
 - 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 – High Occupancy Vehicle 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 2,000 feet; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways limited in location and number; use of acceleration/deceleration or right turning lanes
 - Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
 - Driveways – right-in/right-out only; direct driveway access via service roads or other alternate connections

- Boulevards
 - Functional purpose – moderate mobility; moderate access, moderate volume, medium speed
 - Posted speed – 30 to 55 mph

- Cross section – two or more lanes with median (median breaks allowed for U-turns per *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
 - 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 with center turn lane as permitted by the *Driveway Manual*
- Minor Thoroughfares
 - Functional purpose – balanced mobility and access, moderate volume, low to medium speed
 - Posted speed – 25 to 45 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)
 - 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 with center turn lane as permitted by the *Driveway Manual*

Other Definitions

- Existing – Roadway facilities that are not recommended to be improved.
- Needs Improvement – Roadway facilities that need to be improved for capacity, safety, or system continuity. The improvement to the facility may be widening, other operational strategies, increasing the level of access control along the facility, or a combination of improvements and strategies. **“Needs improvement” does not refer to the maintenance needs of existing facilities.**
- 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.

Bicycle Map

Category Definitions

- 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 the 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 bicycle transportation (may also accommodate pedestrians, i.e. a greenway) and is physically separated from a highway facility usually on a separate right-of-way.

- Off Road-Needs Improvement – A facility that accommodates bicycle transportation (may also accommodate pedestrians, e.g. greenways) and is physically separated from a highway facility usually on a separate right-of-way that will not adequately serve future bicycle needs. Improvements may include but are not limited to: widening, paving (not re-paving), improved horizontal or vertical alignment.
- Off Road-Recommended – A facility needed to accommodate bicycle transportation (may also accommodate pedestrians, e.g. greenways) and is physically separated from a highway facility usually on a separate right-of-way. This may also include greenway segments that do not necessarily serve a transportation function but intersect recommended facilities on the highway map or public transportation and rail map.

^XEvery effort will be made to ensure that all facilities identified by the Strategic Highway Corridor Map will be a Freeway or Expressway on the Comprehensive Transportation Plan.

Public Transportation and Rail Map

Category Definitions

- 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 High Occupancy Vehicle (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 public 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.

Appendix B: Street Tabulation and Recommendations

This appendix includes a detailed tabulation of all streets identified as elements of the Yancey County and Town of Burnsville Comprehensive Transportation Plan. The table includes a description of the roads by sections, as well as the length, cross section, and right-of-way for each section. Also included are the existing and projected average daily traffic volumes, roadway capacity, and the recommended ultimate lane configuration. Due to space constraints, these recommended cross sections are given in the form of an alphabetic code. A detailed description of each of these codes and an illustrative figure for each can be found in **Appendix C**.

The following index of terms may be helpful in interpreting the table:

SR - State Road
RDWY – Roadway
ROW – Right-of-way
ADT – Average Daily Traffic
vpd – Vehicles per Day

Table B-1: Transportation Plan Street Tabulation and Recommendations

FACILITY & SECTION	DIST (MI)	EXISTING CONDITIONS				NO BUILD ADT		HIGHWAY RECOMMENDATION	BICYCLE RECOMMENDATION
		RDWY (FT)	ROW (FT)	NO. OF LANES	CAPACITY (vpd)	2003 ADT	2030 ADT	CROSS SECTION	CROSS SECTION
US 19									
MADISON CO. LINE - SR 1393	3.20	24	220	2	15,800	7,500	15,800	F	B-1
SR 1393 - SR 1391	0.50	24	220	2	15,800	7,500	16,400	F	B-1
SR 1391 - SR 1128	0.80	24	350	2	15,800	8,300	16,400	F	B-1
US 19 E									
SR 1128 - SR 1136	1	24	350	2	15,800	8,500	16,600	F	B-1
SR1136 - SR 1136	1.3	24	350	2	15,800	8,500	16,600	F	B-1
SR 1136 - SR 1115	0.4	36	350	3	15,800	8,500	16,600	F	B-1
SR 1115 - SR 1336	0.2	24	350	2	15,800	8,500	16,600	F	B-1
SR 1336 - SR 1196	0.7	24	100	2	15,800	14,000	17,500	F	B-1
SR 1196 - SR 1438	0.7	24	100	2	15,800	14,000	17,500	F	B-1
SR 1438 - SR 1375	0.2	24	100	2	15,800	14,000	17,500	F	B-1
SR 1375 - SR 1139	0.4	24	100	2	15,800	12,000	17,500	F	B-1
SR 1139 - S. MAIN ST.	0.7	36	100	3	14,400	12,000	15,900	F	B-1
S. MAIN ST. - NC 197	1.3	36	80	3	15,800	15,000	16,800	F	B-1
NC197 - SR 1427	0.5	28	80	2	15,800	15,000	16,800	F	B-1
SR 1427 - SR 1142	0.5	28	80	2	15,800	13,000	16,800	F	B-1
SR 1142 - SR 1186	2.2	28	80	2	15,800	13,000	17,400	F	B-1
SR 1186 - SR 1307	0.7	28	80	2	15,800	13,000	17,400	F	B-1
SR 1307 - SR 1150	1.5	28	80	2	15,800	9,300	17,400	F	B-1
SR 1150 - SR 1151	0.5	28	80	2	15,800	9,300	17,400	F	B-1
SR 1151 - SR 1431	0.1	28	80	2	15,800	9,300	16,900	F	B-1
SR 1431 - SR 1423	0.4	28	80	2	15,800	9,300	16,900	F	B-1
SR 1423 - SR 1423	0.8	28	80	2	15,800	9,300	16,900	F	B-1
SR 1423 - MITCHELL CO. LINE	1	28	80	2	15,800	9,300	16,900	F	B-1
US 19 W									
US 19 E - SR 1454	0.50	22	60	2	11,700	8,100	2,700	-	-
SR 1454 - SR 1382	5.10	18	60	2	11,700	930	2,700	-	-
SR 1382 - SR 1385	2.10	22	60	2	11,700	1,100	2,700	-	-
SR 1385 - SR 1411	1.40	22	60	2	11,700	970	2,300	-	-
SR 1411 - SR 1413	3.10	20	60	2	11,700	930	2,300	-	-
SR 1413 - SR 1354	1.70	20	60	2	11,700	260	2,300	-	-
SR 1354 - SR 1417	1.70	20	60	2	11,700	320	2,300	-	-
SR 1417 - SR 1415	1.50	20	50	2	11,700	300	2,300	-	-
SR 1415 - TENNESSEE ST. LINE	6.10	18	40	2	11,700	120	2,300	-	-
NC 80									
McDOWELL CO. LINE - SR 1205	2.30	18	60	2	15,800	420	3,900	-	B-4
SR 1205 - SR 1158	3.50	22	60	2	15,800	820	3,900	-	B-4
SR 1158 - SR 1157	1.90	22	60	2	15,800	1,400	3,900	-	B-4
SR 1157 - SR 1163	0.80	22	60	2	15,800	3,000	3,900	-	B-4
SR 1163 - SR 1154	1.50	22	60	2	15,800	3,000	6,200	-	B-4
SR 1154 - SR 1153	2.60	22	60	2	15,800	3,000	6,200	-	B-4
SR 1153 - SR 1186	1.90	22	60	2	15,800	3,800	10,600	-	B-4
SR 1186 - US 19 E	0.30	22	60	2	15,800	2,400	6,100	-	B-4
US 19 E - SR 1304	0.50	20	60	2	15,800	570	6,100	-	-
SR 1304 - SR 1305	0.80	20	60	2	15,800	570	2,400	-	-
SR 1305 - MITCHELL CO. LINE	1.20	20	60	2	15,800	570	2,400	-	-
NC 128									
Blue Ridge Parkway - Top of Mt. Mitchell		18	60	2	8,000	400	800	-	B-4
NC 197									
BUNCOMBE CO. LINE - SR 1100	5.50	20	60	2	15,800	270	700	-	-
SR 1100 - SR 1183	2.30	22	40	2	15,800	740	1,900	-	-
SR 1183 - SR 1108	1.10	22	40	2	15,800	1,300	1,900	-	-
SR 1108 - SR 1112	2.60	20	40	2	15,800	1,200	1,900	-	-
SR 1112 - SR 1109	4.60	20	40	2	15,800	1,200	2,400	-	-
SR 1109 - US 19 E	0.80	20	40	2	12,500	870	9,700	-	-
US 19 E - SR 1416	4.20	22	100	2	12,500	4,300	9,700	-	-
SR 1416 - SR 1333	1.70	22	100	2	11,700	2,200	5,100	-	-
SR 1333 - SR 1336	1.20	20	100	2	11,700	1,200	5,100	-	-
SR 1336 - MITCHELL CO. LINE	3.80	20	100	2	11,700	1,200	2,800	-	-

FACILITY & SECTION	DIST (MI)	EXISTING CONDITIONS				NO BUILD ADT		HIGHWAY RECOMMENDATION	BICYCLE RECOMMENDATION
		RDWY (FT)	ROW (FT)	NO. OF LANES	CAPACITY (vpd)	2003 ADT	2030 ADT	CROSS SECTION	CROSS SECTION
SR 1391 (HARDSCRABBLE RD.)									
US 19 - SR 1390	1.90	18	60	2	15,800	230	1,100	-	-
SR 1390 - US 19 W	0.60	18	60	2		230	1,100	-	-
SR 1354 (COXES CREEK RD.)									
US 19 W - SR 1336	4.10	18	60	2	8,000	370	1,000	-	-
SR 1336 (JACKS CREEK RD.)									
US 19 E - NC 197	12.50	18	60	2	15,800	220	1,500	-	-
SR 1416 (CLEARMONT SCHOOL RD.)									
SR 1336 - NC 197	1.20	18	60	2	8,000	1,100	2,500	-	-
SR 1300 (ARBUCKLE RD.)									
NC 80 - US 19 E	2.80	16	60	2	8,000	450	1,700	K	-
SR 1428 (W. MAIN ST.)									
US 19 E - HILLSIDE ST. (TOWN RD.)	0.80	20	-	2	8,000	4,200	8,500	-	-
HILLSIDE ST. - MAIN ST. SQUARE	0.20	34	-	2	8,000	7,400	2,800	-	-
SR 1428 (MAIN ST. SQUARE)									
W. MAIN ST. - E. MAIN ST.	0.10	48	-	2		-	-	-	-
E. MAIN ST. - W. MAIN ST.	0.10	48	-	2		-	-	-	-
SR 1428 (E. MAIN ST.)									
MAIN ST. SQUARE - SR 1429	0.60	36	-	2	8,000	-	8,500	-	-
SR 1429 - US 19 E	0.50	24	-	2	8,000	-	8,800	-	-
S. MAIN ST. (TOWN RD.)									
MAIN ST. SQUARE - US 19 E	0.10	-	-	2	-	-	-	-	-

Appendix C: 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. The 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.

On all existing and proposed roadways delineated on the thoroughfare plan, adequate right-of-way should be protected or acquired for the recommended cross sections. The typical cross sections are described below.

A: Four Lanes Divided with Median - Freeway

Cross section "A" is typical for four-lane divided highways in rural areas that may have only partial or no control of access. The minimum median width for this cross section is 46 feet, but a wider median is desirable.

B: Seven Lanes - Curb & Gutter

Cross section "B" is typically not recommended for new projects. When the conditions warrant six lanes, cross section "D" should be recommended. Cross section "B" should be used only in special situations such as when widening from a five-lane section where right-of-way is limited. Even in these situations, consideration should be given to converting the center turn lane to a median so that cross section "D" is the final cross section.

C: Five Lanes - Curb & Gutter

Typical for major thoroughfares, cross section "C" is desirable where frequent left turns are anticipated as a result of abutting development or frequent street intersections.

D: Six Lanes Divided with Raised Median - Curb & Gutter

E: Four Lanes Divided with Raised Median - Curb and Gutter

Cross sections "D" and "E" are typically used on major thoroughfares where left turns and intersection streets are not as frequent. Left turns would be restricted to a few selected intersections. The 16 ft median is the minimum recommended for an urban boulevard-type cross section. In most instances, monolithic construction should be utilized due to greater cost effectiveness, ease and speed of placement, and reduced future maintenance requirements. In certain cases, grass or landscaped medians result in greatly increased maintenance costs and an increase danger to maintenance personnel. Non-monolithic medians should only be recommended when the above concerns are addressed.

F: Four Lanes Divided - Boulevard, Grass Median

Cross section "F" is typically recommended for urban boulevards or parkways to enhance the urban environment and to improve the compatibility of major thoroughfares with residential areas. A minimum median width of 24 ft is recommended, with 30 ft being desirable.

G: Four Lanes - Curb and Gutter

Cross section "G" is recommended for major thoroughfares where projected travel indicates a need for four travel lanes but traffic is not excessively high, left turning movements are light, and right-of-way is restricted. An additional left turn lane would likely be required at major intersections. This cross section should be used only if the above criteria are met. If right-of-way is not restricted, future strip development could take place and the inner lanes could become de facto left turn lanes.

H: Three Lanes - Curb and Gutter

In urban environments, thoroughfares that are proposed to function as one-way traffic carriers would typically require cross section "H".

I: Two Lanes – Curb and Gutter, Parking both sides

J: Two Lanes – Curb and Gutter, Parking one side

Cross section "I" and "J" are usually recommended for urban minor thoroughfares since these facilities usually serve both land service and traffic service functions. Cross-section "I" would be used on those minor thoroughfares where parking on both sides is needed as a result of more intense development.

K: Two Lanes - Paved Shoulder

Cross section "K" is used in rural areas or for staged construction of a wider multilane cross section. On some thoroughfares, projected traffic volumes may indicate that two travel lanes will adequately serve travel for a considerable period of time. For areas that are growing and future widening will be necessary, the full right-of-way of 100 ft should be required. In some instances, local ordinances may not allow the full 100 ft. In those cases, 70 ft should be preserved with the understanding that the full 70 ft will be preserved by use of building setbacks and future street line ordinances.

L: Six Lanes Divided with Grass Median - Freeway

Cross section "L" is typical for controlled access freeways. The 46 ft grass median is the minimum desirable width, but variation from this may be permissible depending upon design considerations. Right-of-way requirements are typically 228 ft or greater, depending upon cut and fill requirements.

M: Eight Lanes Divided with Raised Median - Curb and Gutter

Also used for controlled access freeways, cross section "M" may be recommended for freeways going through major urban areas or for routes projected to carry very high volumes of traffic.

N: Five Lanes with Curb & Gutter, Widened Curb Lanes

O: Two Lanes/Shoulder Section

P: Four Lanes Divided with Raised Median – Curb and Gutter, Widened Curb Lanes

If there is sufficient bicycle travel along the thoroughfare to justify a bicycle lane or bikeway, additional right-of-way may be required to contain the bicycle facilities. The North Carolina Bicycle Facilities Planning and Design Guidelines should be consulted for design standards for bicycle facilities. Cross sections “N”, “O” and “P” are typically used to accommodate bicycle travel.

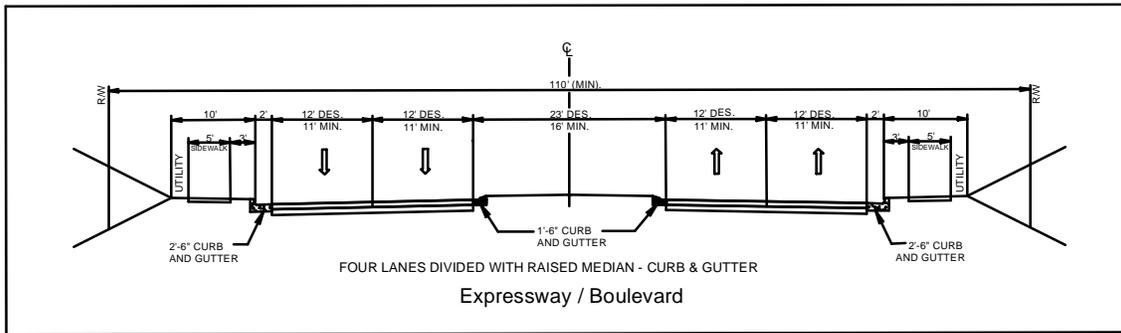
General

The urban curb and gutter cross sections all illustrate the sidewalk adjacent to the curb with a buffer or utility strip between the sidewalk and the minimum right-of-way line. This permits adequate setback for utility poles. If it is desired to move the sidewalk farther away from the street to provide additional separation for pedestrians or for aesthetic reasons, additional right-of-way must be provided to insure adequate setback for utility poles.

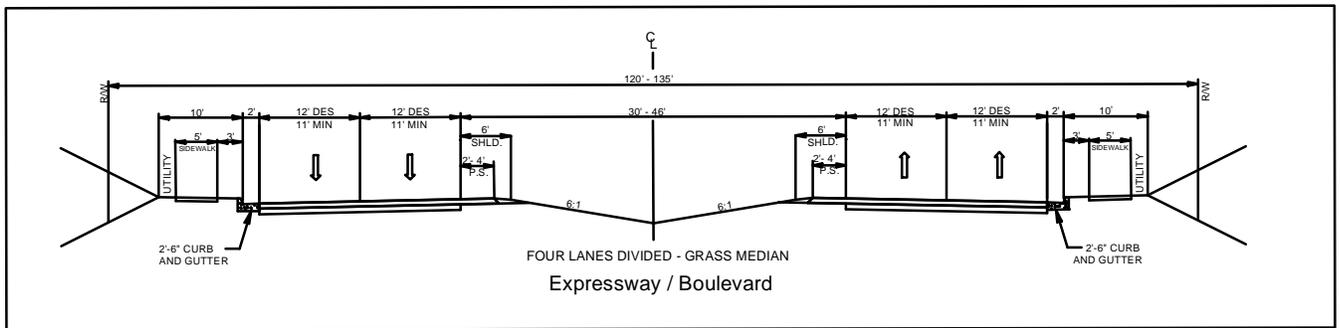
The right-of-way shown for each typical cross section is the minimum amount required to contain the street, sidewalks, utilities, and drainage facilities. Cut and fill requirements may require either additional right-of-way or construction easements. Obtaining construction easements is becoming the more common practice for urban thoroughfare construction.

TYPICAL HIGHWAY CROSS SECTIONS

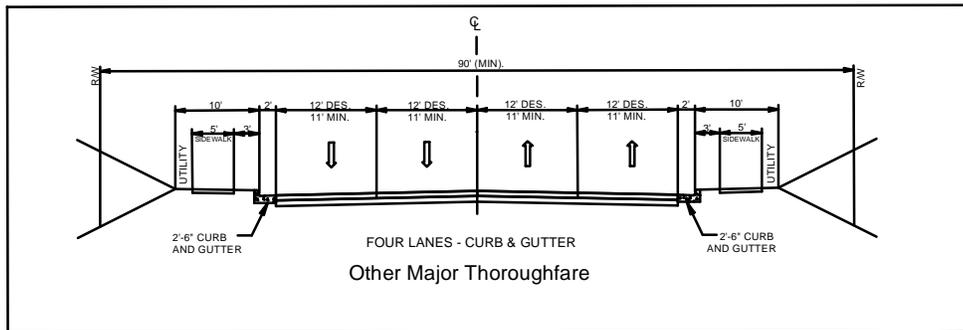
E



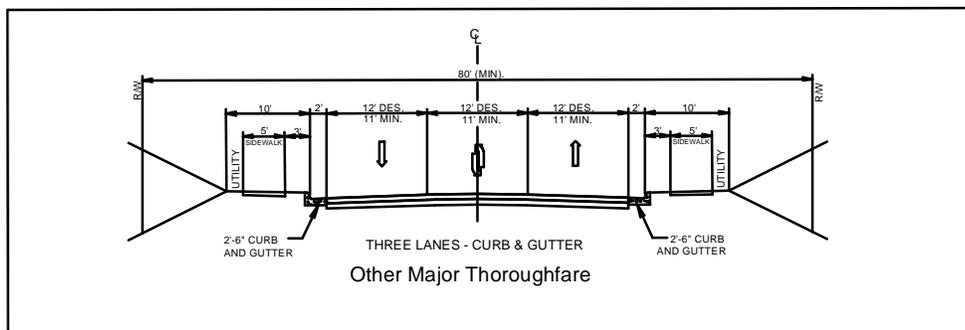
F



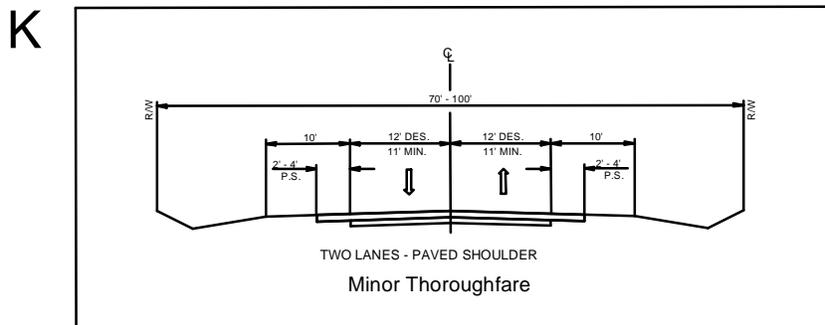
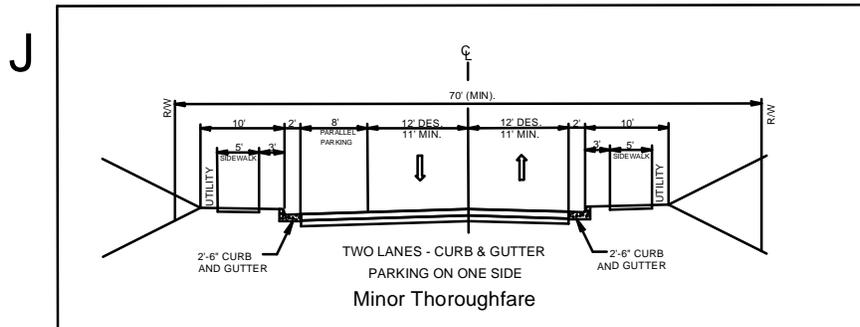
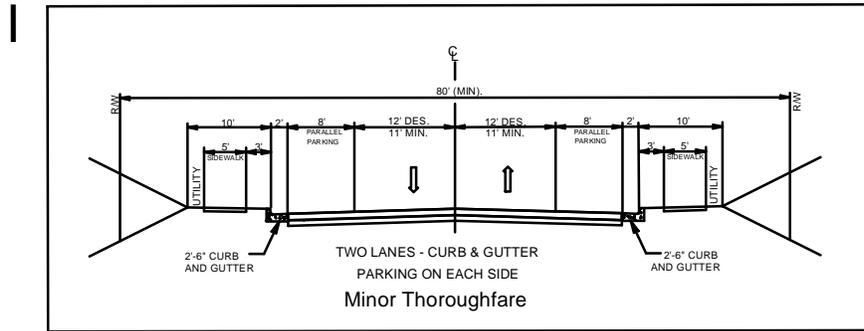
G



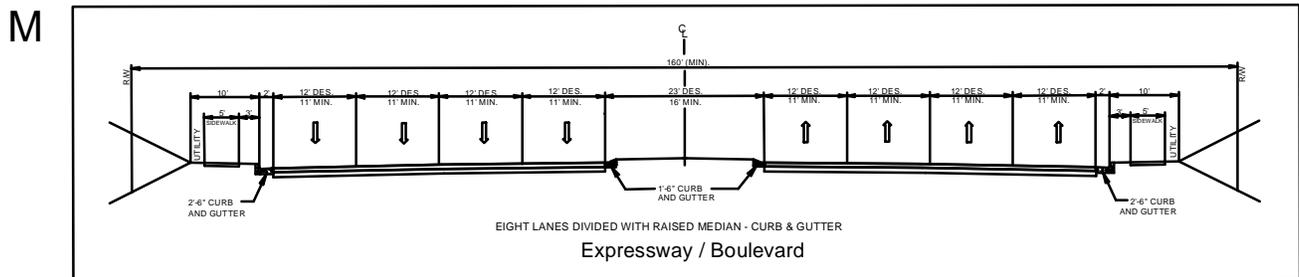
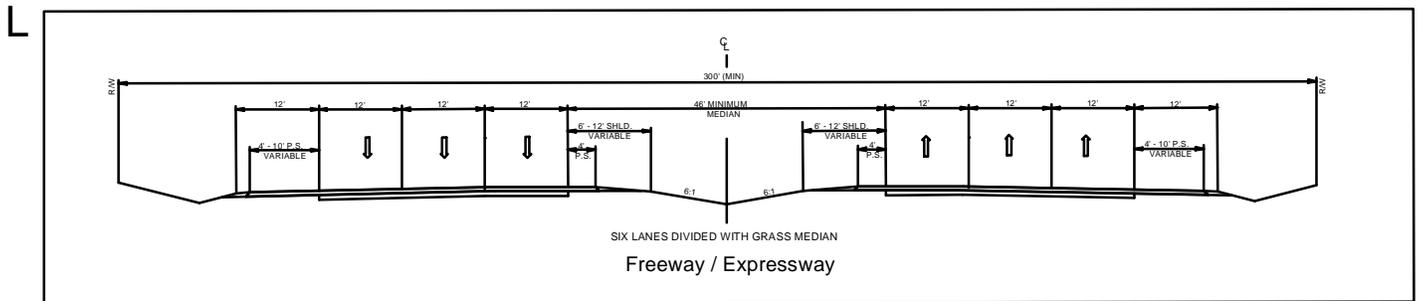
H



TYPICAL HIGHWAY CROSS SECTIONS



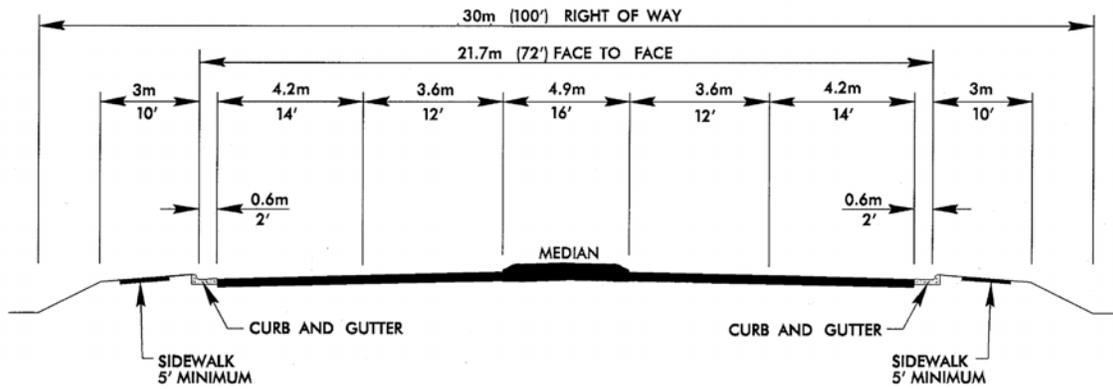
TYPICAL HIGHWAY CROSS SECTIONS



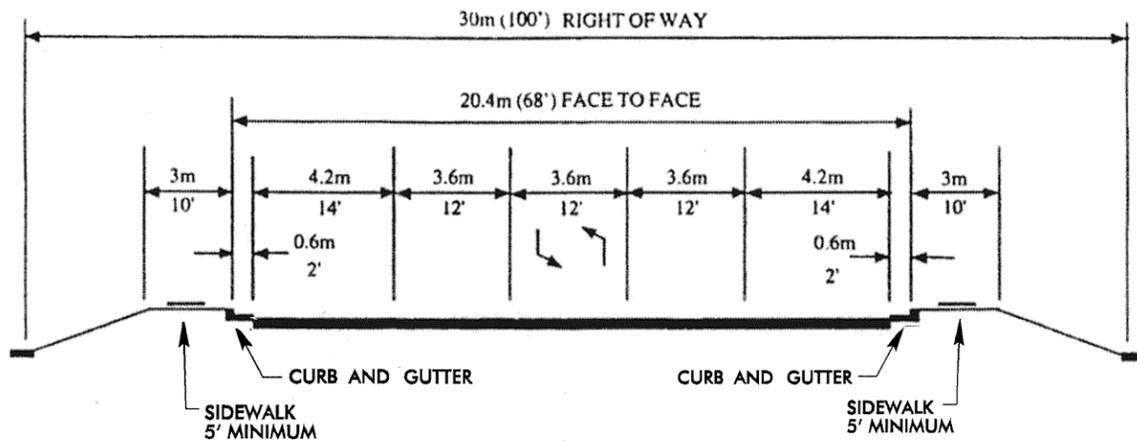
Typical Bicycle Cross Sections

WIDE CURB LANES

B-1 4-LANE MEDIAN DIVIDED TYPICAL SECTION With Wide Outside Lanes



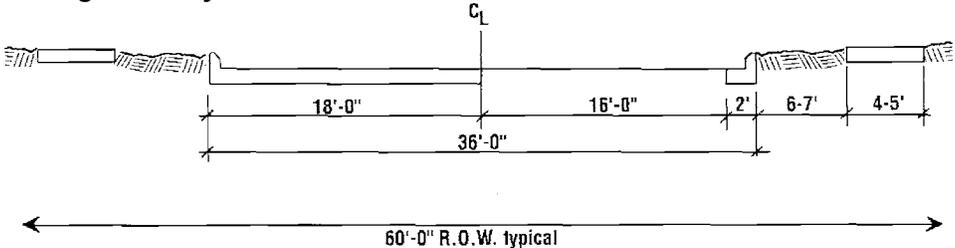
B-2 5-LANE TYPICAL SECTION With Wide Outside Lanes



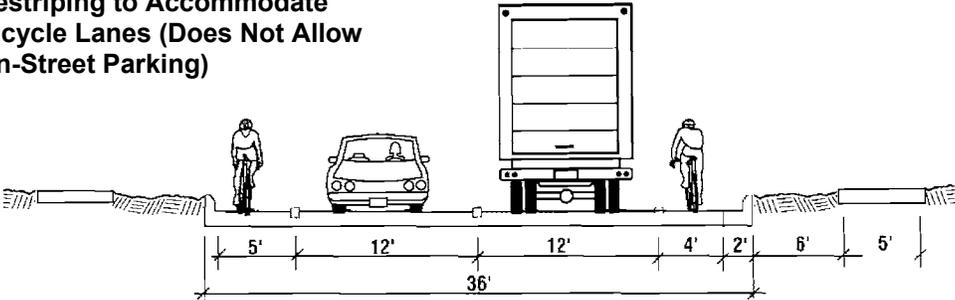
Typical Bicycle Cross Sections

B-3 BICYCLE LANES ON COLLECTOR STREETS

Existing Roadway



Restriping to Accommodate
Bicycle Lanes (Does Not Allow
On-Street Parking)

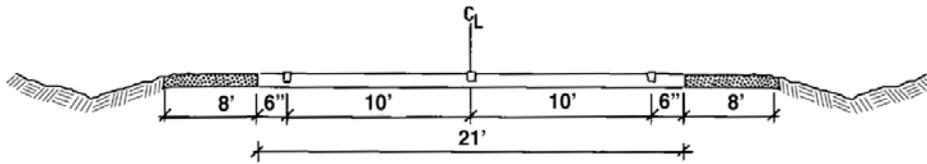


Typical Bicycle Cross Sections

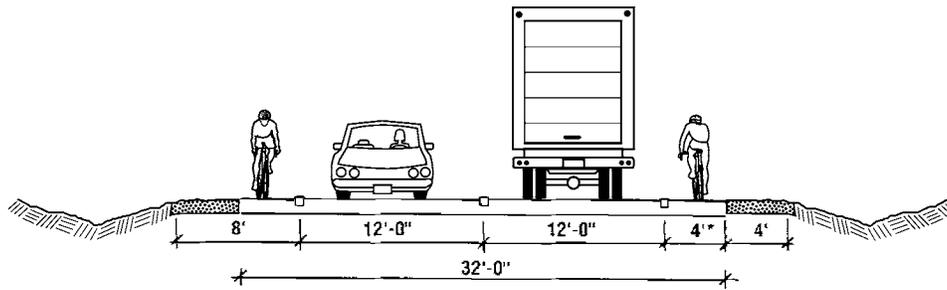
B-4

WIDE PAVED SHOULDERS

Existing Roadway



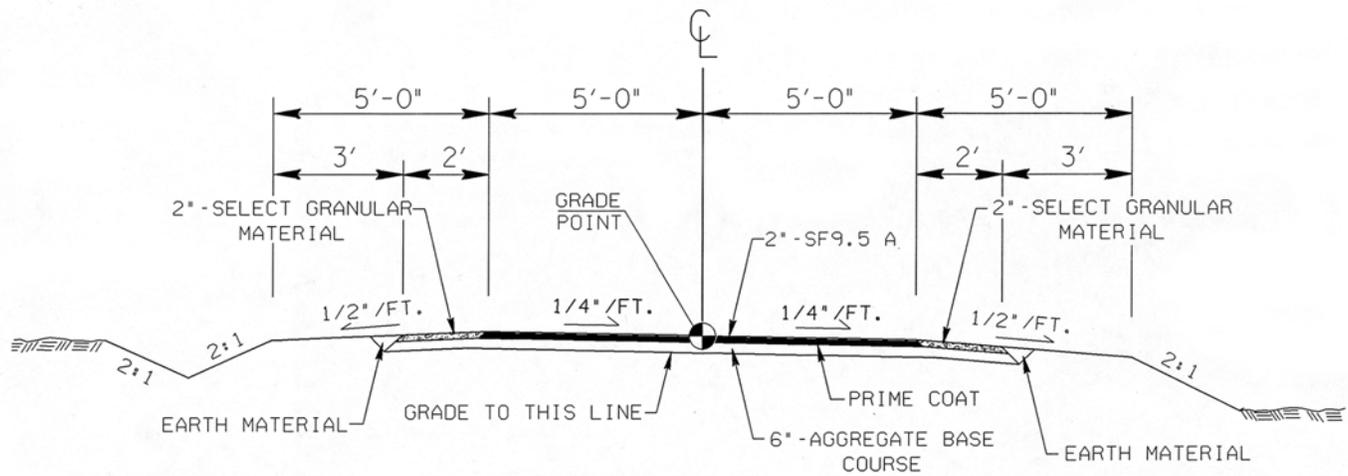
**Roadway Retrofitted with
4-Ft Paved Shoulders**



* If speeds are higher than 40 mph,
shoulder widths greater than 4' are
recommended.

Typical Bicycle Cross Sections

B-5 RECOMMENDED TYPICAL SECTION OF 10-FT ASPHALT PATHWAY With 2-Ft Select Material Shoulder



Appendix D: Resources and Contacts

North Carolina Department of Transportation

Customer Service Office

1-877-DOT4YOU
(1-877-368-4968)

Secretary of Transportation

1501 Mail Service Center
Raleigh, NC 27699-1501
(919) 733-2520

Board of Transportation Member

Contact information for the current Board of Transportation Member may be accessed from the NCDOT homepage on the worldwide web (<http://www.ncdot.org/board/>) or by calling 1-877-DOT4YOU.

Highway Division 13

Division Engineer

Contact the Division Engineer with general questions concerning NCDOT activities within Division 13 or information on Small Urban Funds.

PO Box 3279
Asheville, 28802
(828)251-6171
Ext. 203

Division Construction Engineer

Contact the Division Construction Engineer for information concerning major roadway improvements under construction.

PO Box 3279
Asheville, 28802
(828)251-6171
Ext. 219

Division Traffic Engineer

Contact the Division Traffic Engineer for information concerning high-collision locations.

PO Box 3279
Asheville, 28802
(828)251-6171
Ext. 211

District Engineer

Contact the District Engineer for information regarding Driveway Permits, Right of Way Encroachments, and Development Reviews.

PO Box 3279
Asheville, 28802
(828)298-2741

County Maintenance Engineer

Contact the County Maintenance Engineer regarding any maintenance activities, such as drainage.

Route 10, Box 320
Burnsville, 28714
(828)682-2441

Centralized Personnel

Transportation Planning Branch

Contact the Transportation Planning Branch with long-range planning questions.

1554 Mail Service Center
Raleigh, NC 27699-1554
(919) 733-4705

Secondary Roads Office

Contact the Secondary Roads Office for information regarding the Industrial Access Funds Program.

1535 Mail Service Center
Raleigh, NC 27699-1535
(919) 733-3250

Program Development Branch

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

1542 Mail Service Center
Raleigh, NC 27699-1542
(919) 733-2031

Project Development & Environmental Analysis Branch

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

1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-3141

Traffic Engineering & Safety Systems Branch

Contact the Traffic Engineering & Safety Systems Branch for information regarding Development Reviews and signals on state roads.

1561 Mail Service Center
Raleigh, 27699-1561
(919) 733-3915

Highway Design Branch

Contact the Highway Design Branch for information regarding alignments for projects that are included in the TIP.

1584 Mail Service Center
Raleigh, 27699-1584
(919) 250-4001

Bicycle and Pedestrian Division

Contact the Bicycle and Pedestrian Division for information regarding projects in the TIP, funding, and events.

1552 Mail Service Center
Raleigh, 27699-1552
(919) 733-2804

Public Transportation Division

Contact the Public Transportation Division for information regarding fixed and demand responsive transit.

1550 Mail Service Center
Raleigh, 27699-1550
(919) 733-4713

Rail Division

Contact the Rail Division for information regarding engineering and safety, operations, and planning for passenger and freight rail transportation.

1553 Mail Service Center
Raleigh, 27699-1553
(919) 733-7245

Other departments

Contact information for other departments within the NCDOT not listed here are available at the NCDOT homepage on the worldwide web (<http://www.ncdot.org/board/>) or by calling 1-877-DOT4YOU.