



# Comprehensive Transportation Plan



## Union County

February 2012

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# Comprehensive Transportation Plan

## Union County

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Transportation Planning Branch  
N.C. Department of Transportation

**In Cooperation with:** Union County  
Town of Marshville  
Rocky River Rural Planning Organization

**February 2012**



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Jamal Alavi, P.E.  
Metrolina Planning Group Supervisor

## Table of Contents

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---

Executive Summary .....	i
I. Analysis of the Existing and Future Transportation System .....	I-1
Analysis Methodology and Data Requirements .....	I-1
Roadway System Analysis .....	I-1
Traffic Crash Analysis .....	I-3
Bridge Deficiency Assessment .....	I-11
Public Transportation and Rail .....	I-11
Public Transportation .....	I-11
Rail .....	I-12
Bicycles and Pedestrians .....	I-15
Land Use .....	I-15
Consideration of the Natural and Human Environment .....	I-21
Public Involvement .....	I-25
II. Recommendations .....	II-1
Implementation .....	II-1
Problem Statements .....	II-2
Highway .....	II-2
Public Transportation and Rail .....	II-5
Bicycle .....	II-5
Pedestrian .....	II-6

## Appendices

---

---

Appendix A: Resources and Contacts .....	A-1
Appendix B: Comprehensive Transportation Plan Definitions .....	B-1
Appendix C: CTP Inventory and Recommendations .....	C-1
Appendix D: Typical Cross-Sections .....	D-1
Appendix E: Level of Service Definitions.....	E-1
Appendix F: Traffic Crash Analysis .....	F-1
Appendix G: Bridge Deficiency Assessment .....	G-1
Appendix H: Public Involvement .....	H-1
Appendix I: Existing Transportation Plans.....	I-1

## List of Figures

---

---

Figure 1	Comprehensive Transportation Plan .....	iii
Figure 2	Existing Roadway Deficiency .....	I-5
Figure 3	Future Roadway Deficiency .....	I-7
Figure 4	Crash Locations Map .....	I-9
Figure 5	Deficient Bridges .....	I-13
Figure 6	Existing Land Development Plan .....	I-17
Figure 7	Future Land Development Plan .....	I-19
Figure 8	Environmental Features .....	I-23
Figure 9	Typical Cross Sections .....	D-2
Figure 10	Level of Service Illustrations .....	E-2

## List of Tables

---

---

Table 1	Environmental Features .....	I-21
Table 2	Restricted Environmental Features .....	I-22
Table 3	CTP Inventory and Recommendations .....	C-2
Table 4	Crash Locations .....	F-1
Table 5	Deficient Bridges .....	G-2

## Executive Summary

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In August of 2008, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and Union County initiated a study to cooperatively develop the Union County Comprehensive Transportation Plan (CTP), which includes the Town of Marshville and the rural portion of Union County located in the Rocky River Rural Planning Organization (RPO). 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. Refer to Figure 1 for the CTP maps, which were mutually adopted by the Town of Marshville, Union County, the Transportation Planning Branch, and the Board of Transportation, and endorsed by the Rocky River RPO in 2010. Implementation of the plan is the responsibility of the County, its municipalities, and NCDOT. Refer to Chapter 2 for information on the implementation process.

This report documents the recommendations for improvements that are included in the Union 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 Bypass:** Construct a bypass around Marshville from Salem Creek to one mile east of Stegall Road (SR 1734). Upgrade the existing US 74 from a four-lane boulevard to freeway standards from one mile east of Stegall Road (SR 1734) to Anson County (Refer to the 2010 Town of Marshville CTP and Appendix I for more details on this recommendation).
- **US 601 (TIP Project R-2616):** Widen to a four-lane expressway with a grass median from South Carolina to the Mecklenburg-Union Metropolitan Planning Organization (MUMPO) planning boundary.

**Adopted by:**

Union County  
Date: April 19, 2010

Town of Marshville  
Date: May 3, 2010

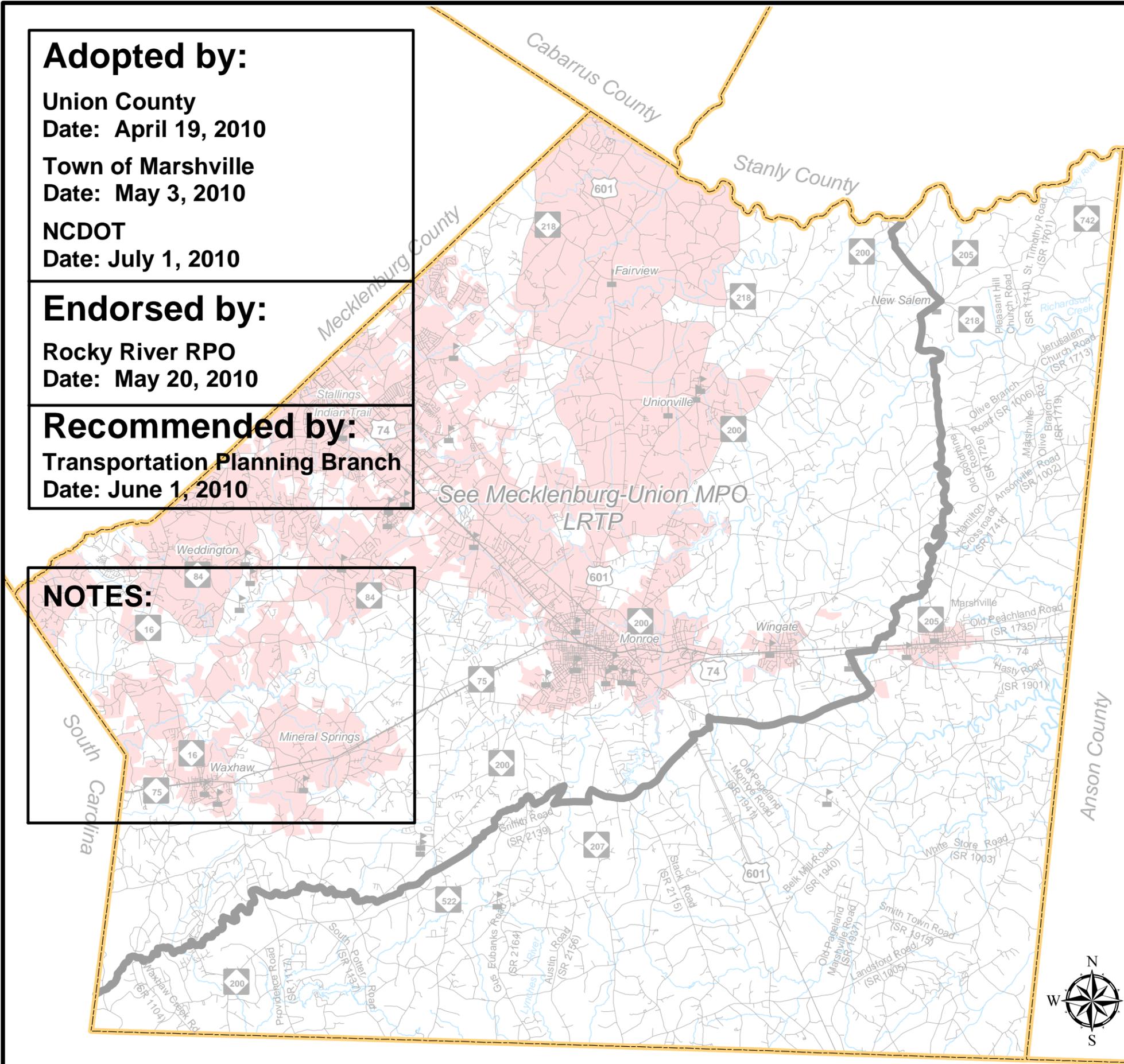
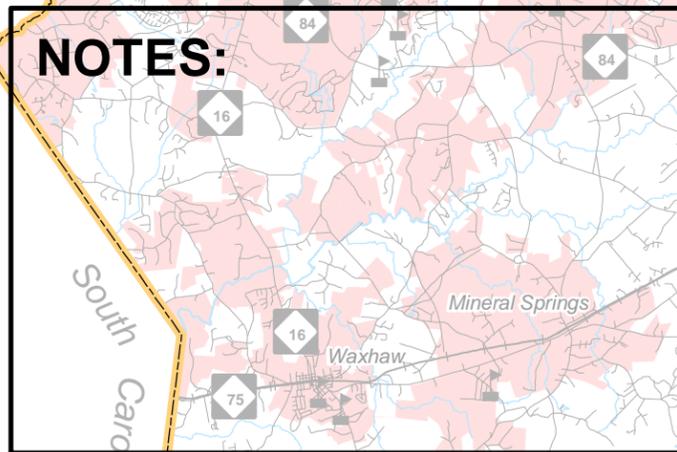
NCDOT  
Date: July 1, 2010

**Endorsed by:**

Rocky River RPO  
Date: May 20, 2010

**Recommended by:**  
Transportation Planning Branch  
Date: June 1, 2010

**NOTES:**



**Union County**  
North Carolina

**Comprehensive  
Transportation Plan**

Plan date: March 26, 2010

- 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
- Rivers and Streams
- Municipal Boundary
- Planning Boundary
- County Boundary

0 0.5 1 2 3 Miles

Figure 1 - Sheet 1 of 5

Base map date: September 2009

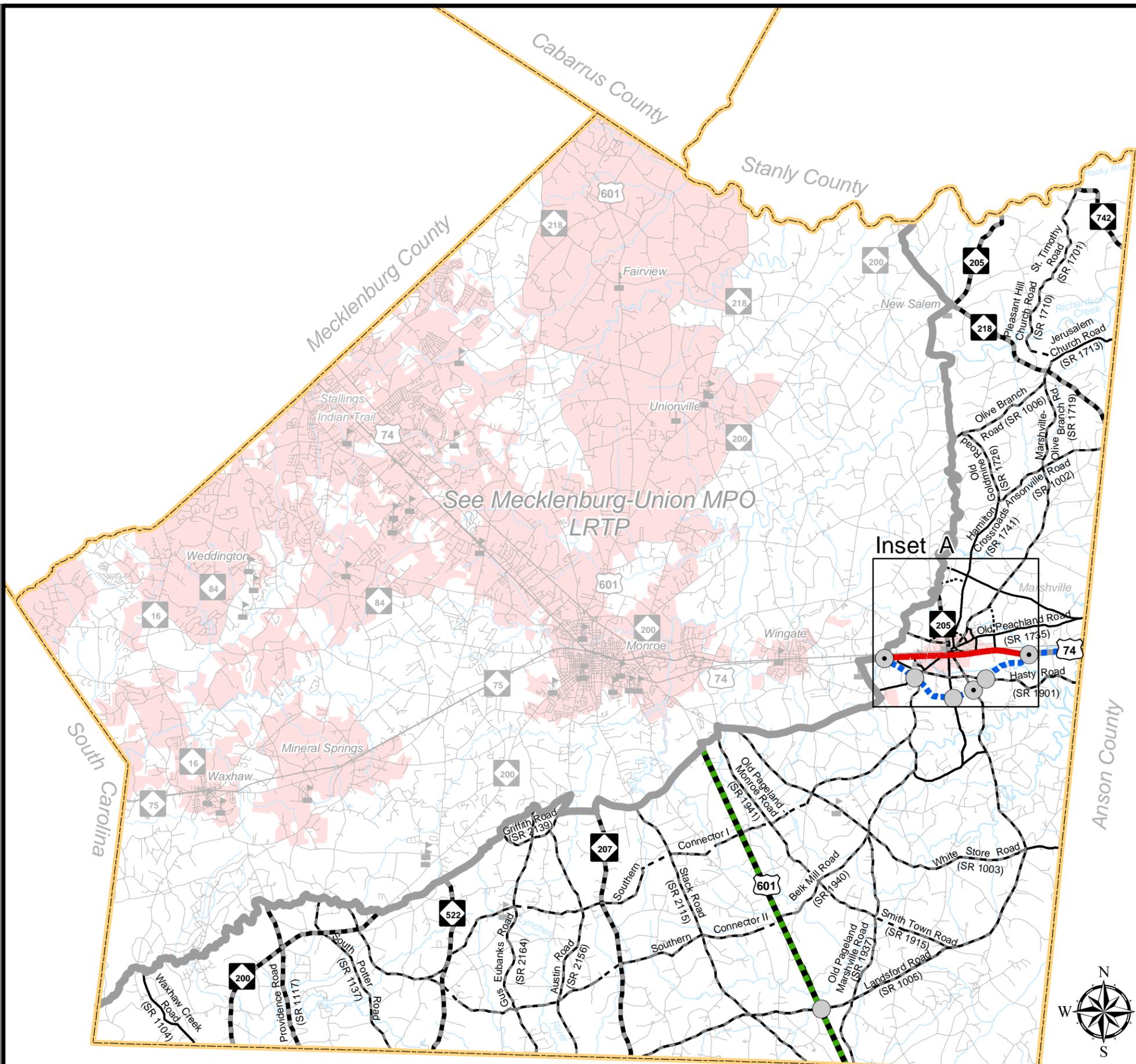
Refer to CTP document for more details

# Highway Map



## Union County North Carolina

### Comprehensive Transportation Plan Plan date: March 26, 2010



- 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: September 2009  
Refer to CTP document for more details

See Mecklenburg-Union MPO  
LRTP

# Highway Map Inset A



**Union County**  
North Carolina

## Comprehensive Transportation Plan

Plan date: March 26, 2010

- 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

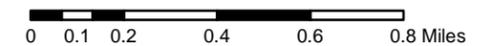
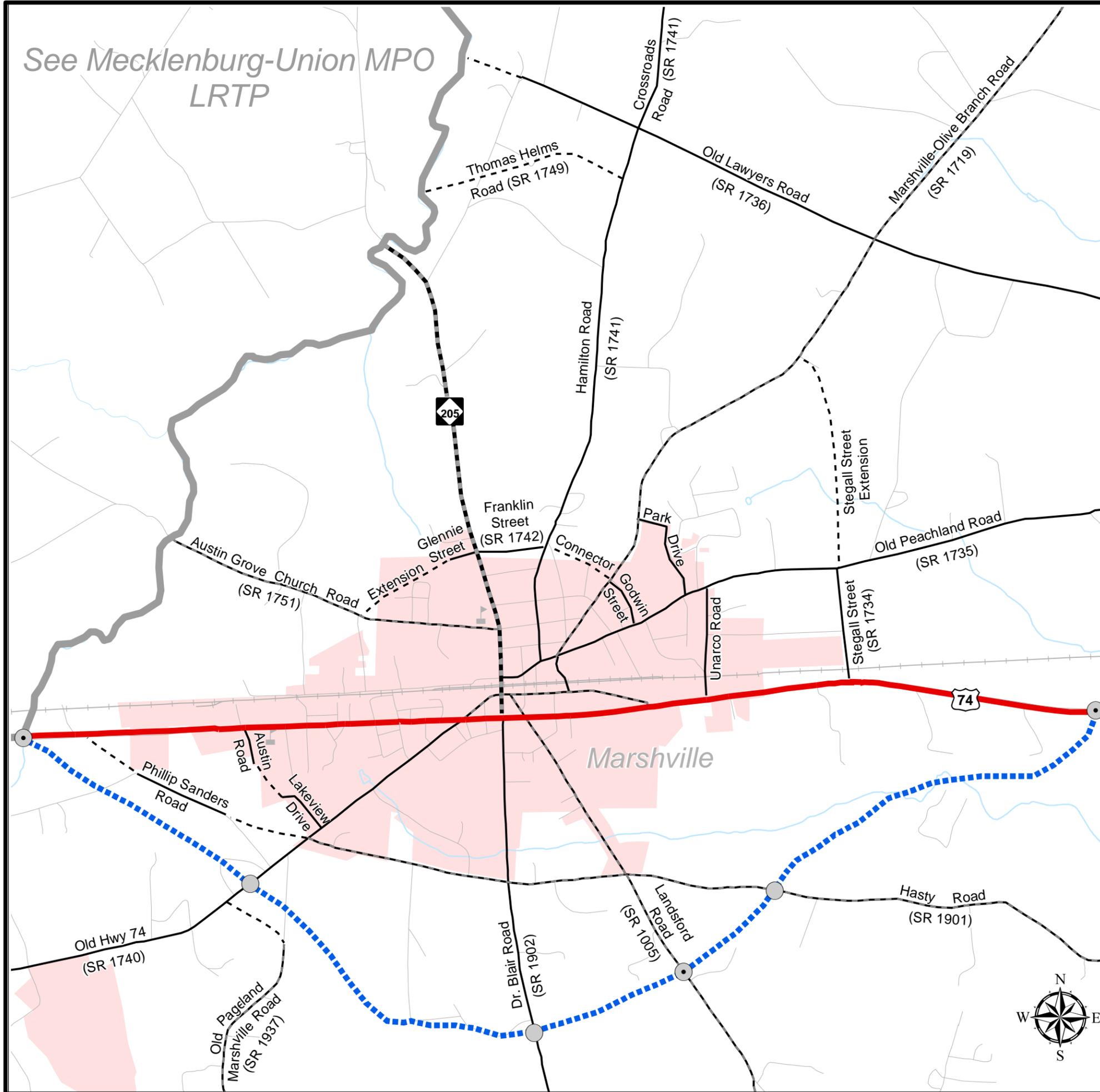


Figure 1 - Sheet 2A of 5  
Base map date: September 2009  
Refer to CTP document for more details



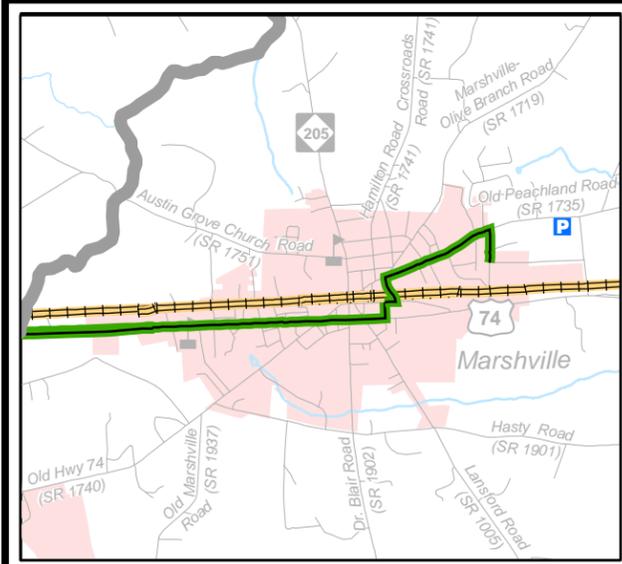
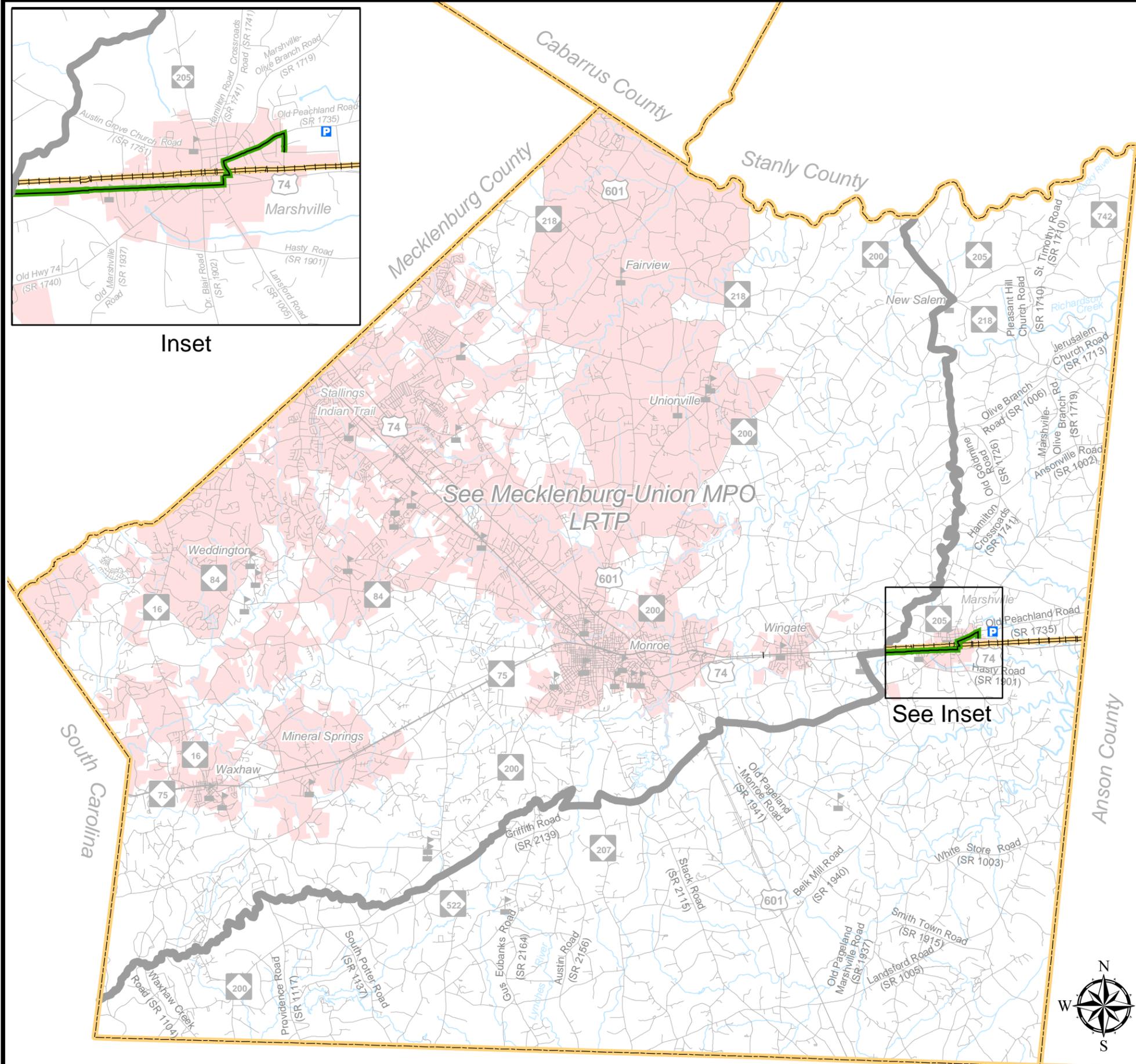
# Public Transportation and Rail Map



**Union County**  
North Carolina

## Comprehensive Transportation Plan

Plan date: March 26, 2010



Inset

See Inset

- 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**
  - Existing
  - Recommended
- Rail Stops**
  - Existing
  - Recommended
- Intermodal Connector**
  - Existing
  - Recommended
- Park and Ride**
  - Existing
  - Recommended



Figure 1 - Sheet 3 of 5

Base map date: September 2009

Refer to CTP document for more details

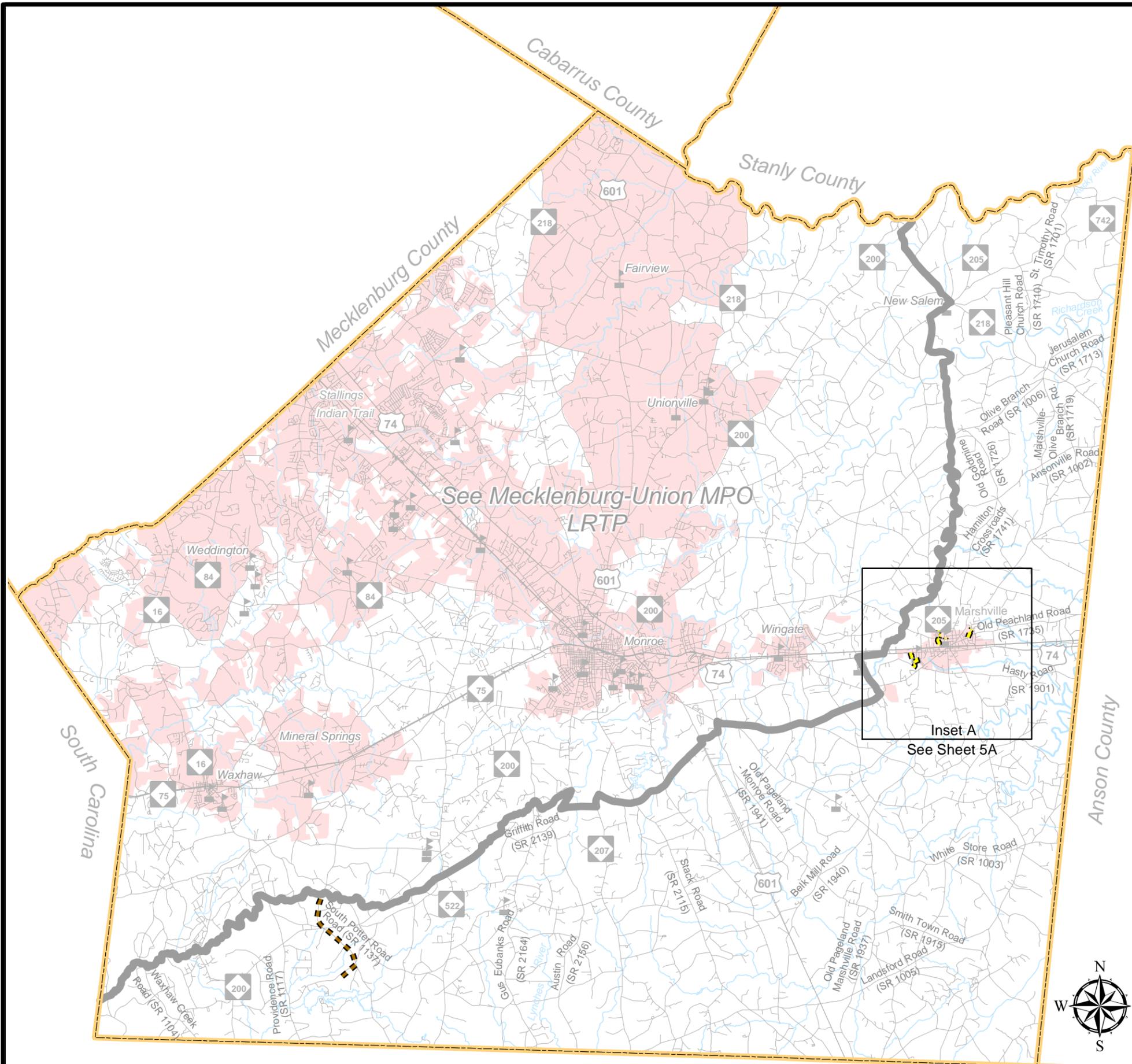
# Bicycle Map



**Union County**  
North Carolina

## Comprehensive Transportation Plan

Plan date: March 26, 2010



- On-road**
  - Existing
  - Needs Improvement
  - Recommended
  
- Off-road**
  - Existing
  - Needs Improvement
  - Recommended
  
- Multi-Use Paths**
  - Existing
  - Needs Improvement
  - Recommended
  
- Existing Grade Separation
- Proposed Grade Separation



Figure 1 - Sheet 4 of 5  
Base map date: September 2009  
Refer to CTP document for more details

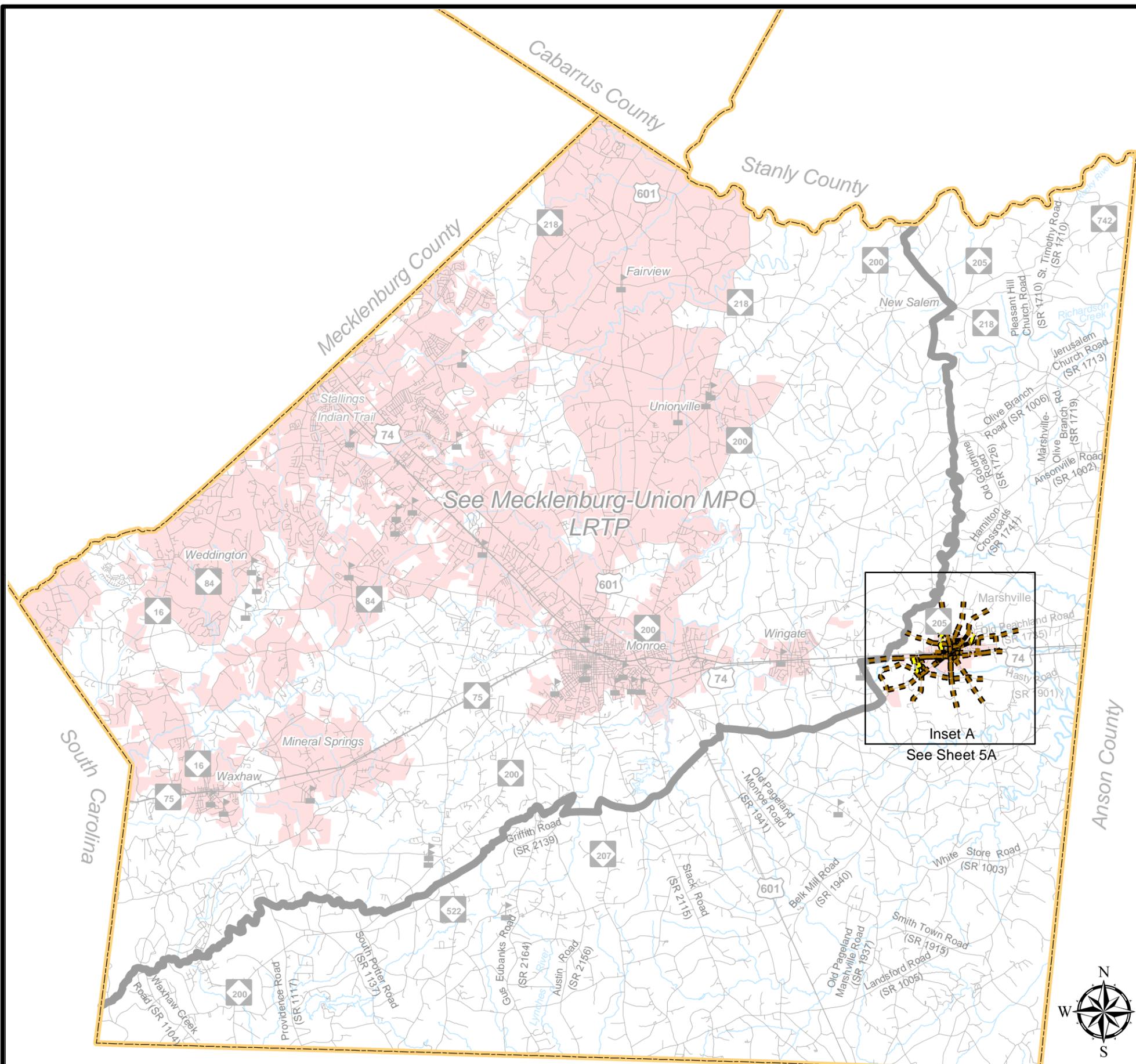
# Pedestrian Map



**Union County**  
North Carolina

## Comprehensive Transportation Plan

Plan date: March 26, 2010



- On-road**
  - Existing
  - Needs Improvement
  - Recommended
- Off-road**
  - Existing
  - Needs Improvement
  - Recommended
- Multi-Use Paths**
  - Existing
  - Needs Improvement
  - Recommended
- Existing Grade Separation
- Proposed Grade Separation

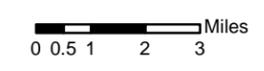


Figure 1 - Sheet 5 of 5

Base map date: September 2009

Refer to CTP document for more details

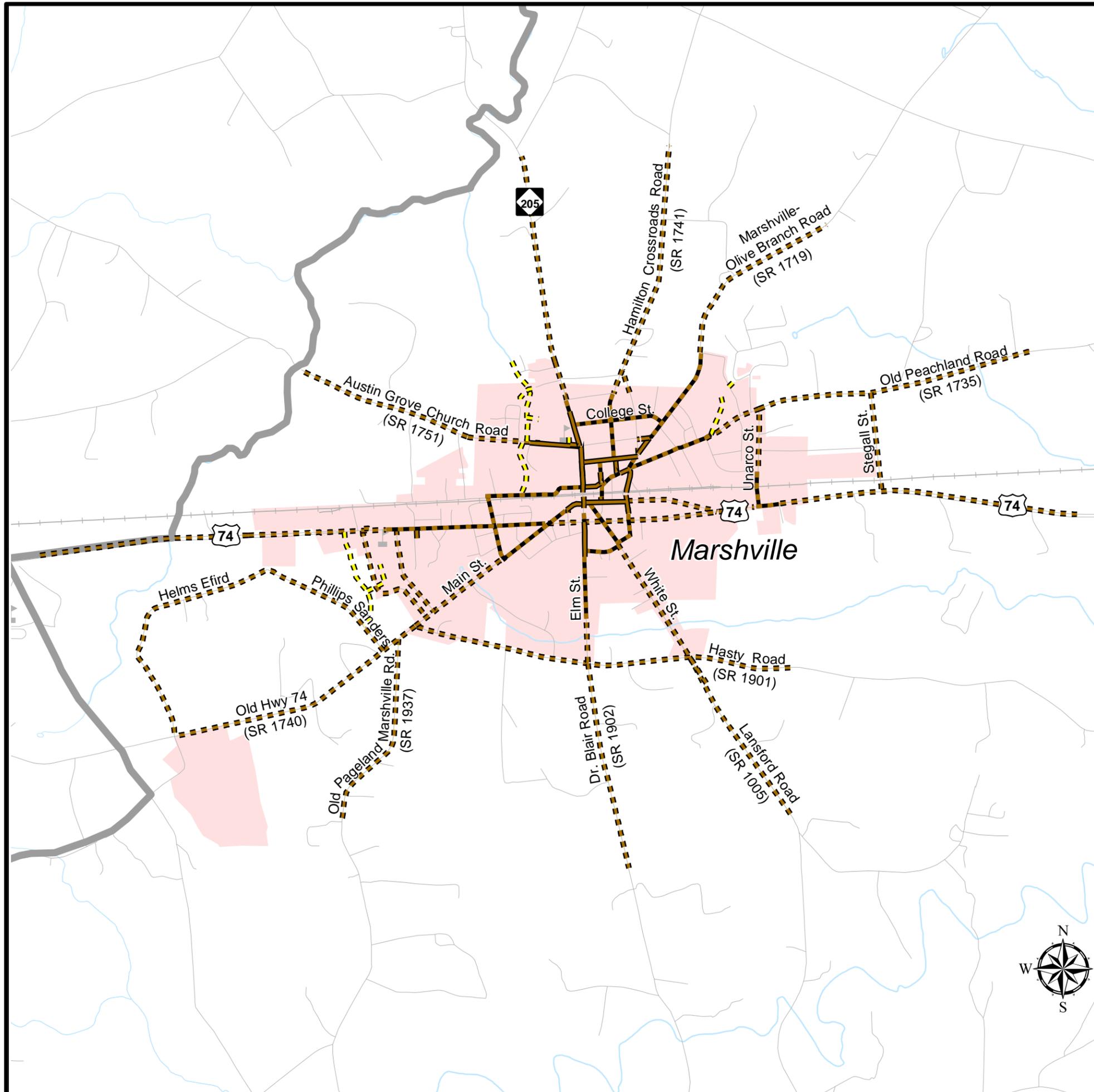
# Pedestrian Map Inset A



**Union County**  
North Carolina

## Comprehensive Transportation Plan

Plan date: March 26, 2010



- On-road**
- Existing
  - Needs Improvement
  - Recommended

- Off-road**
- Existing
  - Needs Improvement
  - Recommended

- Multi-Use Paths**
- Existing
  - Needs Improvement
  - Recommended

- Existing Grade Separation
- Proposed Grade Separation



Figure 1 - Sheet 5A of 5

Base map date: September 2009

Refer to CTP document for more details

# **I. Analysis of the Existing and Future Transportation System**

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A Comprehensive Transportation Plan (CTP) is developed to ensure that the progressively developed 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 such as pavement widths, intersection geometry, and intersection controls; or system problems, such as the need to construct missing travel links, bypass routes, loop facilities, additional radial routes, or infrastructure improvements to meet statewide initiatives.

One of those statewide initiatives is the Strategic Highway Corridor (SHC) Vision Plan adopted by the Board of Transportation on September 2, 2004 and last revised on July 10, 2008. The SHC Vision Plan represents a timely 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 Comprehensive Transportation Plans shall incorporate the long-term vision of each corridor. Refer to Appendix A for contact information.

In the development of this plan, travel demand was projected from 2009 to 2035 using the Metrolina Regional Model (MRM09v.1). Travel demand models are developed to replicate travel patterns on the existing transportation system as well as to estimate travel patterns for 2035. In addition, local land use plans and growth expectations were used to develop future growth rates and patterns. The established future growth rates were endorsed by the Union County Commissioners on February 1, 2010 and by the Marshville Town Council on February 22, 2010.

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 D indicates “practical capacity” of a roadway, or the capacity at which the public begins to express dissatisfaction. The practical capacity for each roadway was developed based on the 2000 Highway Capacity Manual using the NCLOS program. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C for new facilities. Refer to Appendix E for detailed information on LOS.

### Traffic Crash 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 Union County CTP for crashes occurring in the planning area between May 20, 2006 and May 20, 2009. During this period, a total of six intersections were identified as having a high number of crashes as illustrated in Figure 4. Refer to Appendix F for a detailed crash analysis.

Figure 2

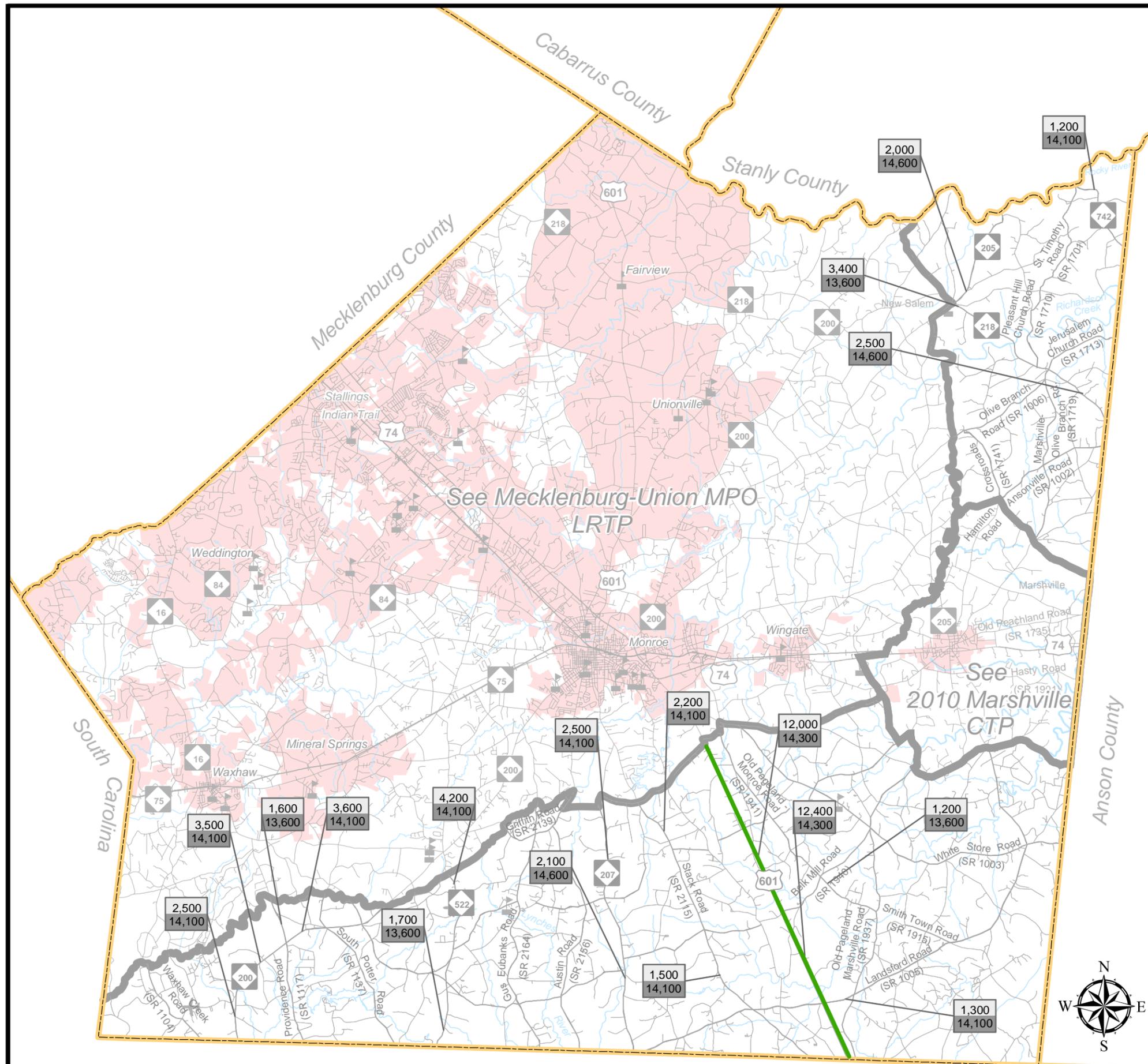
# 2009 Volumes and Capacity Deficiencies



## Union County North Carolina Comprehensive Transportation Plan

### Legend

- Near Capacity
- Over Capacity
- 2009 Volumes (AADT)
- 2009 Capacity
- County Boundary
- Planning Boundary
- Railroad
- Study Roads
- Roads
- Schools
- Rivers and Streams
- Municipal Boundary
- Water Bodies



0 0.5 1 2 3 Miles

Base map date: September 2009

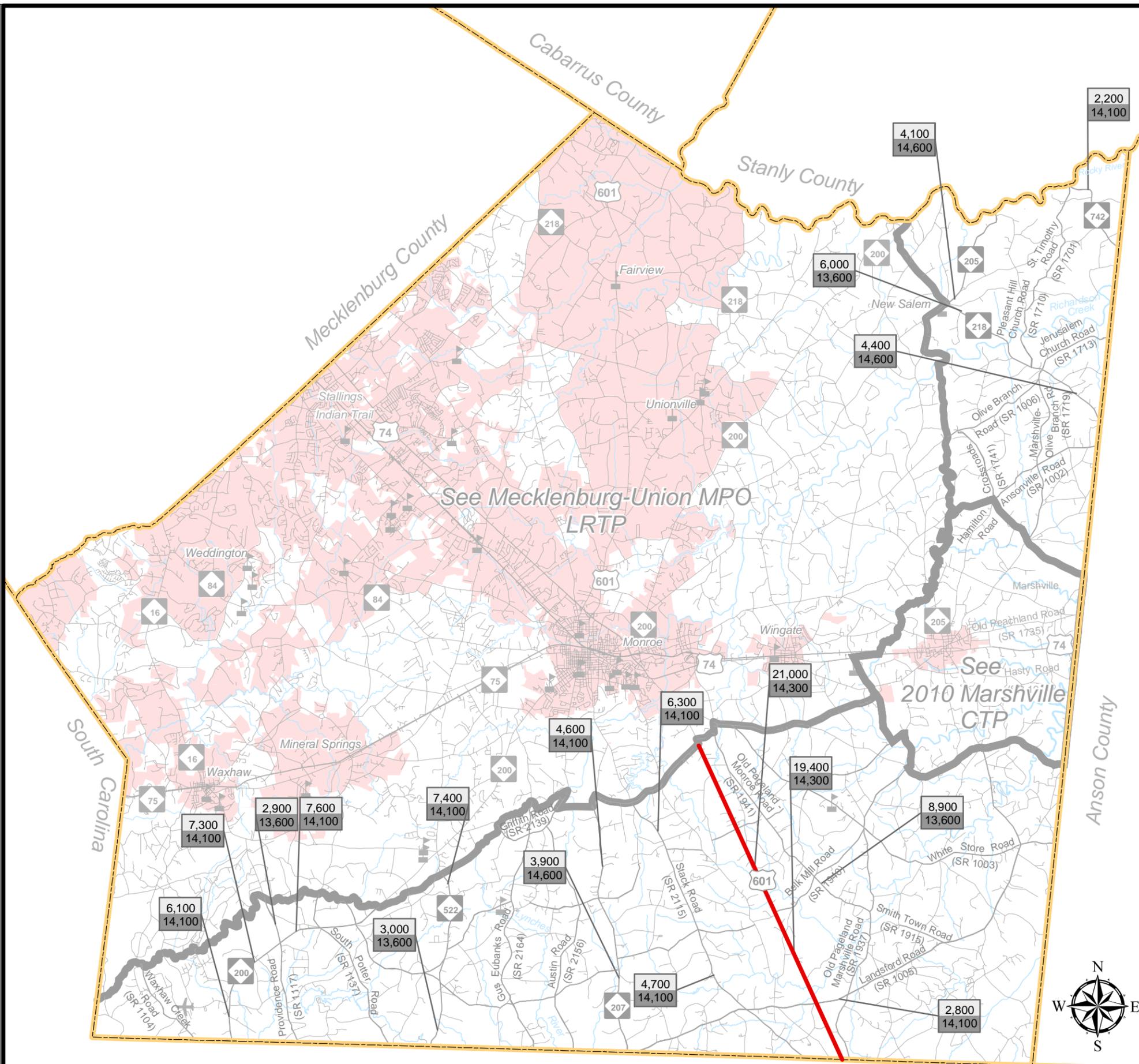
**Figure 3**  
**2035 Volumes and Capacity Deficiencies**



**Union County**  
 North Carolina  
**Comprehensive Transportation Plan**

**Legend**

- Near Capacity
- Over Capacity
- 2035 Volumes (AADT)
- 2009 Capacity
- County Boundary
- Planning Boundary
- Study Roads
- Roads
- Railroad
- ▲ Schools
- Rivers and Streams
- Municipal Boundary
- Water Bodies



Base map date: September 2009

Figure 4

**Crash Locations**  
May 20, 2006 to May 20, 2009



**Union County**  
North Carolina  
**Comprehensive**  
**Transportation Plan**

**Legend**

- Crash Locations (# Map Index)
- Schools
- Airports
- Study Roads
- Roads
- Railroad
- Rivers and Streams
- Water Bodies
- Municipal Boundary
- County Boundary
- Planning Boundary

0 0.5 1 2 3 Miles



Base map date: September 2009

Refer to Appendix F for more details

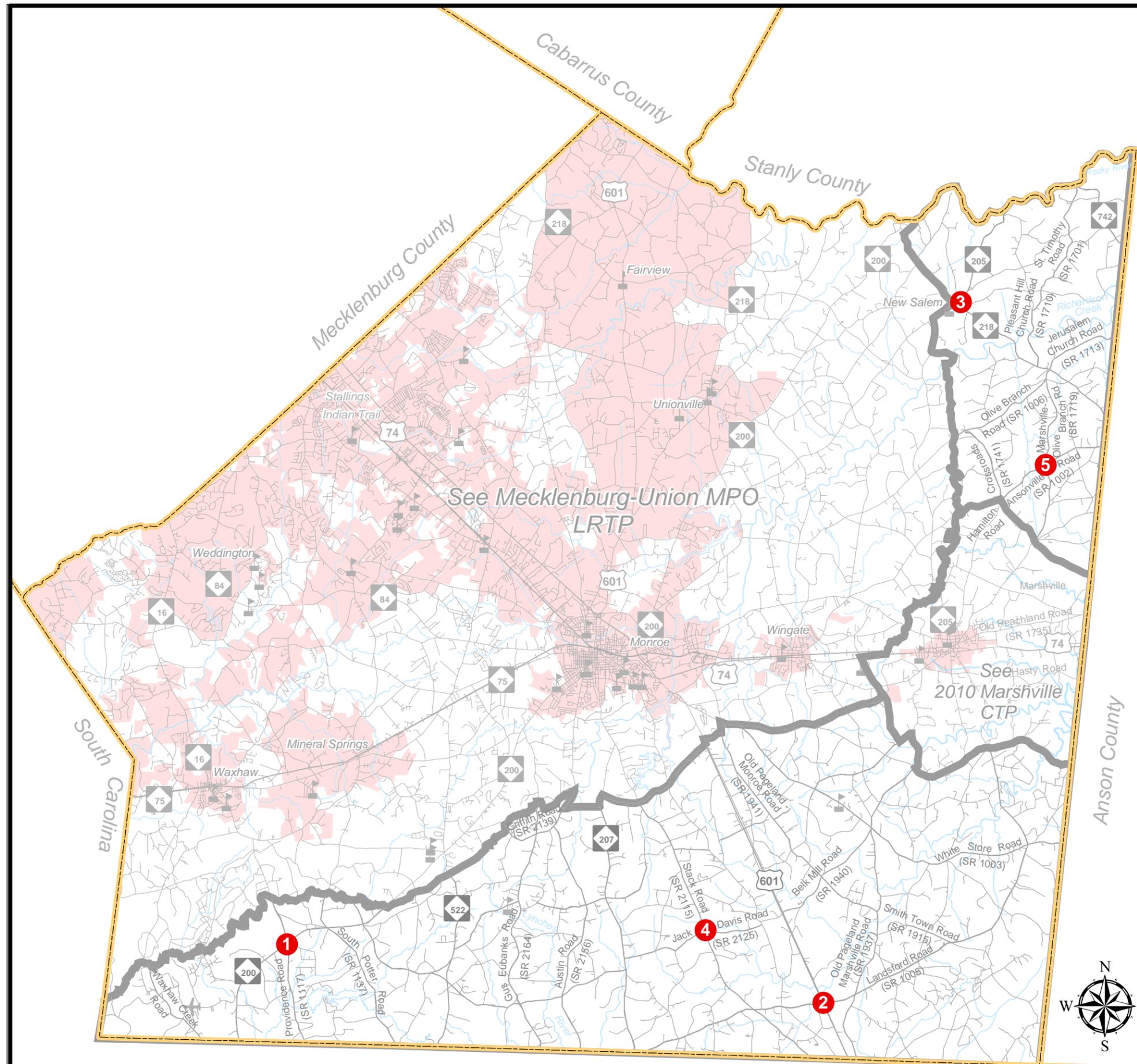


Figure 5

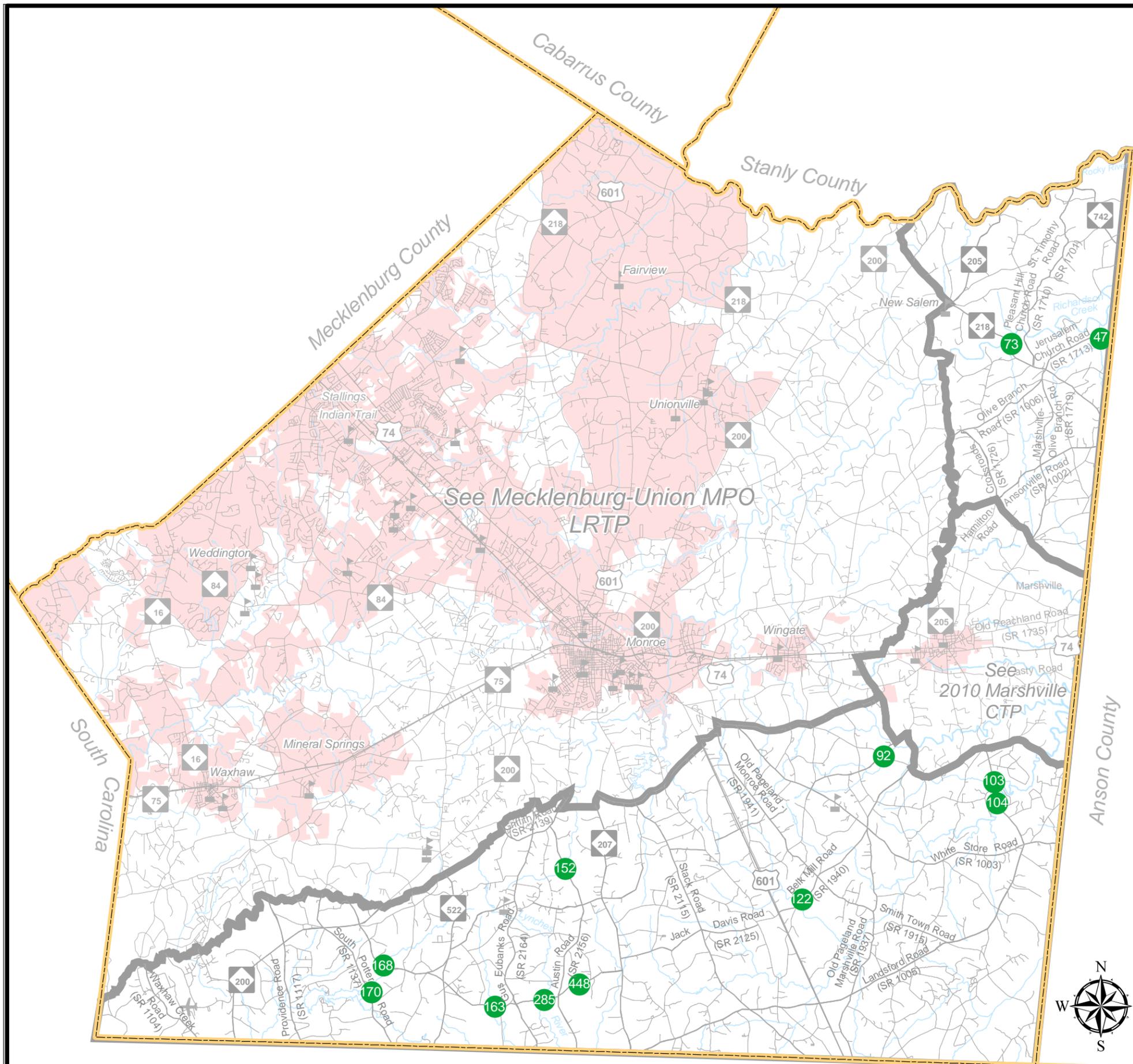
### Deficient Bridges



## Union County North Carolina Comprehensive Transportation Plan

### Legend

- Deficient Bridge (# Bridge Number)
- Schools
- Airports
- Study Roads
- Roads
- Railroads
- Rivers and Streams
- Water Bodies
- Municipal Boundary
- County Boundary
- Planning Boundary



Base map date: September 2009

Refer to Appendix G for more details

## 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 Bridge Maintenance 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. Twelve deficient bridges were identified within the planning area and are illustrated in Figure 5. Refer to Appendix G for more detailed information.

## ***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: 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. Union County Transportation provides demand response transportation for the rural general public, senior citizens, and citizens without transportation. In Marshville, an express transit bus (commuter bus service known as CATS Route x74) previously provided two daily round trips to Charlotte. Due to the decrease in ridership, the CATS supported bus system expired on July 1, 2010 and bus services were not extended. However, this program should be explored again in the future when the Monroe-Bypass is completed and the economy is more stable. The Park and Ride Lot (located at 1019 Unarco Road) program participation ended in the Town of Marshville effective June 30, 2010. It was determined that there was not enough ridership to continue. The aforementioned changes occurred subsequent to the adoption of the CTP maps. 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.

## 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.

The NCDOT 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. CSX Transportation operates a freight rail line that transverses Marshville adjacent to US 74 from Anson County into the MUMPO planning area. The at-grade crossing of NC 205 and the CSX Railroad is programmed to receive flashers and gates. This rail corridor is also being looked at by the Governor's Logistics Task Force to secure competitive double stack service between Port of Wilmington and Charlotte, which is critical to the continued growth in liner services, market share, and the Port's ability to compete with neighboring South Atlantic ports. All recommendations for rail were coordinated with the local governments and the Rail Division of NCDOT. Refer to Appendix A for contact information.

## ***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 1998 Mecklenburg-Union Bicycle Suitability Map and the 2010 Marshville Pedestrian Plan were utilized in the development of these elements of the CTP. 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.

## ***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 1998 Union County Land Use Plan (re-affirmed by the County Commissioner's resolution on April 19, 2010) was utilized to meet the requirements and use of the CTP. For the purpose of the report, the 2010 adopted Union County Land Use Plan was utilized, which is consistent with the 1998 Land Use Plan, and is illustrated in Figures 6 and 7, respectively. During the development of the CTP, a land use plan update was underway and was ultimately adopted in October of 2010.

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.

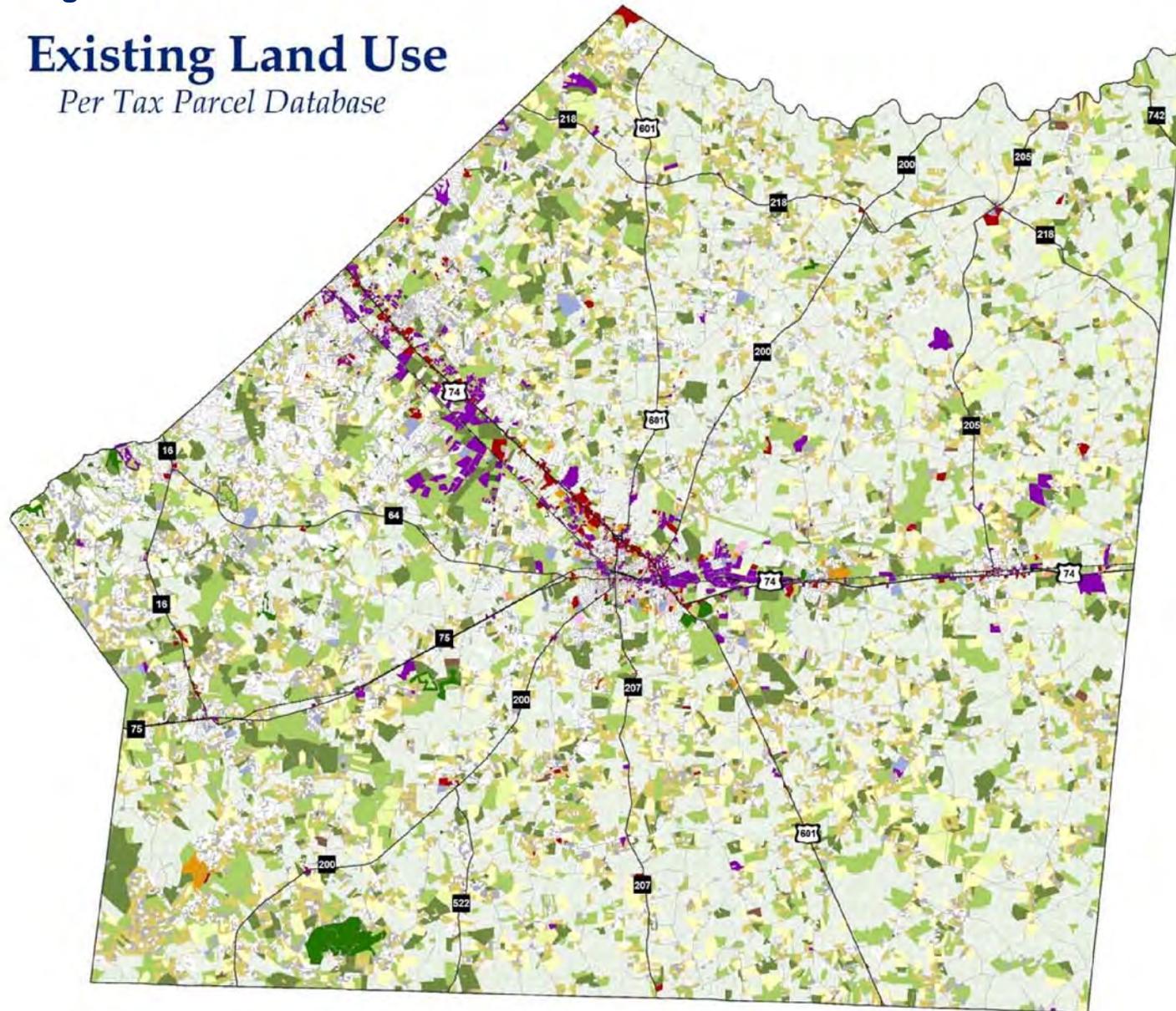
Anticipated future land development is, in general, a logical extension of the present spatial land use distribution. Locations and types of expected growth within the planning area help to determine the location and type of proposed transportation improvements.

The rural portions of Union County outside the urbanized areas generally encompasses agricultural and residential land uses. Commercial and industrial land uses are primarily located along US 74. Land use patterns in the rural portions of the county are expected to remain agricultural and residential in nature. In comparison, there is not much difference between the rural existing and future land use plans.

Figure 6

# Existing Land Use

Per Tax Parcel Database



0 1.25 2.5 5 7.5 10 Miles



# Union County

## Legend

- County Boundary
- Highways
- Roads
- Railroads

### Existing Land Use

- Parks Recreation & Open Space
- Land Use Value Agriculture
- Undeveloped Rural/Agriculture
- Improved Agriculture (Structures)
- Single-Family Residential (Large lot 100+ acres)
- Single-Family Residential Estate (20-99 acres)
- Single-Family Residential (Less than 20 acres)
- Mobile Homes
- Multi-Family Residential
- Vacant Lots
- Group or Other Housing
- Civic/Institutional
- Commercial
- Industrial
- Office

### DATA SOURCE AND DISCLAIMER

Mapping data was provided by the Union County Geographic Information System Department via the County's website: [http://maps.co.union.nc.us/data\\_new2.htm](http://maps.co.union.nc.us/data_new2.htm)

Union county and its mapping contractors do not warrant the accuracy of the displayed information.

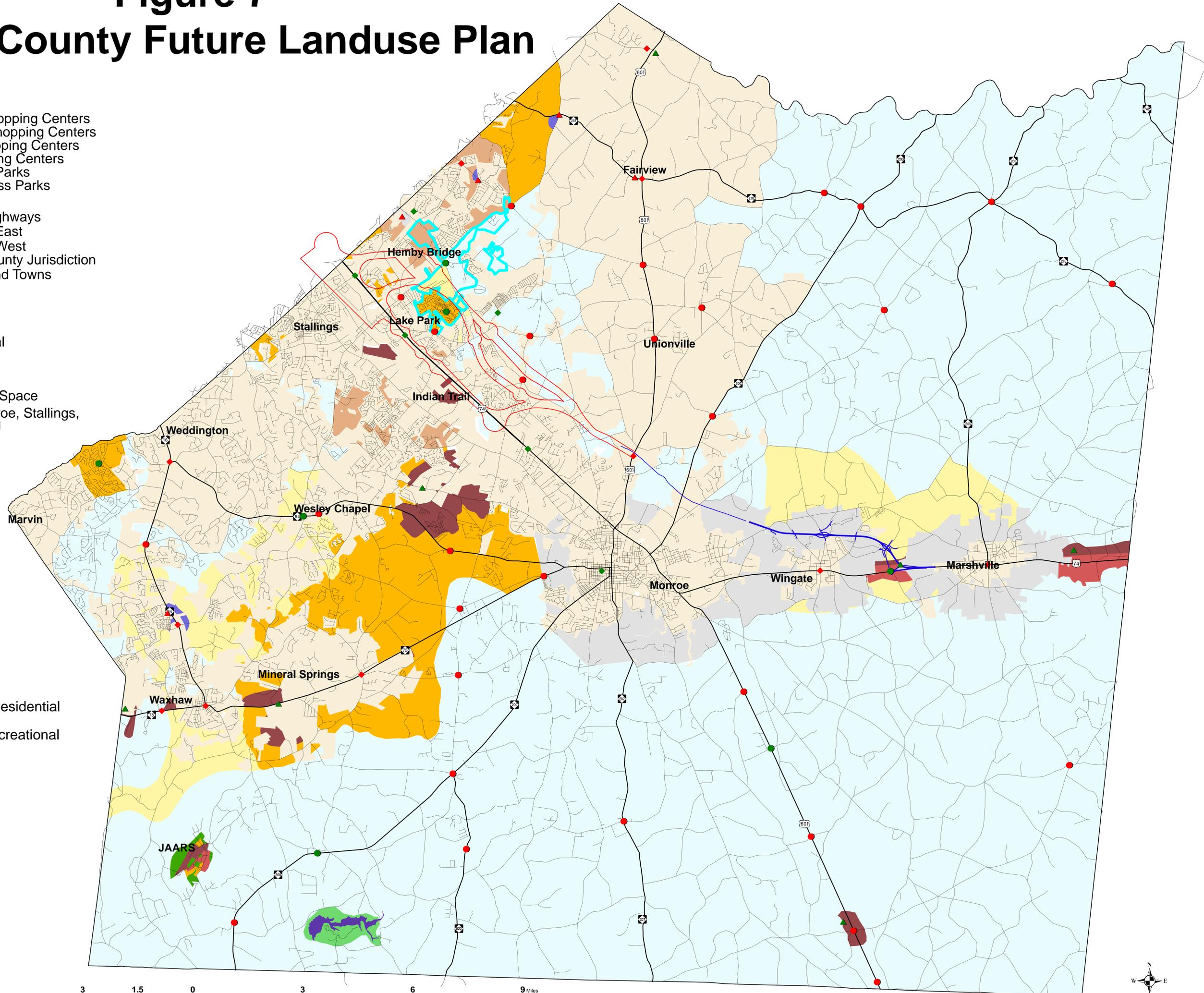
Map Prepared By:  
**CLARION ASSOCIATES**  
July 31, 2007

# Figure 7

## Union County Future Landuse Plan

- Convenience Shopping Centers
- Neighborhood Shopping Centers
- ◆ Community Shopping Centers
- ◆ Regional Shopping Centers
- ▲ Office/Business Parks
- ▲ Industrial/Business Parks
- State Roads
- US and State Highways
- Monroe Bypass East
- Monroe Bypass West
- Towns Under County Jurisdiction
- Existing Cities and Towns
- 0 - 1 DU/Acre
- 1 - 2 DU/Acre
- 2 - 2.5 DU/Acre
- 2.5 - 3 DU/Acre
- Office/Institutional
- Commercial
- Industrial
- Water Features
- Parks and Open Space
- Marshville, Monroe, Stallings, and Wingate ETJ

- JAARS Land Use
- Commercial
  - High Density Residential
  - Industrial
  - Residential/Recreational



**Consideration of Natural and Human Environment**

Environmental features are a key consideration in the transportation planning process. Section 102 of the National Environmental Policy Act (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, 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 were examined as a part of this study is shown in the following table utilizing the best available data. Environmental features occurring within Union County are shown in Figure 8.

**Table 1 – Environmental Features**

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

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

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**Table 2 – Restricted Environmental Features**

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- 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.

A meeting was held with the Union County Board of Commissioners in November of 2008 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 Union County Focus Group, which included representatives from the Town of Marshville, Union County, the Rocky River RPO and NCDOT 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 two public drop-in sessions in Union County to present the proposed CTP to the public and solicit comments. The first meeting was held on March 4, 2010, from 12:00 pm – 2:00 pm at Lanes Creek Fire Department in Monroe; the second meeting was held on March 4, 2010, from 3:30 pm – 5:30 pm at the Town of Marshville Community Center. Each session was publicized in the local newspaper. Comments submitted during both sessions are summarized in Appendix H.

Two public hearings were held on April 19, 2010, one during the Union County Board of County Commissioners meeting and one during the Marshville Town Council meeting. The purpose of these meetings was to discuss the plan recommendations and to solicit further input from the public. The Union County CTP was adopted by the County Commissioners on April 19, 2010 and adopted by the Marshville Town Council on May 3, 2010.

The Rocky River RPO endorsed the CTP on May 20, 2010. The North Carolina Board of Transportation mutually adopted the Union County CTP on July 1, 2010.

## II. Recommendations

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This report documents the development of the 2010 Union County CTP as shown in Figure 1. This chapter presents recommendations for each mode of transportation in the county.

### ***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 the County and its municipalities. As transportation needs throughout the State exceed available funding, it is imperative that the local planning area aggressively pursue funding for priority projects. Projects should be prioritized locally and submitted to the Rocky River RPO for regional prioritization and submittal to NCDOT. Refer to Appendix A for contact information on 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 the 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 Act (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.

## ***Problem Statements***

### **HIGHWAY**

#### **US 601, TIP No. R-2616**

US 601 from South Carolina to US 74 in Monroe was recommended to be widened from two-lanes to a four-lane divided expressway to accommodate the existing and projected traffic volumes. This project was under construction during the development of the CTP and has been completed since the adoption of the CTP.

#### **Southern Connector I, Local ID: UNIO0040-H**

Mobility between the southwestern and eastern portions of Union County is limited due to the lack of adequate east-west corridors and the existing secondary roads not providing a continuous flow for traffic. Currently, some of the intersections are offset, requiring right or left turns in order to continue. To overcome this system deficiency, it is recommended that an alignment of state roads (includes existing and new location) form a direct continuous route that links the southwestern portion of Union County to Marshville. The roadways that form this connector are two-lane minor thoroughfares, which include:

Tom Green Road (SR 1129), Ruben Road (SR 2171), Sandy Ridge Road (SR 2152), Troy Medlin Road (SR 2131), Claude Austin Road (SR 2109), Carl Funderburk Road (SR 1950), L J Whitley Road (SR 1949), Snyders Store Road (SR 1945), Faulks Church Road (SR 1947), and Old Pageland - Marshville Road (SR 1937)

These roads are recommended to be widened to 2-12' lanes with short new location connectors at the following locations:

Ruben Road (SR 2171)/West Sandy Ridge Road (SR 2152), East Sandy Ridge Road (SR 2152)/Troy Medlin Road (SR 2131), Troy Medlin (SR 2131)/Claude Austin Road (SR 2109), Carl Funderburk Road (SR 1950)/ L J Whitley Road (SR 1949), and L J Whitley Road (SR 1949)/ Snyders Store Road (SR 1945)

#### **Southern Connector II, Local ID: UNIO0041-H**

Mobility between the southwestern and eastern portions of Union County is limited due to the lack of adequate east-west corridors and the secondary roads not providing a continuous flow for traffic. Currently, some of the intersections are offset, requiring right or left turns in order to continue. To overcome this system deficiency, it is recommended that an alignment of state roads (includes existing and new location) form a direct continuous route that links the southwestern portion of Union County to Marshville. The roadways that form this connector are two-lane minor thoroughfares, which include:

Tom Starnes Road (SR 1128), Trinity Church Road (SR 2166), Plyler Mill Road (SR 2146), Trinity Road (SR 2153), Jack Davis Road (SR 2125), Hargette Road

(SR 1939), Belk Mill Road (SR 1940), and Old Pageland-Marshville (SR 1937)

These roads are recommended to be widened to 2-12' lanes with short new location connectors at the following locations:

Tom Starnes Road (SR 1128)/Trinity Church Road (SR 2166); Trinity Road (SR 2153)/Jack Davis Road (SR 2125); Jack Davis Road (SR 2125)/Hargette Road (SR 1939)

### **Proposed Grade Separation, Local ID: UNIO0047-H**

Southern Union County is predominately rural and agriculture is one of the main sources of income. Slow and heavy farm equipment and combines create an unsafe roadway condition when crossing through the at-grade intersection of Landsford Road (SR 1005) and US 601. To resolve this unsafe and hazardous condition, it is recommended that a grade separation be added at the intersection of US 601 and Landsford Road (SR 1005), to allow for large heavy farm equipment to cross over US 601, which is designated as an expressway. During the development of this project, it was also recommended that the larger heavy farm equipment be assisted by escorts during travel on the roadways. The proposed grade separation will improve safety and help traffic flow. Local officials adopted a resolution on January 4, 2010 in support of this proposal.

### **Minor Connector/Re-alignment Improvements**

The following routes are recommended to be constructed as minor thoroughfares with two 12-foot lanes and 2-foot paved shoulders. These new location facilities will improve connectivity and mobility throughout the county.

- **UNIO0017-H:** Austin Road/Lakeview Drive Connector – From Austin Road to Lakeview Drive in Marshville.
- **UNIO0018-H:** Franklin Street (SR 1742)/Godwin Street Connector - From Franklin Street (SR 1742) to Godwin Street in Marshville.
- **UNIO0019-H:** Glennie Street Extension - From Glennie Street to Austin Grove Church Road (SR 1751) in Marshville.
- **UNIO0026-H:** Old Lawyers Road (SR 1736) Extension - From Old Lawyers Road (SR 1736) to E. Lawyers Road (SR 1632) in the MUMPO planning area.
- **UNIO0028-H:** Old Pageland-Marshville Road (SR 1937) Realignment – Realign to intersect with Old Hwy 74 (SR 1740) west of the proposed US 74 Bypass of Marshville.

- **UNIO0030-H:** Old Pageland-Monroe Road (SR 1941) Extension - From Old Pageland-Marshville Road (SR 1937) to Smith Town Road (SR 1915).
- **UNIO0032-H:** Phillip Sanders Road (SR 1989) Extension - From Phillip Sanders Road (SR 1989) to the Hasty Road (SR 1901)/Old Highway 74 (SR 1740) intersection.
- **UNIO0033-H:** Phillip Sanders Road (SR 1989) Realignment – From Phillip Sanders Road (SR 1989) to US 74.
- **UNIO0035-H:** Pleasant Hill Church Road (SR 1710) Realignment - Realign to intersect Jerusalem Church Road (SR 1713) north of the NC 218 intersection.
- **UNIO0044-H:** Stegall Street (SR 1734) Connector – From Old Peachland Road (SR 1935) to Marshville-Olive Branch Road (SR 1719).
- **UNIO0045-H:** Thomas Helms Road (SR 1749) Extension – From Thomas Helms Road (SR 1749) in the MUMPO planning area to Hamilton Road (SR 1741).

### **Minor Widening Improvements**

The following routes are recommended to be upgraded to two 12-foot lanes with 2-foot paved shoulders.

- **UNIO0009-H:** NC 742 – from Anson County to Stanly County
- **UNIO0010-H:** NC 522 – from South Carolina to MUMPO planning area
- **UNIO0011-H:** NC 218 – from Anson County to MUMPO planning area
- **UNIO0012-H:** NC 207 – from South Carolina to MUMPO planning area
- **UNIO0013-H:** NC 205 – from Stanly County to MUMPO planning area
- **UNIO0014-H:** NC 200 – from South Carolina to MUMPO planning area
- **UNIO0015-H:** Ansonville Road (SR 1002) – from Anson County to Old Goldmine Road (SR 1726)
- **UNIO0016-H:** Austin Road (SR 2156) - from South Carolina to Griffith Road (SR 2139)
- **UNIO0020-H:** Griffith Road (SR 2139) - from MUMPO planning area to MUMPO planning area
- **UNIO0021-H:** Gus Eubanks Road (SR 2164) - from South Carolina to Plyler Mill Road (SR 2146)
- **UNIO0022-H:** Jerusalem Church Road (SR 1713) – from NC 218 to Pleasant Hill Church Road (SR 1710) realignment

- **UNIO0023-H:** Landsford Road (SR 1005) – from Marshville town limits to South Carolina
- **UNIO0024-H:** Marshville-Olive Branch Road (SR 1719) – from Marshville Town Limits to Olive Branch Road (SR 1006)
- **UNIO0025-H:** Old Goldmine Road (SR 1726) – from Ansonville Road (SR 1002) to Olive Branch Road (SR 1006)
- **UNIO0027-H:** Old Pageland - Marshville Road (SR 1937) - from South Carolina to White Store Road (SR 1003)
- **UNIO0029-H:** Old Pageland – Monroe Road (SR 1941) - from MUMPO planning area to Old Pageland - Marshville Road (SR 1937)
- **UNIO0031-H:** Olive Branch Road (SR 1006) – from the MUMPO planning area to NC 218
- **UNIO0034-H:** Pleasant Hill Church Road (SR 1710) – from new location realignment with Jerusalem Church Road (SR 1713) to St. Timothy Road (SR 1701)
- **UNIO0036-H:** Plyler Mill Road (SR 2146) – from Gus Eubanks Road (SR 2164) to MUMPO planning area
- **UNIO0037-H:** Providence Road (SR 1117) - from South Carolina to MUMPO planning area
- **UNIO0038-H:** Smith Town Road (SR 1915) – from Anson County to Helms Funderburk Road (SR 1930)
- **UNIO0039-H:** South Potter Road (SR 1137) - from South Carolina to MUMPO planning area
- **UNIO0042-H:** St. Timothy Road (SR 1701) – from Pleasant Hill Church Road (SR 1710) to NC 742
- **UNIO0043-H:** Stack Road (SR 2115) - from South Carolina to MUMPO planning area
- **UNIO0046-H:** White Store Road (SR 1003) – from Landsford Road (SR 1005) to MUMPO planning area

## **PUBLIC TRANSPORTATION AND RAIL**

A public transportation and rail assessment was completed during the development of the CTP. There are no recommended improvements associated with these modes.

## **BICYCLE**

The recommended bicycle route incorporated into the CTP was developed from the Carolina Thread Trail – “Union County Connection Opportunities” adopted July 2011. There are no other recommended improvements associated with this mode.

## **PEDESTRIAN**

The pedestrian recommendations incorporated into the CTP were developed from the 2010 Town of Marshville Pedestrian Plan.

# 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 homepage:

1-877-DOT-4YOU

(1-877-368-4968)

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

#### Secretary of Transportation

Eugene A. Conti, Jr., Ph.D.

1501 Mail Service Center

Raleigh, NC 27699-1501

(919) 707-2800

[gconti@ncdot.gov](mailto:gconti@ncdot.gov)

<http://www.ncdot.org/about/leadership/secretary.html>

#### Board of Transportation Member

Mr. John Collett

1111 Metropolitan Ave. Suite 700

Charlotte, NC 28204

(704) 206-8300

[jcollett@ncdot.gov](mailto:jcollett@ncdot.gov)

<http://www.ncdot.gov/about/board/default.html>

#### Highway Division Engineer

Contact the Division Engineer with general questions concerning NCDOT activities within each Division and for information on Small Urban Funds.

Mr. Barry Moose, PE

716 W. Main St.

Albemarle, NC 28001

(704) 983-4400

[bmoose@ncdot.gov](mailto:bmoose@ncdot.gov)

Division Project Engineer

Contact the Division Project Manager with questions concerning transportation projects within each Division.

Mr. Ritchie Hearne, PE  
716 W. Main St.  
Albemarle, NC 28001  
(704) 983-4400  
[rhearne@ncdot.gov](mailto:rhearne@ncdot.gov)

Division Construction Engineer

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

Ms. Tawana Brooks, PE  
716 W. Main St.  
Albemarle, NC 28001  
(704) 983-4400  
[tbrooks@ncdot.gov](mailto:tbrooks@ncdot.gov)

Division Traffic Engineer

Contact the Division Traffic Engineer for information concerning traffic signals, highway signs, pavement markings and crash history.

Mr. J. Scott Cole, PE  
716 W. Main St.  
Albemarle, NC 28001  
(704) 983-4400  
[scole@ncdot.gov](mailto:scole@ncdot.gov)

Division Operations Engineer

Contact the Division Operations Engineer for information concerning facility operations.

Mr. Tim Boland, PE  
716 W. Main St.  
Albemarle, NC 28001  
(704) 983-4400  
[tboland@ncdot.gov](mailto:tboland@ncdot.gov)

Division Maintenance Engineer

Contact the 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.

Mr. Philip Moxley, PE  
716 W. Main St.  
Albemarle, NC 28001  
(704) 983-4400  
[ptmoxley@ncdot.gov](mailto:ptmoxley@ncdot.gov)

District Engineer

Contact the 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.

Mr. John Underwood  
130 S. Sutherland Ave.  
Monroe, NC 28112  
(704) 289-1397  
[junderwood@ncdot.gov](mailto:junderwood@ncdot.gov)

Transportation Planning Branch (TPB)

Contact the Transportation Planning Branch for information on long-range multi-modal planning services, including Strategic Highway Corridors.

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

Rocky River Rural Planning Organization (RPO)

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

Ms. Dana Stoogenke, AICP  
1000 N. 1<sup>st</sup> St.  
Albemarle, NC 28001  
(980) 581-6589  
[dstoogenke@rockyriverrpo.org](mailto:dstoogenke@rockyriverrpo.org)  
[www.rockyriverrpo.org](http://www.rockyriverrpo.org)

Strategic Planning Office

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

Mr. Don Voelker

1501 Mail Service Center

Raleigh, NC 27699-1501

(919) 707-4740

[djvoelker@ncdot.gov](mailto:djvoelker@ncdot.gov)

<https://apps.dot.state.nc.us/dot/directory/authenticated/UnitPage.aspx?id=11054>

Project Development & Environmental Branch (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.

1565 Mail Service Center  
Raleigh, NC 27699-1565  
(919) 707-6400  
[http://www.ncdot.gov/doh/operations/dp\\_chief\\_eng/maintenance/bridge/](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.gov/doh/preconstruct/highway/roadway>

## **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

### ***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

- **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, 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.

### **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 corridor 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.

## ***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 data from Division 10 - District 3, Pavement Management Unit (PMU) and the NCDOT Road Characteristics file. 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 NCLOS, as documented in Chapter I.
- **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 '2009 AADT E+C' is an estimate of the volume in 2009 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 I.
- **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).

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System						2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
					(ft)	lanes													
R-2616	<b>US 601</b>	South Carolina - MUMPO planning area	Union Co.	9.98	24	2	60	55	14,300	12,400	21,000	21,000	54,800	4 B	225	E	Sta		
UNIO0009-H	<b>NC 742</b>	Stanly County - Anson County	Union Co.	2.63	20	2	100	55	14,100	1,200	3,300	3,300	15,100	2 A	100	Maj	Reg		
UNIO0010-H	<b>NC 522</b>	South Carolina - Upper Prospect (SR 2171)	Union Co.	2.91	18	2	60	55	13,600	1,700	3,500	3,500	15,100	2 A	60	Maj	Reg		
UNIO0010-H	<b>NC 522</b>	Upper Prospect (SR 2171) - MUMPO MAB	Union Co.	2.02	20	2	60	55	14,100	4,200	8,100	8,100	15,100	2 A	60	Maj	Reg		
UNIO0011-H	<b>NC 218</b>	NC 205 - Monroe Olive Branch Road (SR 1006)	Union Co.	3.53	18	2	100	55	13,600	3,400	7,900	7,900	15,100	2 A	100	Maj	Reg		
UNIO0011-H	<b>NC 218</b>	Monroe Olive Branch Road (SR 1006) - Anson County	Union Co.	2.37	22	2	100	55	14,600	2,500	4,100	4,100	15,100	2 A	100	Maj	Reg		
UNIO0012-H	<b>NC 207</b>	South Carolina - J D Helms Road (SR 2151)	Union Co.	5.21	22	2	60	55	14,600	2,100	4,400	4,400	15,100	2 A	60	Maj	Reg		
UNIO0012-H	<b>NC 207</b>	J D Helms Road (SR 2151) - Buford Shortcut Road (SR 2149)	Union Co.	2.08	20	2	60	55	14,100	2,500	5,100	5,100	15,100	2 A	60	Maj	Reg		
UNIO0013-H	<b>NC 205</b>	Stanly County - NC 218	Union Co.	3.19	22	2	60	55	14,600	2,000	6,800	6,800	15,100	2 A	60	Maj	Reg		
UNIO0014-H	<b>NC 200</b>	South Carolina - Starnes Road (SR 1128)	Union Co.	5.78	20	2	60	55	14,100	3,500	11,000	11,000	15,100	2 A	60	Maj	Reg		
UNIO0014-H	<b>NC 200</b>	Starnes Road (SR 1128) - MUMPO planning area	Union Co.	1.78	20	2	60	55	14,100	3,600	8,800	8,800	15,100	2 A	60	Maj	Reg		
UNIO0015-H	<b>Ansonville Road (SR 1002)</b>	Old Goldmine Road (SR 1726) - Anson County	Union Co.	3.35	18	2	*	55	13,600	590	1,480	1,480	15,100	2 A	60	Min	Sub		
UNIO0016-H	<b>Austin Road (SR 2156)</b>	South Carolina - Griffith Road (SR 2139)	Union Co.	7.02	18	2	*	45	13,140	310	600	600	14,600	2 A	60	Min	Sub		

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System						2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
					(ft)	lanes													
UNIO0017-H	<b>Austin Road/Lakeview Drive Connector</b>	Austin Road - Lakeview Drive	Marshville	0.17	-	-	-	-	-	-	200	200	13,140	2 A	60	Min	Sub	P	
	<b>Franklin Street (SR 1742)</b>	Hamilton Road (SR 1741) - NC 205	Marshville	0.27	16	2	*	35	9,000	840	1,600	1,600	9,000	ADQ	*	Min	Sub		
UNIO0018H	<b>Franklin Street (SR 1742) / Godwin Street Connector</b>	Olive Branch Road (SR 1719) - Hamilton Road (SR 1741)	Marshville	0.29	-	-	-	-	-	-	1,600	1,600	9,000	ADQ	*	Min	Sub		
	<b>Glennie Street</b>	NC 205 - Glennie Street	Marshville	0.12	18	2	*	35	9,200	840	1,600	1,600	9,200	ADQ	*	Min	Sub		
UNIO0019-H	<b>Glennie Street Extension</b>	Glennie Street - Austin Grove Church Road (SR 1751)	Marshville	0.42	-	-	-	-	-	-	1,600	1,600	9,200	ADQ	*	Min	Sub		
	<b>Godwin Street</b>	Old Peachland Road (SR 1735) - Olive Branch Road (SR 1719)	Marshville	0.13	19	2	*	35	9,400	890	1,700	1,700	9,400	ADQ	*	Min	Sub		
UNIO0020-H	<b>Griffith Road (SR 2139)</b>	MUMPO planning area - MUMPO planning area	Union Co.	3.13	20	2	*	55	14,100	1,300	3,300	3,300	15,100	2 A	60	Min	Sub		
UNIO0021-H	<b>Gus Eubanks Road (SR 2164)</b>	South Carolina - Plyler Mill Road (SR 2146)	Union Co.	1.65	18	2	60	55	13,600	440	840	840	15,100	2 A	60	Min	Sub		
UNIO0022-H	<b>Jerusalem Church Road (SR 1713)</b>	NC 218 - Pleasant Hill Church Road (SR 1710) Realignment (new location)	Union Co.	0.3	16	2	*	55	13,200	390	720	720	15,100	2 A	60	Min	Sub		
	<b>Jerusalem Church Road (SR 1713)</b>	Pleasant Hill Church Road (SR 1710) Realignment (new location) - Anson County	Union Co.	2	16	2	*	55	13,200	1,500	2,800	2,800	15,100	ADQ	*	Min	Sub		
UNIO0023-H	<b>Landsford Road (SR 1005)</b>	South Carolina - Stack Road (SR 2115)	Union Co.	3.56	18	2	*	55	13,600	650	1,240	1,240	15,100	2 A	60	Min	Sub		

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System						2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
					(ft)	lanes													
UNIO0023-H	<b>Landsford Road (SR 1005)</b>	Stack Road (SR 2115) - US 601	Union Co.	2.06	18	2	*	55	13,600	720	1,370	1,370	15,100	2 A	60	Min	Sub		
UNIO0023-H	<b>Landsford Road (SR 1005)</b>	US 601 - Gulledge School Road (SR 1912)	Union Co.	5.23	20	2	*	55	14,100	1,300	2,500	2,500	15,100	2 A	60	Min	Sub		
UNIO0023-H	<b>Landsford Road (SR 1005)</b>	Gulledge School Road (SR 1912) - Huggins Dairy Road (SR 1910)	Union Co.	2.51	18	2	*	55	13,600	1,300	2,500	2,500	15,100	2 A	60	Min	Sub		
UNIO0023-H	<b>Landsford Road (SR 1005)</b>	Huggins Dairy Road (SR 1910) - Horton Road (SR 1929)	Union Co.	4.5	20	2	*	55	14,100	1,300	2,500	2,500	15,100	2 A	60	Min	Sub		
UNIO0024-H	<b>Marshville Olive Branch Road (SR 1719)</b>	Olive Branch Road (SR 1006) - Old Goldmine Road (SR 1726)	Union Co.	4.97	20	2	60	55	14,600	870	1,600	1,600	15,100	2 A	60	Min	Sub		
UNIO0025-H	<b>Old Goldmine Road (SR 1726)</b>	Ansonville Road (SR 1002) - Olive Branch Road (SR 1006)	Union Co.	2.3	18	2	60	55	13,600	180	340	340	15,100	2 A	60	Min	Sub		
	<b>Old Lawyers Road (SR 1736)</b>	Anson County - Old Lawyers Road (SR 1736)	Marshville	0.5	18	2	60	55	13,600	310	590	590	15,100	ADQ	60	Min	Sub		
UNIO0026-H	<b>Old Lawyers Road (SR 1736) Extension</b>	Old Lawyers Road (SR 1736) - MUMPO planning area	Marshville	0.3	-	-	-	-	-	-	670	670	15,100	2 A	60	Min	Sub		
UNIO0027-H	<b>Old Pageland-Marshville Road (SR 1937)</b>	South Carolina - Landsford Road (SR 1005)	Union Co.	2.04	18	2	*	55	13,600	700	2,100	2,100	15,100	2 A	60	Min	Sub		
UNIO0027-H	<b>Old Pageland-Marshville Road (SR 1937)</b>	Landsford Road (SR 1005) - Old Pageland Monroe Road (SR 1941)	Union Co.	2.92	20	2	*	55	14,100	700	2,100	2,100	15,100	2 A	60	Min	Sub		
UNIO0027-H	<b>Old Pageland-Marshville Road (SR 1937)</b>	Old Pageland Monroe Road (SR 1941) - White Store Road (SR 1003)	Union Co.	2.47	16	2	*	55	13,200	700	1,700	1,700	15,100	2 A	60	Min	Sub		

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System						2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
					(ft)	lanes													
UNIO0028-H	<b>Old Pageland-Marshville Road (SR 1937) Realignment</b>	Old Hwy 74 (SR 1740) - Old Pageland Marshville Road (SR 1937)	Marshville	0.34	-	-	-	-	-	-	1,700	1,700	15,100	2 A	60	Min	Sub	P	
UNIO0029-H	<b>Old Pageland Monroe Road (SR 1941)</b>	White Store Road (SR 1003) - Old Pageland Marshville Road (SR 1937)	Union Co.	7.46	18	2	*	55	13,600	1,200	9,900	9,900	15,100	2 A	60	Min	Sub		
UNIO0030-H	<b>Old Pageland-Monroe Road (SR 1941) Extension</b>	Old Pageland Marshville Road (SR 1937) - Smith Town Road (SR 1915)	Union Co.	0.85	-	-	-	-	-	-	2280	2280	15,100	2 A	60	Min	Sub		
UNIO0031-H	<b>Olive Branch Road (SR 1006)</b>	MUMPO MAB - Old Goldmine Road (SR 1726)	Union Co.	0.4	20	2	60	55	14,100	870	1,900	1,900	15,100	2 A	60	Min	Sub		
UNIO0031-H	<b>Olive Branch Road (SR 1006)</b>	Old Goldmine Road (SR 1726) - Marshville Olive Branch Road (SR 1719)	Union Co.	2.87	20	2	60	55	14,100	870	4,800	4,800	15,100	2 A	60	Min	Sub		
UNIO0031-H	<b>Olive Branch Road (SR 1006)</b>	Marshville Olive Branch Road (SR 1719) - NC 218	Union Co.	0.31	22	2	60	55	14,600	870	4,800	4,800	15,100	2 A	60	Min	Sub		
	<b>Park Drive</b>	Old Peachland Road (SR 1735) - Marshville Olive Branch Road (SR 1719)	Marshville	0.39	22	2	*	10	9,000	400	760	760	9,000	ADQ	*	Min	Sub		
UNIO0032-H	<b>Phillip Sanders Road (SR 1989) Extension</b>	Phillip Sanders Road (SR 1989) - US 74	Marshville	0.26	-	-	-	-	-	-	1800	1800	9,200	2 A	60	Min	Sub		

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																		
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System					2035 Proposed System					CTP Classification	Tier	Other Modes	
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section				ROW (ft)
					(ft)	lanes												
UNIO0033-H	<b>Phillip Sanders Road (SR 1989) Realignment</b>	Phillip Sanders Road (SR 1989) - Old Hwy 74 (SR 1740)/Hasty Road (SR 1901)	Marshville	0.31	-	-	-	-	-	-	1800	1800	9,200	2 A	60	Min	Sub	
UNIO0034-H	<b>Pleasant Hill Church Road (SR 1710)</b>	St. Timothy (SR 1701) - Realignment (new location)	Union Co.	1.4	20	2	60	55	14100	380	700	700	15,100	2 A	60	Min	Sub	
UNIO0035-H	<b>Pleasant Hill Church Road (SR 1710) Realignment</b>	Realignment (new location) - Jerusalem Church Road (SR 1713)	Union Co.	0.4	-	-	-	-	-	-	700	700	15,100	2 A	60	Min	Sub	
UNIO0036-H	<b>Plyler Mill Road (SR 2146)</b>	Gus Eubanks Road (SR 2164) - MUMPO planning area	Union Co.	5.27	18	2	60	55	13,600	440	800	800	15,100	2 A	60	Min	Sub	
UNIO0037-H	<b>Providence Road (SR 1117)</b>	South Carolina - NC 200	Union Co.	2.95	20	2	60	55	14100	810	1,400	1,400	15,100	2 A	60	Maj	Sub	
UNIO0037-H	<b>Providence Road (SR 1117)</b>	NC 200 - MUMPO MAB	Union Co.	1.31	18	2	60	55	13,600	1,600	4,200	4,200	15,100	2 A	60	Maj	Sub	
UNIO0038-H	<b>Smith Town Road (SR 1915)</b>	Landsford (SR 1005) - Helms Funderburk Road (SR 1930)	Union Co.	1.5	18	2	60	55	13,600	250	520	520	15,100	2 A	60	Min	Sub	
UNIO0039-H	<b>South Potter Road (SR 1137)</b>	Green Road (SR 1130) - Harkey Road (SR 1121)	Union Co.	2.73	16	2	*	55	13,200	430	720	720	15,100	2 A	60	Min	Sub	B
UNIO0039-H	<b>South Potter Road (SR 1137)</b>	Harkey Road (SR 1121) - Bethlehem Church Road (SR 1131)	Union Co.	3.38	20	2	*	55	14,100	650	910	910	15,100	2 A	60	Min	Sub	B
<b>Southern Connector I</b>																		
UNIO0040-H	<b>Tom Green Road (SR 1129)</b>	Tom Starnes Road (SR 1128) - NC 522	Union Co.	0.74	18	2	60	55	13,600	470	2,900	2,900	15,100	2 A	60	Min	Sub	

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System						2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
					(ft)	lanes													
UNIO0040-H	<b>Ruben Road (SR 2171)</b>	NC 522 - Plyler Mill Road (SR 2146)	Union Co.	2.5	20	2	*	55	14,100	480	3,400	3,400	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>W. Sandy Ridge Road (SR 2152) Realignment</b>	Plyler Mill Road (SR 2146) - W. Sandy Ridge Road (SR 2152)	Union Co.	0.62	-	-	-	-	-	-	5,100	5,100	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>W. Sandy Ridge Road (SR 2152)</b>	W. Sandy Ridge Road (SR 2152) - NC 207	Union Co.	2.1	18	2	*	45	13,140	800	5,800	5,800	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>E. Sandy Ridge Road (SR 2152)</b>	NC 207 - S. of Bruce Thomas Road (SR 2132)	Union Co.	2	18	2	*	55	13,600	300	700	700	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Connector</b>	S. of Bruce Thomas Road (SR 2132) - Stack Road (SR 2115)	Union Co.	0.8	-	-	-	-	-	-	2,200	2,200	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Troy Medlin Road (SR 2131)</b>	Stack Road (SR 2115) - Medlin Road (SR 2102)	Union Co.	2	18	2	*	55	13,600	250	3,600	3,600	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Connector</b>	Medlin Road (SR 2102) - Mangum Dairy Road (SR 2108)	Union Co.	0.4	-	-	-	-	-	-	4,300	4,300	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Claude Austin Road (SR 2109)</b>	Mangum Dairy Road (SR 2108) - W. of Old Pageland Monroe Road (SR 1941)	Union Co.	1.45	18	2	*	55	13,600	230	6,600	6,600	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Claude Austin Road (SR 2109) Realignment</b>	W. of Old Pageland Monroe Road (SR 1941) - Old Pageland Monroe Road (SR 1941)	Union Co.	0.3	-	-	-	-	-	-	5,700	5,700	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>L J Whitley Road (SR 1949)</b>	Old Pageland Monroe Road (SR 1941) - L J Whitley Road (SR 1949)	Union Co.	0.6	18	2	*	55	13,600	20	5,800	5,800	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>L J Whitley Road (SR 1949) Extension</b>	L J Whitley Road (SR 1949) - Snyders Store Road (SR 1945)	Union Co.	0.7	-	-	-	-	-	-	5,500	5,500	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Snyders Store Road (SR 1945)</b>	L J Whitley Road (SR 1949) Extension - Faulks Church Road (SR 1947)	Union Co.	0.6	18	2	*	55	13,600	460	4,400	4,400	15,100	2 A	60	Min	Sub		
UNIO0040-H	<b>Faulks Church Road (SR 1947)</b>	Snyders Store Road (SR 1945) - Old Pageland Marshville Road (SR 1937)	Union Co.	3.2	18	2	*	55	13,600	270	4,300	4,300	15,100	2 A	60	Min	Sub		

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																			
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System						2035 Proposed System						CTP Classification	Tier	Other Modes
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section	ROW (ft)				
					(ft)	lanes													
	<b>Southern Connector II</b>																		
UNIO0041-H	<b>Tom Starnes Road (SR 1128)</b>	Tom Green Road (SR 1129) - NC 522	Union Co.	0.41	18	2	60	55	13,600	410	3,700	3,700	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Trinity Church Road (SR 2166) Realignment</b>	NC 522 - E. of NC 522	Union Co.	0.5	-	-	-	-	-	-	5,000	5,000	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Trinity Church Road (SR 2166)</b>	E. of NC 522 - Plyler Mill Road (SR 2146)	Union Co.	1.5	18	2	*	55	13,600	520	4,800	4,800	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Plyler Mill Road (SR 2146)</b>	Trinity Church Road (SR 2166) - Trinity Road (SR 2153)	Union Co.	0.2	18	2	*	55	13,600	520	4,000	4,000	15,100	2 A	*	Min	Sub		
UNIO0041-H	<b>Trinity Road (SR 2153)</b>	Plyler Mill Road (SR 2146) - W. of NC 207	Union Co.	2.8	18	2	*	55	13,600	480	4,000	4,000	15,100	2 A	*	Min	Sub		
UNIO0041-H	<b>Trinity Road (SR 2153) Realignment</b>	W. of NC 207 - NC 207	Union Co.	0.65	-	-	-	-	-	-	4,000	4,000	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Jack Davis Road (SR 2125)</b>	NC 207 - Medlin Road (SR 2102)	Union Co.	4	20	2	60	55	14100	250	3,800	3,800	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Hargette Road (SR 1939) Realignment</b>	Medlin Road (SR 2102) - E. of Hargette Road (SR 1939)	Union Co.	0.55	-	-	-	-	-	-	4,800	4,800	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Hargette Road (SR 1939)</b>	E. of Hargette Road (SR 1939) - Belk Mill Road (SR 1940)	Union Co.	0.75	20	2	60	55	14100	610	4,600	4,600	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Belk Mill Road (SR 1940)</b>	Hargette Road (SR 1939) - White Store Road (SR 1003)	Union Co.	3.1	20	2	60	55	14100	190	5,000	5,000	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Old Pageland-Marshville Road (SR 1937)</b>	White Store Road (SR 1003) - Old Pageland Monroe Road (SR 1948)	Union Co.	0.3	20	2	60	55	14100	230	5,200	5,200	15,100	2 A	60	Min	Sub		
UNIO0041-H	<b>Old Pageland-Marshville Road (SR 1937)</b>	Old Pageland Monroe Road (SR 1948) - Faulks Church Road (SR 1947)	Union Co.	2.7	20	2	60	55	14100	420	4,000	4,000	15,100	2 A	60	Min	Sub		
UNIO0042-H	<b>St. Timothy Road (SR 1701)</b>	NC 742 - Benton Edwards Road (SR 1702)	Union Co.	1.79	20	2	60	55	14100	140	260	260	15,100	2 A	60	Min	Sub		

## CTP INVENTORY AND RECOMMENDATIONS

HIGHWAY																		
Local ID	Facility	Section (From - To)	Jurisdiction	Dist. (mi)	2009 Existing System					2035 Proposed System					CTP Classification	Tier	Other Modes	
					Cross-Section		ROW (ft)	Speed Limit (mph)	Existing Capacity (vpd)	2009 AADT	2035 AADT E+C	2035 AADT with CTP	Proposed Capacity (vpd)	Cross-Section				ROW (ft)
					(ft)	lanes												
UNIO0042-H	<b>St. Timothy Road (SR 1701)</b>	Benton Edwards Road (SR 1702) - Parker Store Road (SR 1706)	Union Co.	1.71	18	2	*	55	13,600	380	700	700	15,100	2 A	60	Min	Sub	
UNIO0042-H	<b>St. Timothy Road (SR 1701)</b>	Parker Store Road (SR 1706) - Pleasant Hill Church Road (SR 1710)	Union Co.	0.68	20	2	*	55	14100	390	730	730	15,100	2 A	60	Min	Sub	
UNIO0043-H	<b>Stack Road (SR 2115)</b>	South Carolina - Thomas Road (SR 2132)	Union Co.	7.83	20	2	60	55	14,100	2,200	4,200	4,200	15,100	2 A	60	Min	Sub	
UNIO0044-H	<b>Stegall Street (SR 1734) Connector</b>	Old Peachland Road (SR 1735) - Marshville- Olive Branch Road (SR 1719)	Marshville	0.85	-	-	-	-	-	-	1,700	1,700	12,000	2 A	60	Min	Sub	
UNIO0045-H	<b>Thomas Helms (SR 1749) Connector</b>	Hamilton Road (SR 1741) - MUMPO planning area	Marshville	0.85	-	-	-	-	-	-	**	**	15,100	ADQ	*	Min	Sub	
	<b>Waxhaw Creek Road (SR 1104)</b>	South Carolina - Tirzah Church Road (SR 1100)	Union Co.	0.84	18	2	50	55	13,600	170	550	550	13,600	ADQ	50	Min	Sub	
	<b>Waxhaw Creek Road (SR 1104)</b>	Tirzah Church Road (SR 1100) - Rillwood Drive (SR 1236)	Union Co.	2.56	20	2	60	55	14,100	770	2,500	2,500	14,100	ADQ	60	Min	Sub	
UNIO0046-H	<b>White Store Road</b>	Landsford Road (SR 1005) - Old	Union Co.	5.08	18	2	*	45	13,140	440	490	490	15,100	2 B	60	Min	Sub	
UNIO0046-H	<b>White Store Road (SR 1003)</b>	Old Pageland Marshville Road (SR 1937) - Old Pageland Monroe Road (SR 1957)	Union Co.	4.92	20	2	*	55	13,140	440	600	600	15,100	2 A	60	Min	Sub	

## **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" 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:

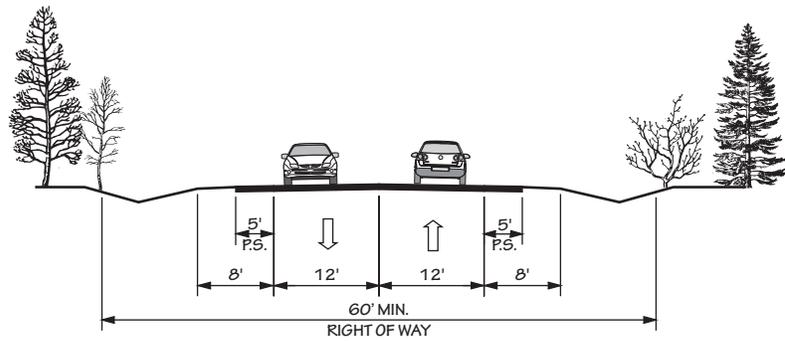
- roadways which may require widening after the current planning period,
- roadways which are borderline adequate and accelerated traffic growth could render them deficient, and
- roadways where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment.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

FIGURE 9

# TYPICAL HIGHWAY CROSS SECTIONS 2 LANES

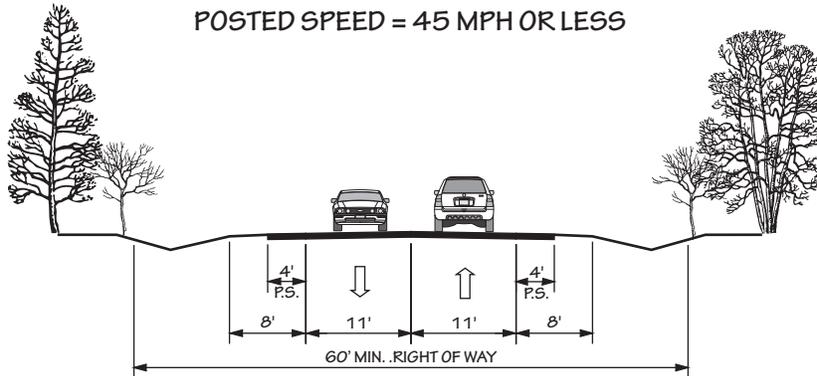
2 A

WIDE PAVED SHOULDERS  
POSTED SPEED = 55 MPH



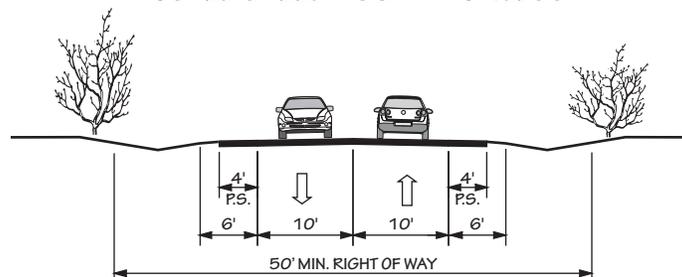
2 B

WIDE PAVED SHOULDERS  
POSTED SPEED = 45 MPH OR LESS



2 C

WIDE PAVED SHOULDERS  
POSTED SPEED = 35 MPH OR LESS

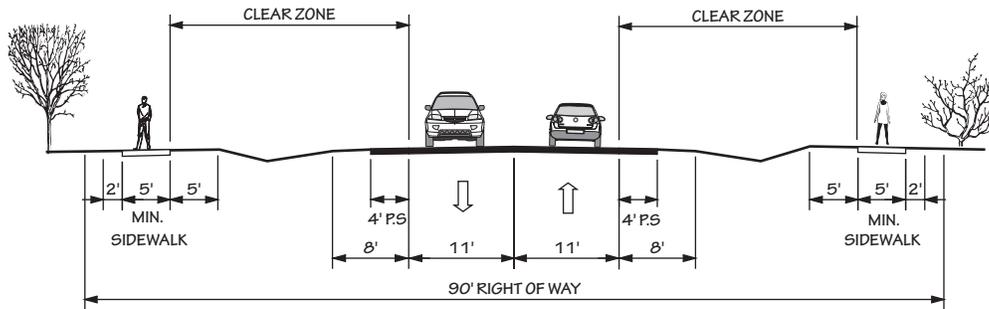


# TYPICAL HIGHWAY CROSS SECTIONS

## 2 LANES

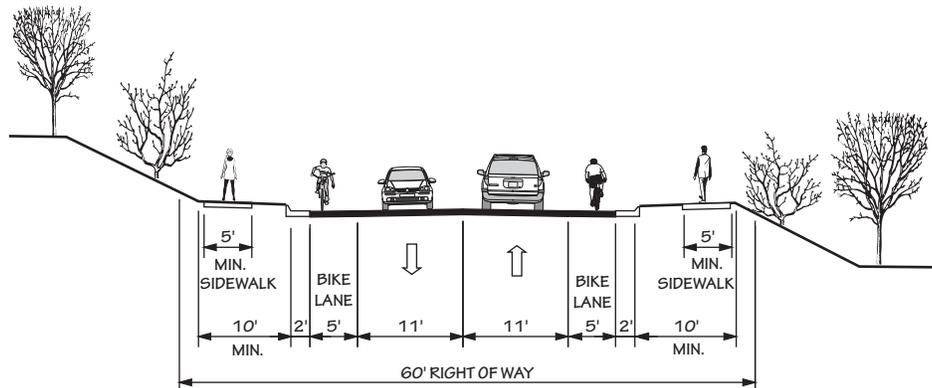
### 2 D

SIDEWALK PLACEMENT BEHIND A ROADWAY DITCH



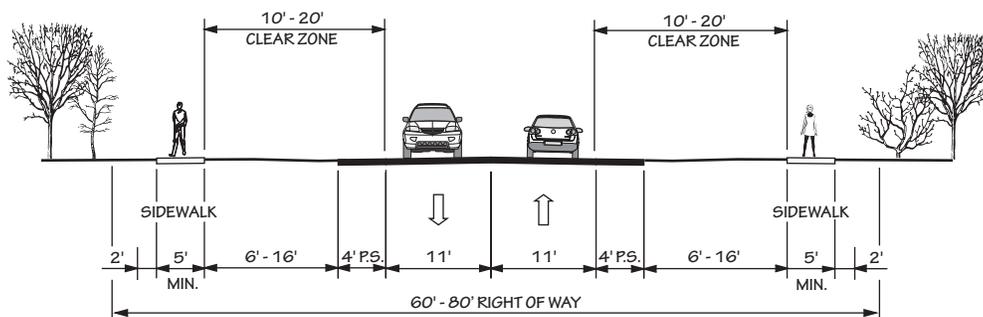
### 2 E

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)

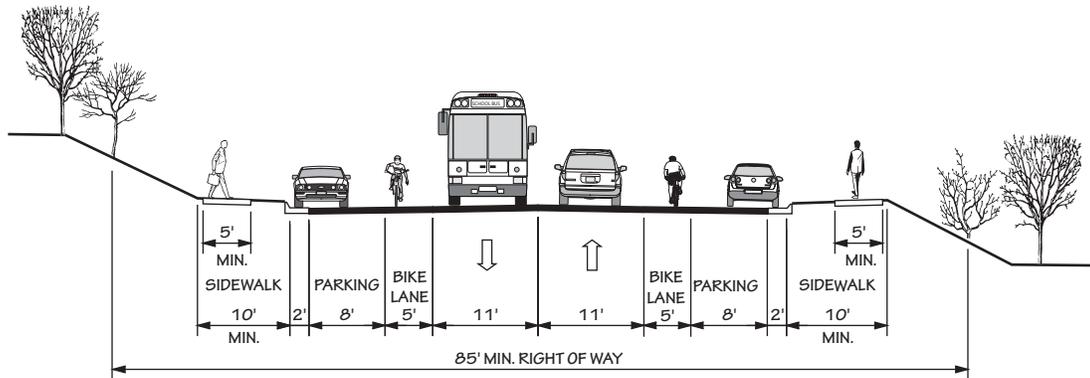


# TYPICAL HIGHWAY CROSS SECTIONS

## 2 LANES

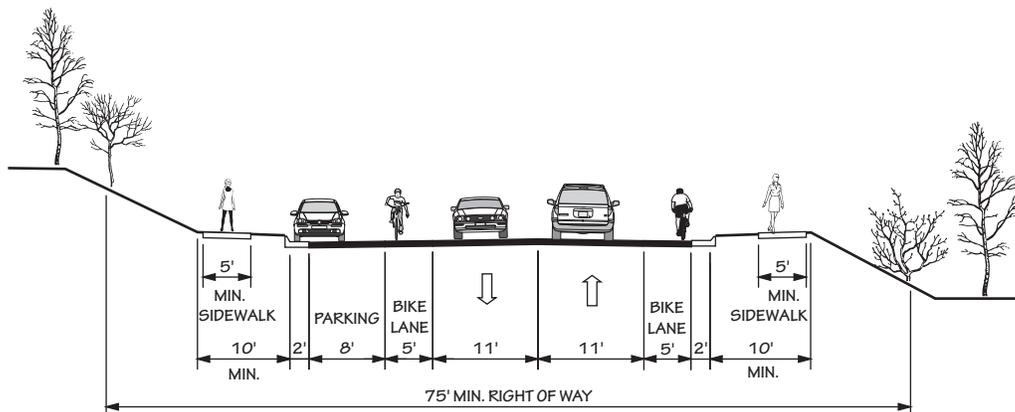
### 2 G

CURB & GUTTER - PARKING ON EACH SIDE



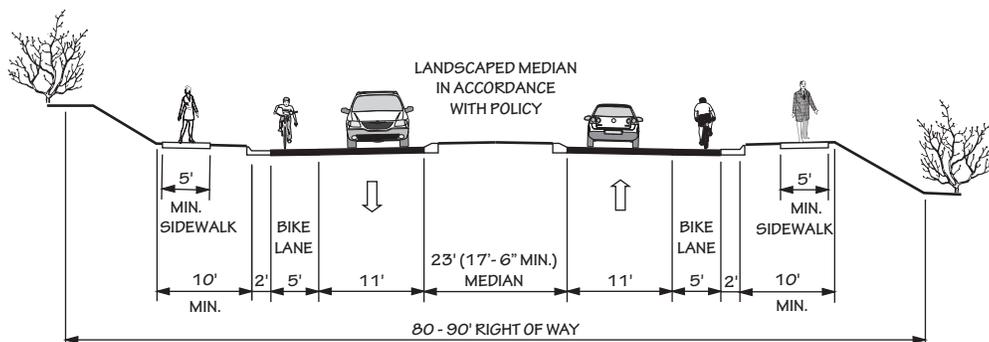
### 2 H

CURB & GUTTER - PARKING ON ONE SIDE



### 2 I

RAISED MEDIAN WITH CURB & GUTTER

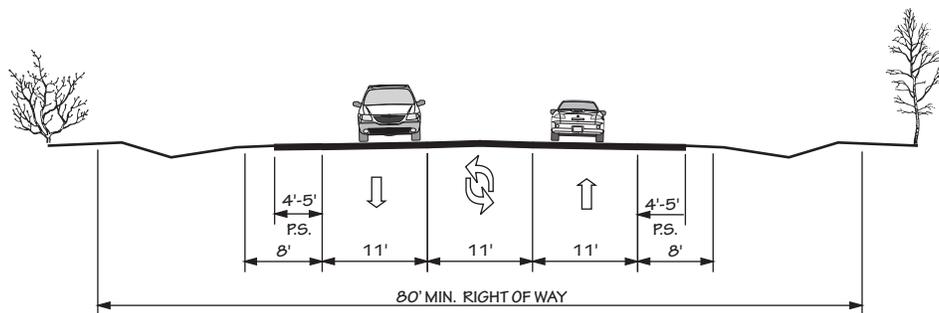


# TYPICAL HIGHWAY CROSS SECTIONS

## 3 LANES

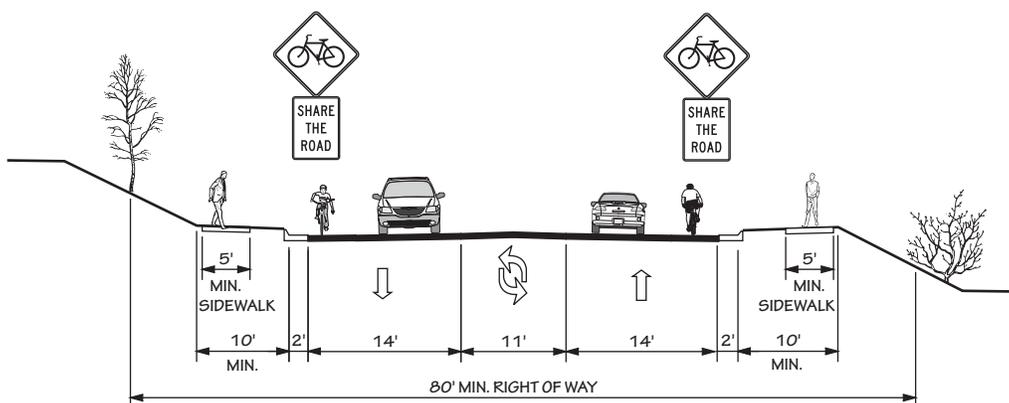
### 3 A

WIDE PAVED SHOULDERS



### 3 B

CURB & GUTTER WITH WIDE OUTSIDE LANES AND SIDEWALKS

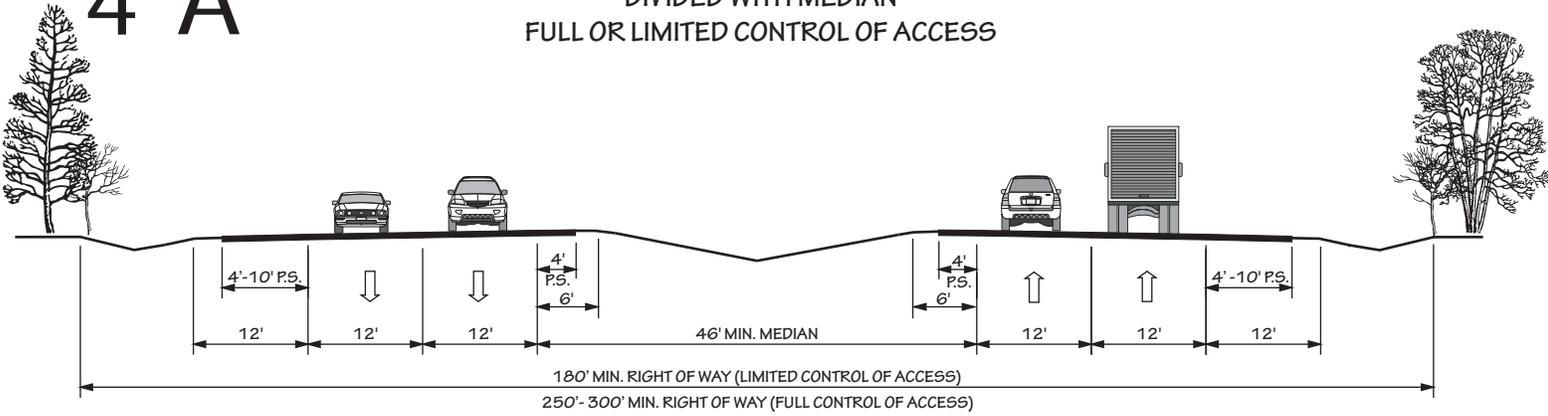


# TYPICAL HIGHWAY CROSS SECTIONS

## 4 LANES

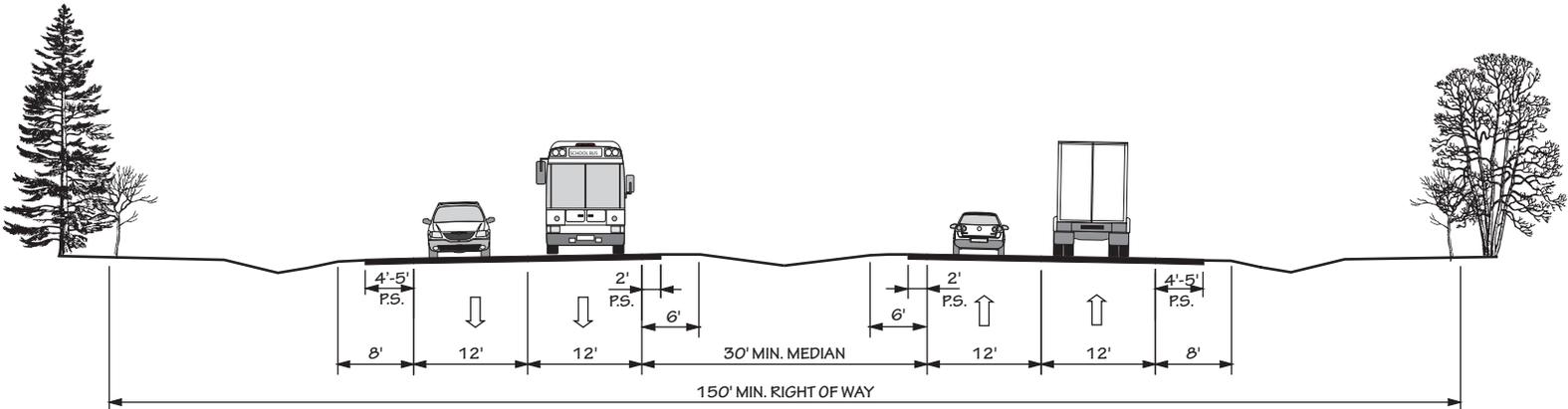
### 4 A

DIVIDED WITH MEDIAN  
FULL OR LIMITED CONTROL OF ACCESS



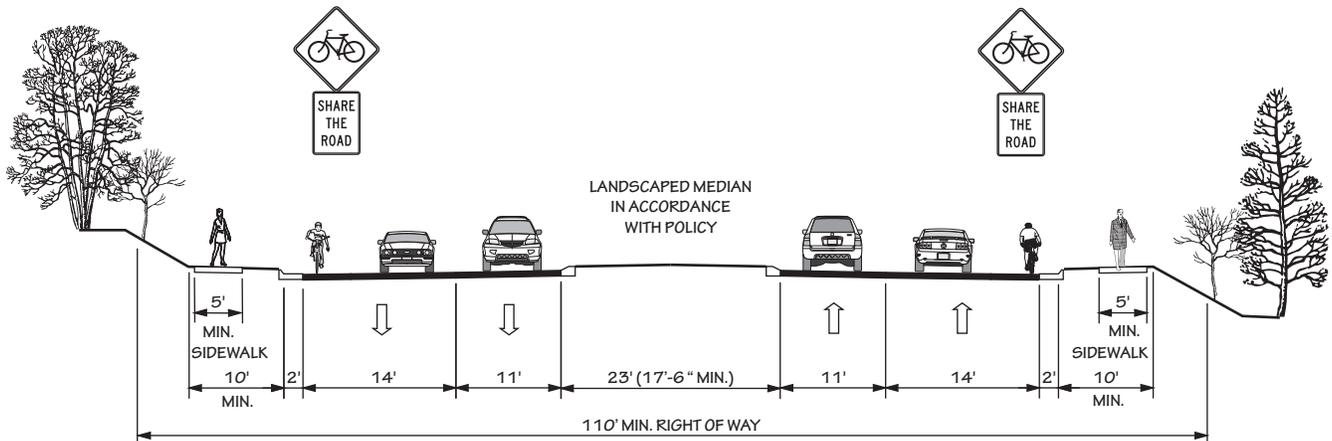
### 4 B

DIVIDED WITH MEDIAN - NO CURB & GUTTER  
PARTIAL CONTROL OF ACCESS



### 4 C

RAISED MEDIAN WITH WIDE OUTSIDE LANES AND SIDEWALKS

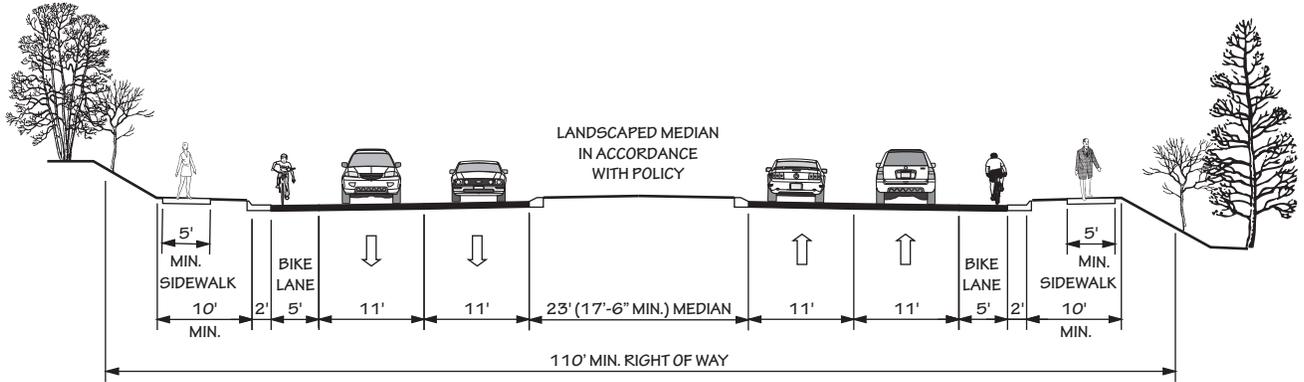


# TYPICAL HIGHWAY CROSS SECTIONS

## 4 LANES

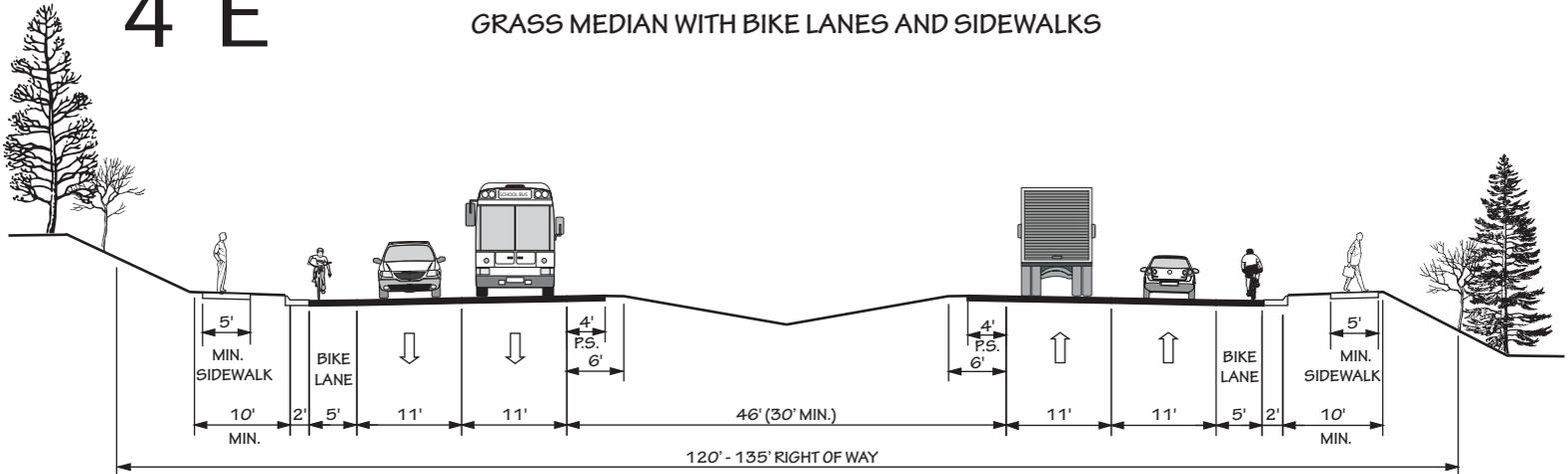
### 4 D

RAISED MEDIAN - CURB & GUTTER WITH BIKE LANES AND SIDEWALKS



### 4 E

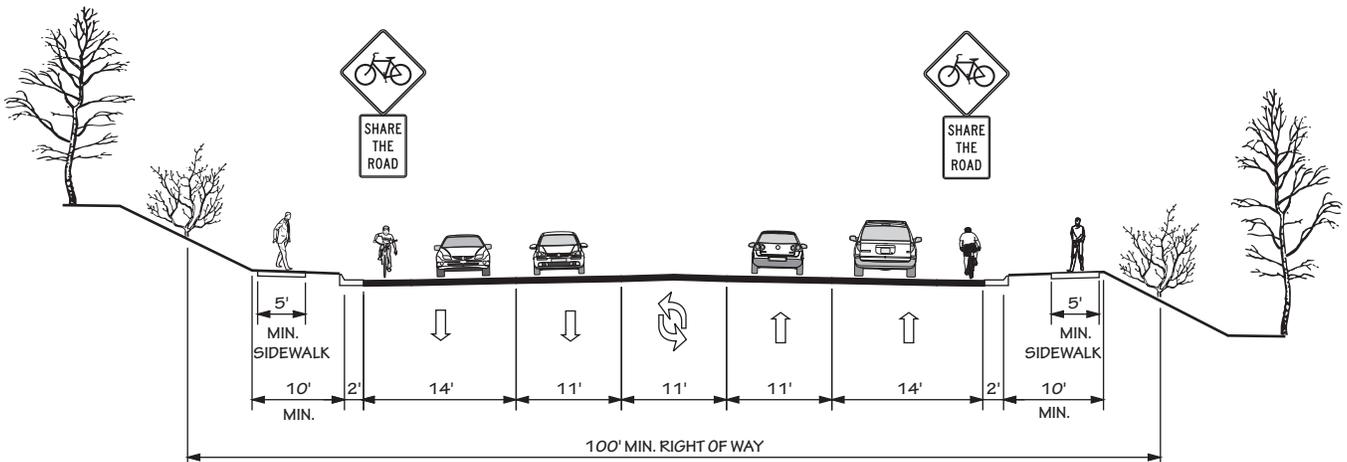
GRASS MEDIAN WITH BIKE LANES AND SIDEWALKS



## 5 LANES

### 5 A

WIDE OUTSIDE LANES

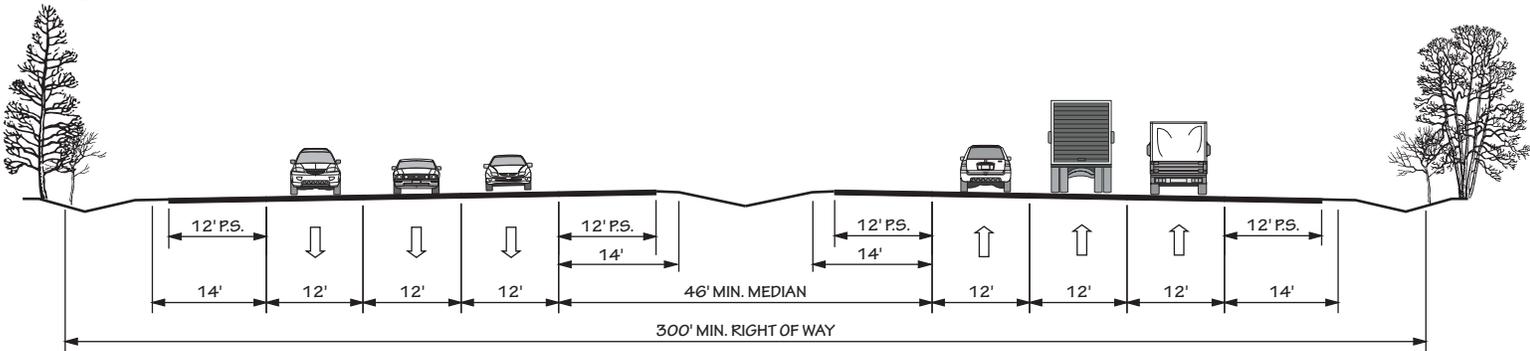


# TYPICAL HIGHWAY CROSS SECTIONS

## 6 LANES

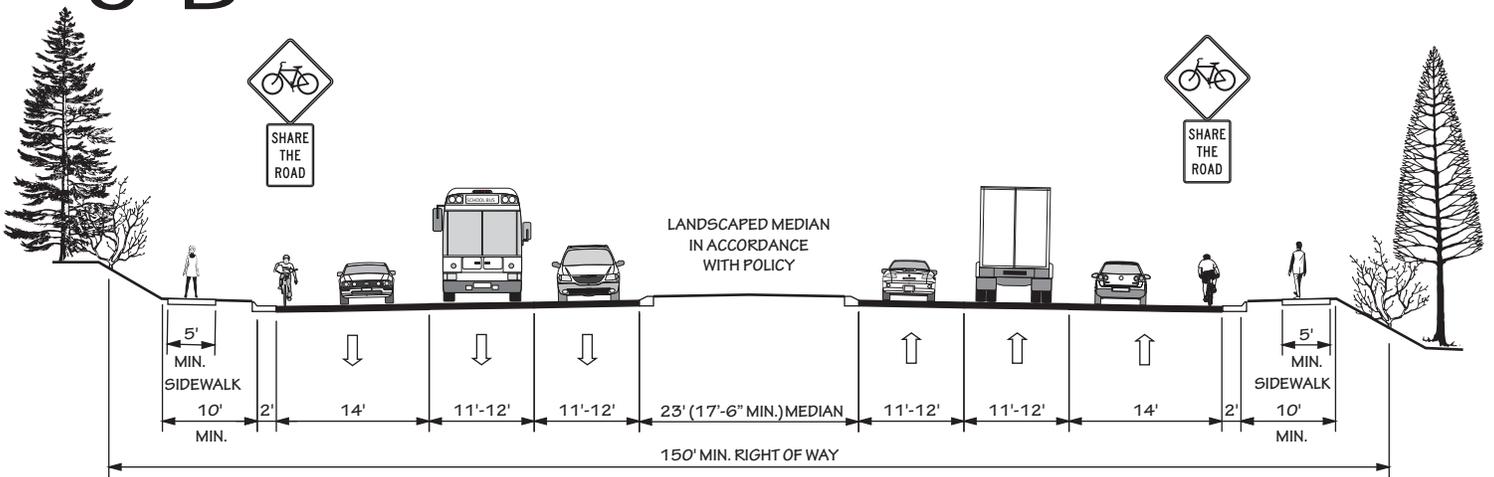
### 6 A

DIVIDED WITH GRASS MEDIAN



### 6 B

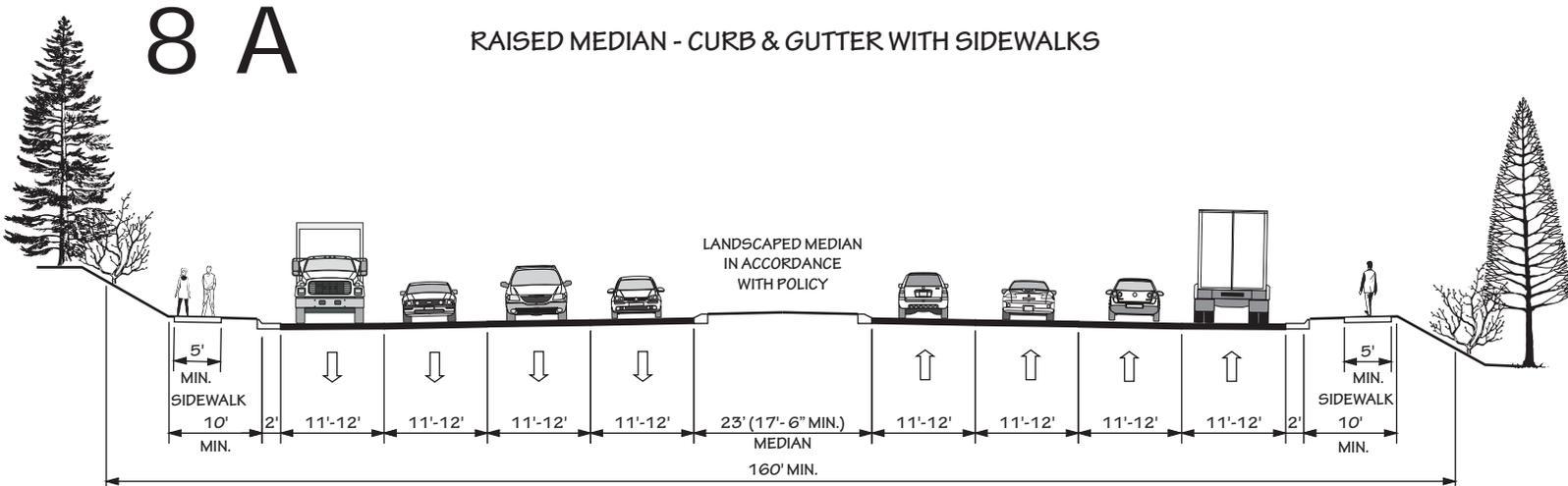
RAISED MEDIAN - CURB & GUTTER WITH WIDE OUTSIDE LANES AND SIDEWALKS



## 8 LANES

### 8 A

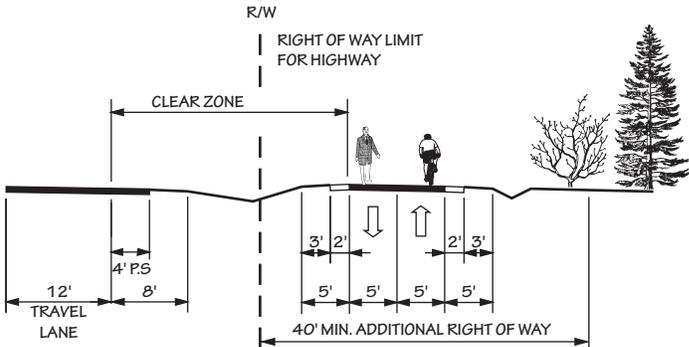
RAISED MEDIAN - CURB & GUTTER WITH SIDEWALKS



# TYPICAL MULTI - USE PATH

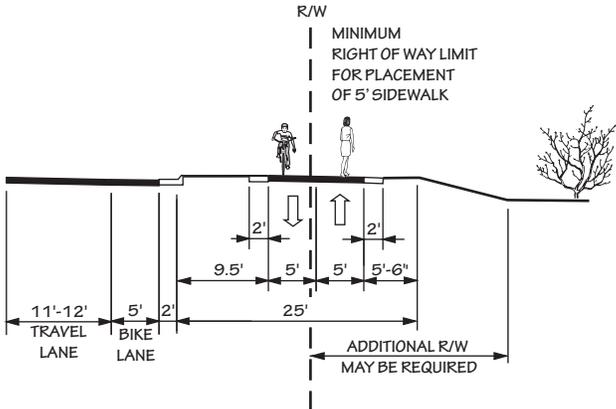
MULTI - USE PATH  
ADJACENT TO RIGHT OF WAY OR SEPARATE PATHWAY

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 primarily free flow conditions. The motorist experiences a high level of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 ft, or 26 car lengths.
- **LOS B:** Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 ft, or 18 car lengths.
- **LOS C:** Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacing is in the range of 220 ft, or 11 car lengths.
- **LOS D:** Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and the driver experiences drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 ft, or 9 car lengths.
- **LOS E:** Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver.

- **LOS F:** Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

Figure 10 - Level Of Service Illustrations



Source: 2000 Highway Capacity Manual

## Appendix F Traffic Crash Analysis

A crash analysis performed for the Union County CTP factored crash frequency, crash type, and crash severity. Crash frequency is the total number of reported collisions 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 47.7 times more severe than one involving only property damage and a crash resulting in minor injury is 11.8 times more severe than one with only property damage. In general, a higher severity index indicates more severe accidents. 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 May 20, 2006 and May 20, 2009. The data represents locations with 5 or more crashes and/or a severity average greater than that of the state's 4.45 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 Collisions
1	NC 200 and Providence Road (SR 1117)	3.34	19
2	US 601 and Landsford (SR 1005)	2.64	9
3	NC 205 and NC 218	5.11	9
4	Stack Road (SR 2115) and Jack Davis Road (SR 2125)	5.44	5
5	Marshville-Olive Branch Road (SR 1719) and Ansonville Road (SR 1002)	5.44	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 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 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. 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 within the planning area are listed in Table 5.

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**Table 5 - Deficient Bridges**

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Bridge Number	Facility	Feature	Condition	Local ID
47	SR 1713	Water Branch	Structurally Deficient	
73	NC 218	Richardson Creek	Functionally Obsolete	UNIO0011H
92	SR 1903	Beaverdam Creek	Functionally Obsolete	
103	SR 1005	Barkers Branch	Functionally Obsolete	UNIO0023H
104	SR 1005	Lanes Creek	Functionally Obsolete	UNIO0023H
122	SR 1940	Wicker Creek	Structurally Deficient	UNIO0041H
152	SR 2156	Adams Branch	Structurally Deficient	UNIO0016H
163	SR 2166	Pole Cat Creek	Structurally Deficient	UNIO0041H
168	SR 1128	Cane Creek	Structurally Deficient	
170	SR 1137	Cane Creek	Structurally Deficient	UNIO0039H
285	SR 2153	Lynches Creek	Functionally Obsolete	UNIO0041H
448	SR 2154	Buffalo Creek	Structurally Deficient	

## **Appendix H Public Involvement**

A listing of focus group members, the vision statement/objectives, the Goals and Objectives Survey results, and a summary of each public involvement opportunity are included in this appendix.

### **Union County CTP Focus Group members:**

- Al Greene, Union County Manager
- Amy Helms, Union County Public Works, Infrastructure and Environment
- Allan Baucom, Union County Commissioner
- John Underwood, NCDOT – District Engineer, Highway Division 10
- Barry Moose, NCDOT – Division Engineer, Highway Division 10
- Richard Black, Union County Planning Director
- Jim Carpenter, Union County Chamber of Commerce
- Denise Patterson, Union County Public Schools System
- Jerry Simpson, Union County Agricultural Extension Director
- Maurice Ewing, Union County Partnership for Progress
- Carl Webber, Marshville Town Manager
- Dana Stoogenke, Rocky River Rural Planning Organization (RRRPO)
- Reuben Q. Crummy, NCDOT – Transportation Planning Branch

### **Vision Statement**

Produce and maintain a Comprehensive Transportation Plan to preserve and promote the quality of life and economic vitality of the rural portion of Union County and all of its municipalities. This will be accomplished by providing an accessible, integrated, efficient, safe, and environmentally responsible multi-modal transportation system.

### **Objectives**

1. Preserve, protect, and enhance the natural and human environment.
2. Improve the safety, connectivity, and mobility of the transportation system, for people and freight, for all modes of transportation in and through the region.
3. Maintain and enhance the quality and performance of the transportation system in Union County (rural) through efficient congestion management and operations techniques.
4. Promote and enhance connectivity and mobility throughout Union County (rural) and the surrounding region and metropolitan areas.

5. Improve the security of the transportation system Union County for all modes and users.
6. Encourage preservation of scenic views and rural character.
7. Provide an adequate transportation network and infrastructure for the agricultural industry.

### **Summary of Public Involvement Opportunities**

- **US 601 and Landsford Road**

On January 4, 2010, the Union County Board of Commissioners passed a resolution requesting the North Carolina Department of Transportation construct a bridge at Landsford Road over US 601 South.

The Draft Union County CTP Maps were presented at the Union County Agricultural Advisory Board Meeting on March 4, 2010 for comments in Monroe, NC. Amy Helms (Union County) requested an update regarding Landsford Road and the farm equipment issue. Barry Moose (NCDOT) stated that he had met with Commissioner Troxler as well as Secretary Conti. NCDOT staff will be making some changes to the area, but probably not to the degree that the farmers in Union County would like to see. The recommendation will be another superstreet crossing with Irvin Thomas Road. Dana Stoogenke (RRRPO) stated that Jamal Alavi and Reuben Crummy met with the Union County Agricultural Advisory Board and that members were “very” hopeful that a bridge would be built in that area. Mr. Moose stated that a bridge does not solve the problem. A bridge would just get them across the road. Farmers’ concerns were with moving parallel to the road, to have access to their fields. There is no solution that will keep farm tractors off that road. Whenever you mix tractors that run 15 mph with trucks that run 70 mph, there is always going to be a problem. The biggest piece of equipment the farmers have was able to make that turn through the superstreet design safely. They are recommending that bigger pieces of farm equipment use escort.

- **Public Workshop # 1 (Lanes Creek Volunteer Fire Department)**

A public workshop was held on March 4, 2010, from 12:00 am – 2:00 pm at the Lanes Creek Volunteer Fire Department in Monroe, NC. No citizens attended this meeting.

- **Public Workshop # 2 (Town of Marshville Community Center)**

A public workshop was held on March 4, 2010, from 3:30 pm – 5:30 pm at the Community Center in Marshville, NC. No citizens attended this meeting.

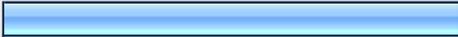
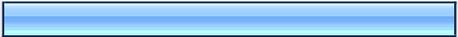
# Union County CTP Survey (on-line)

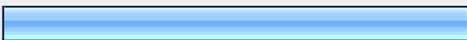
1. How important are the following transportation goals to you? (Please rank in order of importance from 1, most important to 6, least important; please select only one rank for each goal)								
	1	2	3	4	5	6	Rating Average	Response Count
Increased Transportation Mode Choices (Additional opportunities to walk and bike to destinations)	11.7% (26)	13.9% (31)	<b>19.3%</b> <b>(43)</b>	18.4% (41)	17.9% (40)	18.8% (42)	1.00	223
Increased Public Transportation Options (Bus or rail service to destinations; Park-n-ride lots to facilitate carpooling, vanpooling, and transit service)	10.1% (24)	15.5% (37)	20.2% (48)	14.7% (35)	<b>21.8%</b> <b>(52)</b>	17.6% (42)	1.00	238
Faster Automobile Travel Times (High-speed roads with more lanes and fewer intersections; more connector roads; less congestion)	<b>26.1%</b> <b>(57)</b>	20.2% (44)	11.0% (24)	16.5% (36)	10.1% (22)	16.1% (35)	1.00	218
Community and Rural Character Preservation (Keeping businesses in downtown areas; preservation of existing buildings and neighborhoods; maintaining the rural character and landscape)	<b>26.4%</b> <b>(58)</b>	18.2% (40)	14.5% (32)	15.0% (33)	10.0% (22)	15.9% (35)	1.00	220
Economic Growth (Building or improving roads and railways to attract new businesses and to allow existing businesses to expand)	<b>20.5%</b> <b>(46)</b>	19.2% (43)	17.0% (38)	13.8% (31)	16.5% (37)	12.9% (29)	1.00	224
Service of Special Needs (Better transportation services for low income, elderly, and disabled residents)	14.4% (33)	14.0% (32)	19.7% (45)	<b>20.5%</b> <b>(47)</b>	17.5% (40)	14.0% (32)	1.00	229
	<b>answered question</b>							<b>268</b>
	<b>skipped question</b>							<b>7</b>

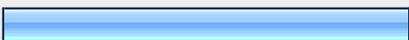
**2. To alleviate traffic congestion a road should be improved by: (Please rank in order of importance from 1, most important to 4, least important; please select only one rank for each goal)**

	1	2	3	4	Rating Average	Response Count
Building additional travel lanes	<b>27.0% (58)</b>	26.5% (57)	20.5% (44)	26.0% (56)	1.00	215
Controlling the frequency and locations of driveways and cross streets that access the road	14.4% (32)	24.8% (55)	<b>42.8% (95)</b>	18.0% (40)	1.00	222
Improving intersection design, better traffic signal timing, adding turn lanes, and creating roundabouts	<b>37.2% (86)</b>	35.1% (81)	19.9% (46)	7.8% (18)	1.00	231
Providing an alternative means of transportation (bus, train, bicycle, park-n-ride)	23.8% (60)	15.9% (40)	18.7% (47)	<b>41.7% (105)</b>	1.00	252
<i>answered question</i>						<b>262</b>
<i>skipped question</i>						<b>13</b>

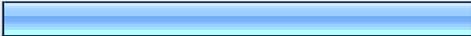
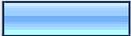
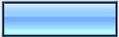
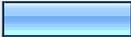
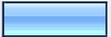
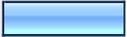
**3. Are you concerned with safety or crash problems at any specific locations?**

		Response Percent	Response Count
Yes		50.2%	131
No		49.8%	130
If yes, please give a description of the location(s) including road name or intersection.			127
<i>answered question</i>			<b>261</b>
<i>skipped question</i>			<b>14</b>

4. When traveling in your area, do you find that you often have to go out of your way to get to your destination because the most direct route is too congested?					
			Response Percent	Response Count	
Yes			48.9%	129	
No			51.1%	135	
If yes, please provide examples including road names, starting location (general area), and destinations.				113	
				<b><i>answered question</i></b>	<b>264</b>
				<b><i>skipped question</i></b>	<b>11</b>

5. Is truck traffic a problem in the area?					
			Response Percent	Response Count	
Yes			55.3%	142	
No			44.7%	115	
If yes, please provide road names or locations.				127	
				<b><i>answered question</i></b>	<b>257</b>
				<b><i>skipped question</i></b>	<b>18</b>

6. What towns or destinations would you like to have access to improved? (Please check all that apply.)

		Response Percent	Response Count
Charlotte		51.6%	126
<b>Monroe</b>		<b>61.9%</b>	<b>151</b>
Marshville		28.7%	70
Wadesboro		7.4%	18
South Carolina		13.5%	33
Unionville		12.3%	30
Wingate		23.8%	58
New Salem		13.9%	34
Mineral Springs		4.9%	12
Indian Trail		36.1%	88
Mint Hill		11.1%	27
Weddington		13.1%	32
Wesley Chapel		8.6%	21
Stallings		19.3%	47
Waxhax		15.6%	38
Marvin		5.7%	14
		<b>answered question</b>	<b>244</b>
		<b>skipped question</b>	<b>31</b>

**7. Please rank the following major roadways in Union County in the order by which they need to be improved: 1-Most Important to 9-Least Important; please select only one rank for each roadway**

	1	2	3	4	5	6	7	8	9	Response Count
NC 742	1.0% (2)	0.5% (1)	6.7% (13)	6.2% (12)	21.5% (42)	20.0% (39)	<b>28.2%</b> <b>(55)</b>	4.6% (9)	11.3% (22)	195
NC 218	17.0% (38)	18.3% (41)	<b>29.5%</b> <b>(66)</b>	17.4% (39)	4.5% (10)	4.5% (10)	6.7% (15)	1.3% (3)	0.9% (2)	224
NC 205	1.4% (3)	11.0% (23)	18.2% (38)	<b>28.7%</b> <b>(60)</b>	15.8% (33)	12.9% (27)	9.1% (19)	2.4% (5)	0.5% (1)	209
NC 207	2.1% (4)	5.6% (11)	10.3% (20)	13.8% (27)	<b>23.1%</b> <b>(45)</b>	21.0% (41)	15.4% (30)	6.2% (12)	2.6% (5)	195
NC 522	4.1% (8)	3.6% (7)	5.6% (11)	13.8% (27)	14.9% (29)	<b>26.7%</b> <b>(52)</b>	19.5% (38)	7.2% (14)	4.6% (9)	195
US 74	<b>58.8%</b> <b>(151)</b>	19.1% (49)	7.4% (19)	3.5% (9)	0.8% (2)	1.6% (4)	1.6% (4)	1.2% (3)	6.2% (16)	257
US 601	15.1% (36)	<b>38.1%</b> <b>(91)</b>	20.1% (48)	8.8% (21)	5.9% (14)	2.9% (7)	4.2% (10)	3.3% (8)	1.7% (4)	239
	<i>answered question</i>									<b>265</b>
	<i>skipped question</i>									<b>10</b>

**8. Identify any secondary roadways that need improvement**

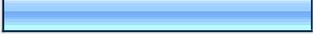
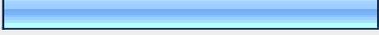
	Response Count
	95
	<i>answered question</i>
	<b>95</b>
	<i>skipped question</i>
	<b>180</b>

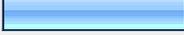
**9. Would you use the following transportation alternatives instead of your own personal vehicle if they were provided? (Please check the appropriate box and write in the locations)**

	Yes	No	Response Count
Sidewalks	<b>64.5% (151)</b>	35.5% (83)	234
Off-road trails or greenways for walking and biking	<b>61.8% (152)</b>	38.2% (94)	246
On-road bicycle facilities such as bike lanes and wide shoulders	30.8% (72)	<b>69.2% (162)</b>	234
Bus service to/from Monroe	33.9% (79)	<b>66.1% (154)</b>	233
Bus service to/from Charlotte	41.8% (97)	<b>58.2% (135)</b>	232
Bus service to/from Wadesboro	13.3% (30)	<b>86.7% (195)</b>	225
Bus service to/from Indian Trail	25.3% (59)	<b>74.7% (174)</b>	233
Bus service to/from Weddington	15.0% (34)	<b>85.0% (193)</b>	227
Rail Service (throughout the County and to near by urban areas)	<b>64.8% (158)</b>	35.2% (86)	244
	If yes to any options, please indicate where?		97
	<b><i>answered question</i></b>		<b>260</b>
	<b><i>skipped question</i></b>		<b>15</b>

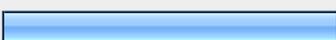
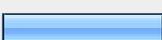
**10. What other transportation issues exist in Union County?**

	Response Count
	106
	<b><i>answered question</i></b>
	<b>106</b>
	<b><i>skipped question</i></b>
	<b>169</b>

11. What is your age?			Response Percent	Response Count
Under 18			0.0%	0
18-24			1.9%	5
25-34			19.7%	52
35-44			33.7%	89
<b>45-64</b>			<b>41.3%</b>	<b>109</b>
65-74			3.4%	9
Over 74			0.0%	0
			<b>answered question</b>	<b>264</b>
			<b>skipped question</b>	<b>11</b>

12. How many people live in your household including yourself?			Response Percent	Response Count
1			5.7%	15
<b>2</b>			<b>32.5%</b>	<b>86</b>
3			20.0%	53
4			29.8%	79
5			8.7%	23
6			2.3%	6
7			0.8%	2
8 or more			0.4%	1
			<b>answered question</b>	<b>265</b>
			<b>skipped question</b>	<b>10</b>

13. In what community of Union County do you live? (Please check only one box (use the above map for reference.))				
			Response Percent	Response Count
Marshville			20.4%	54
<b>Inside the Study Area in Union County</b>			<b>54.7%</b>	<b>145</b>
Outside the Study Area in Union County			24.9%	66
			<i>answered question</i>	<b>265</b>
			<i>skipped question</i>	<b>10</b>

14. Where did you get this survey?				
			Response Percent	Response Count
Newspaper			0.0%	0
Civic Group			0.8%	2
Government Building			15.5%	41
Church			3.0%	8
School			26.8%	71
<b>Website Link</b>			<b>36.6%</b>	<b>97</b>
Other			17.4%	46
			<i>answered question</i>	<b>265</b>
			<i>skipped question</i>	<b>10</b>

15. If you wish to receive updates on the future developments of the Union County Comprehensive Transportation Plan, please list your email address below:		
		Response Count
		91
		<i>answered question</i>
		<b>91</b>
		<i>skipped question</i>
		<b>184</b>

### Goals and Objectives Survey (open-ended response summary)

There were a total of 295 surveys (on-line and manually) received.

#### Safety/Crash Concerns (Question 3, total responses - 261)

50.2% of respondents indicated that there was a concern with crash problems or safety the area. Of those locations identified, the top five are listed below.

Rank	Location
1	US 74 east of Monroe
2	NC 218 and NC 205/NC 218 and NC 200
3	Five Points at Austin Grove Church Road/Ansonville Road
4	Lawyers Road/Love Mill Road/US 601
5	Unionville-Indian Trail Road and Faith Church Road

#### Congestion Concerns (Question 4, total responses - 264)

48.9% of respondents indicated that there was a concern with having to find another route while traveling because the direct route was too congested. Of those locations identified, the top three are listed below.

Rank	Location
1	US 74
2	I-485 to Indian Trail Road/Monroe Road
3	NC 218 (beach traffic and bypass traffic)

#### Truck Traffic Concerns (Question 5, total responses - 257)

55.3% of respondents indicated that there was a concern with truck traffic problems in the area. Of those locations identified, the top three are listed below.

Rank	Location
1	US 74
2	NC 218
3	US 601

#### Secondary Roads Needing Improvement (Question 8, total responses - 95)

Of those locations identified, the top three are listed below.

Rank	Location
1	Lawyers Road
2	Charlotte Avenue/Old Charlotte Hwy
3	Landsford Road

**Using Transportation Alternatives (Question 9, total responses - 260)**

The top three locations are listed below.

<b>Rank</b>	<b>Location</b>
1	Charlotte
2	Monroe
3	Unionville and Marshville

**Other Transportation Issues (Question 10, total responses - 106)**

What other transportation issues exists. The top three are listed below.

<b>Rank</b>	<b>Location</b>
1	Not enough bus service (affordable public transportation) in the county (also for the elderly and special needs persons)
2	Rail service would pay for itself
3	The need for more bicycle and pedestrian walks/lanes

## Appendix I Existing Transportation Plans

The following CTP/Thoroughfare Plans for areas within the County that are not included as a part of this plan are listed below and can be viewed on the web.

- 2004 Mecklenburg-Union Metropolitan Planning Organization Transportation Plan:  
<http://www.mumpo.org/PDFs/ThoroughfarePlan.pdf>

The following CTP for areas within the County that was incorporated as a part of this plan is listed below and may be viewed on the web. Refer to this report for detailed descriptions of recommendations that were not documented as a part of this report.

- 2010 Marshville Comprehensive Transportation Plan:  
<http://www.ncdot.gov/doh/preconstruct/tpb/planning/MarshvilleCTP.html>