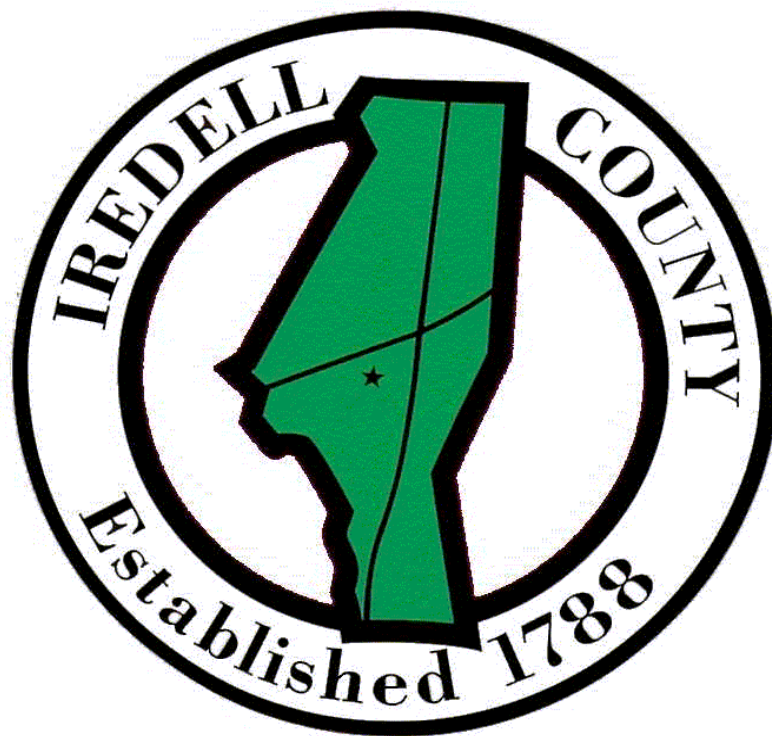


Comprehensive Transportation Plan  
Study Report  
For  
Iredell County

January, 2008





# **Comprehensive Transportation Plan Study Report for Iredell County**

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

**In Cooperation with:** The County of Iredell  
The Federal Highway Administration  
U.S. Department of Transportation

**January, 2008**



## **Acknowledgments**

Persons responsible for this report:

Project Engineer: Linda Dosse, P.E.

Metrolina Planning Group Supervisors: Terry Arellano, P.E.  
Alpesh Patel

Western Planning Unit Head: Alena Cook, P.E.

Transportation Planning Branch Manager: Mike Bruff, P.E.

Special thanks to:

Iredell County Planning Staff



# Table of Contents

## Chapters

I. Introduction .....	I- 1
II. Recommendations .....	II- 1
Highway Map	II- 1
Public Transportation and Rail Map	II-22
Bicycle Map	II-25
III. Population, Land Use, and Existing Transportation System .....	III- 1
Population	III- 1
Land Use	III- 1
Existing Transportation System	III- 7
Bridge Conditions	III- 7
Traffic Crash Analysis	III-11
Bicycle Crash Analysis	III-12
IV. Environmental Screening .....	IV- 1
Wetlands	IV- 1
Threatened and Endangered Species	IV- 1
Historic Sites	IV- 2
Archaeological Sites	IV- 3
Educational Facilities	IV- 3
Demographics	IV- 3
V. Public Involvement and Local Coordination .....	.V- 1

## Appendices

Appendix A: NCDOT Contacts	
Appendix B: Definitions of Comprehensive Transportation Plan Categories	
Appendix C: Comprehensive Transportation Plan Inventory And Recommendation	
Appendix D: Typical Comprehensive Transportation Plan Cross-Sections	
Appendix E: Technical Supplement	
Appendix F: Public Involvement Documentation	
Appendix G: Environmental Status Codes	

## Tables

III-1 Population Growth	III- 1
III-2 Deficient and Obsolete Bridges	III- 11
III-3 Crash Locations Ranked by Number of Crashes	III- 12
IV-1 Threatened & Endangered Species	IV- 2
IV-2 Historic Sites	IV- 2
B-1 Definitions of Comprehensive Transportation Plan Categories	B- 8
E-1 Volume/Capacity Analysis	E-5

## Figures

Comprehensive Transportation Plan	iii
I-1 Geographic Location Map	I- 3
I-2 1993 Iredell County Thoroughfare Plan	I- 5
III-1 Population Growth	III- 3
III-2 Iredell County Future Land Use Plan	III- 5
III-3 Bridge Location Map	III- 9
III-4 Crash Location Map	III- 13
IV-1 Environmental Features Map	IV- 5
E-1 Count Location Map	E- 7



**Adopted by:**

Iredell County  
Date: January 17, 2006

NCDOT  
Date: March 2, 2006

**Endorsed by:**

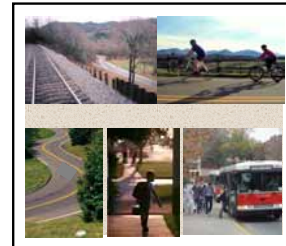
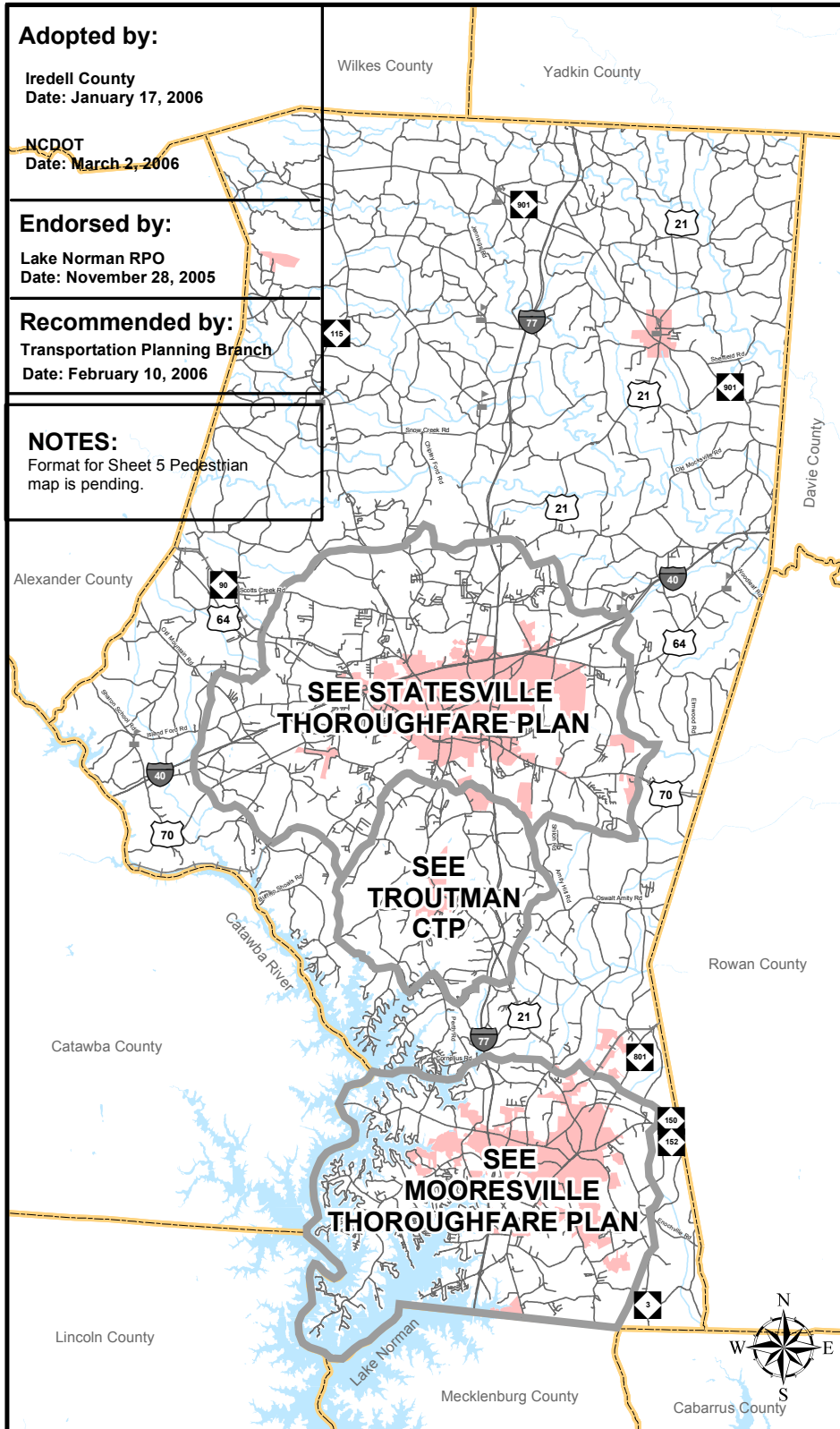
Lake Norman RPO  
Date: November 28, 2005

**Recommended by:**

Transportation Planning Branch  
Date: February 10, 2006

**NOTES:**

Format for Sheet 5 Pedestrian map is pending.



**Iredell County**  
North Carolina

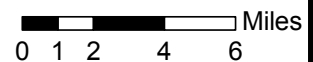
**Comprehensive Transportation Plan**

Plan date: October 10, 2005

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

**Legend**

- City Boundaries
- County Boundaries
- Urban Planning Boundary
- Railroads
- Schools
- Rivers and Streams
- Lakes



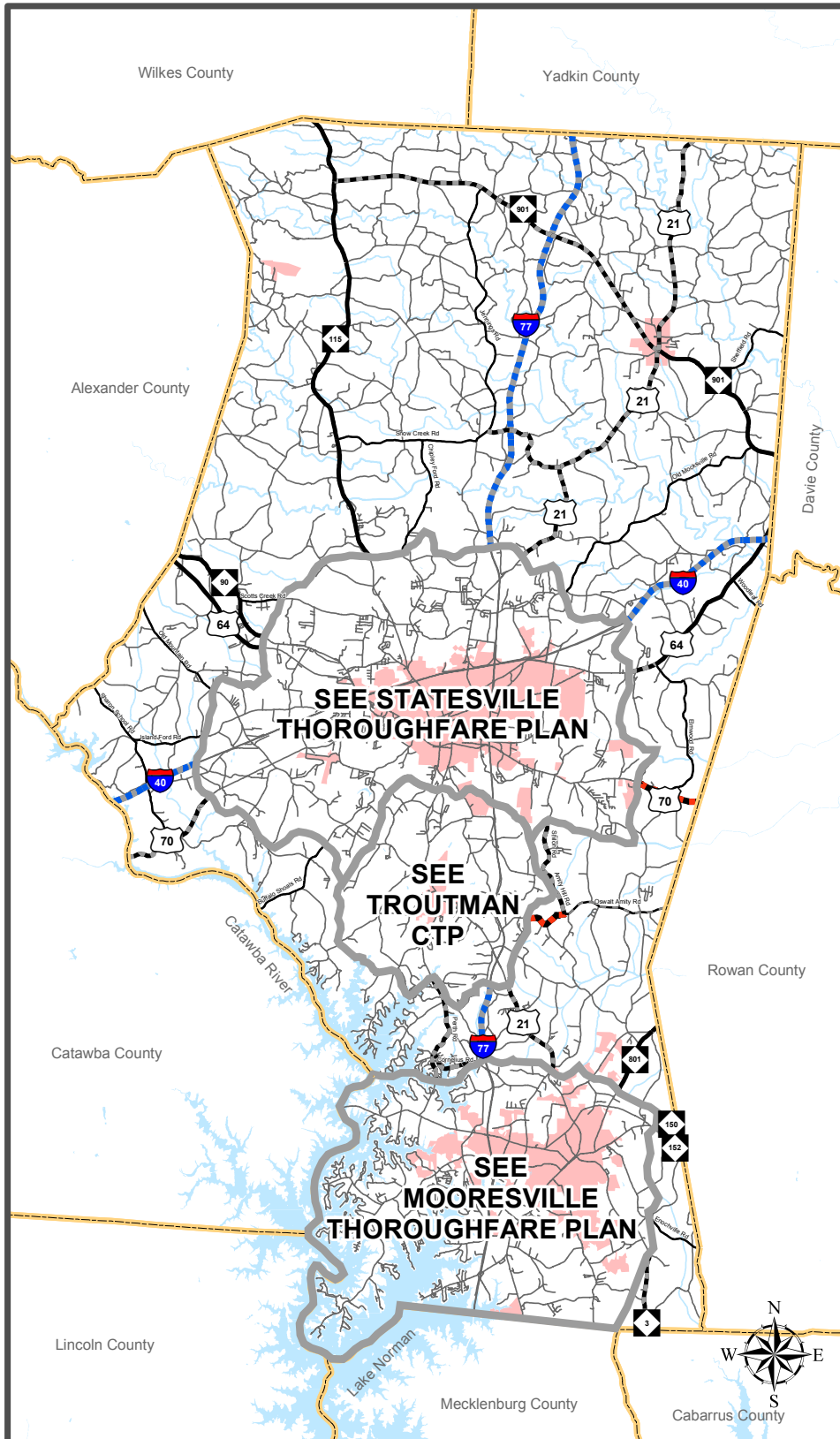
Sheet 1 of 5

Base map date: January 1, 2005

Refer to CTP document for more details







### Highway Map



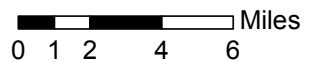
## Iredell County

North Carolina

### Comprehensive Transportation Plan

Plan date: October 10, 2005

- Freeways**
  - Existing
  - Needs Improvement
  - Recommended
- Expressways**
  - Existing
  - Needs Improvement
  - Recommended
- Boulevards**
  - Existing
  - Needs Improvement
  - Recommended
- Other Major Thoroughfares**
  - Existing
  - Needs Improvement
  - Recommended
- Minor Thoroughfares**
  - Existing
  - Needs Improvement
  - Recommended
- Existing Interchange
- Proposed Interchange
- Existing Grade Separation
- Proposed Grade Separation

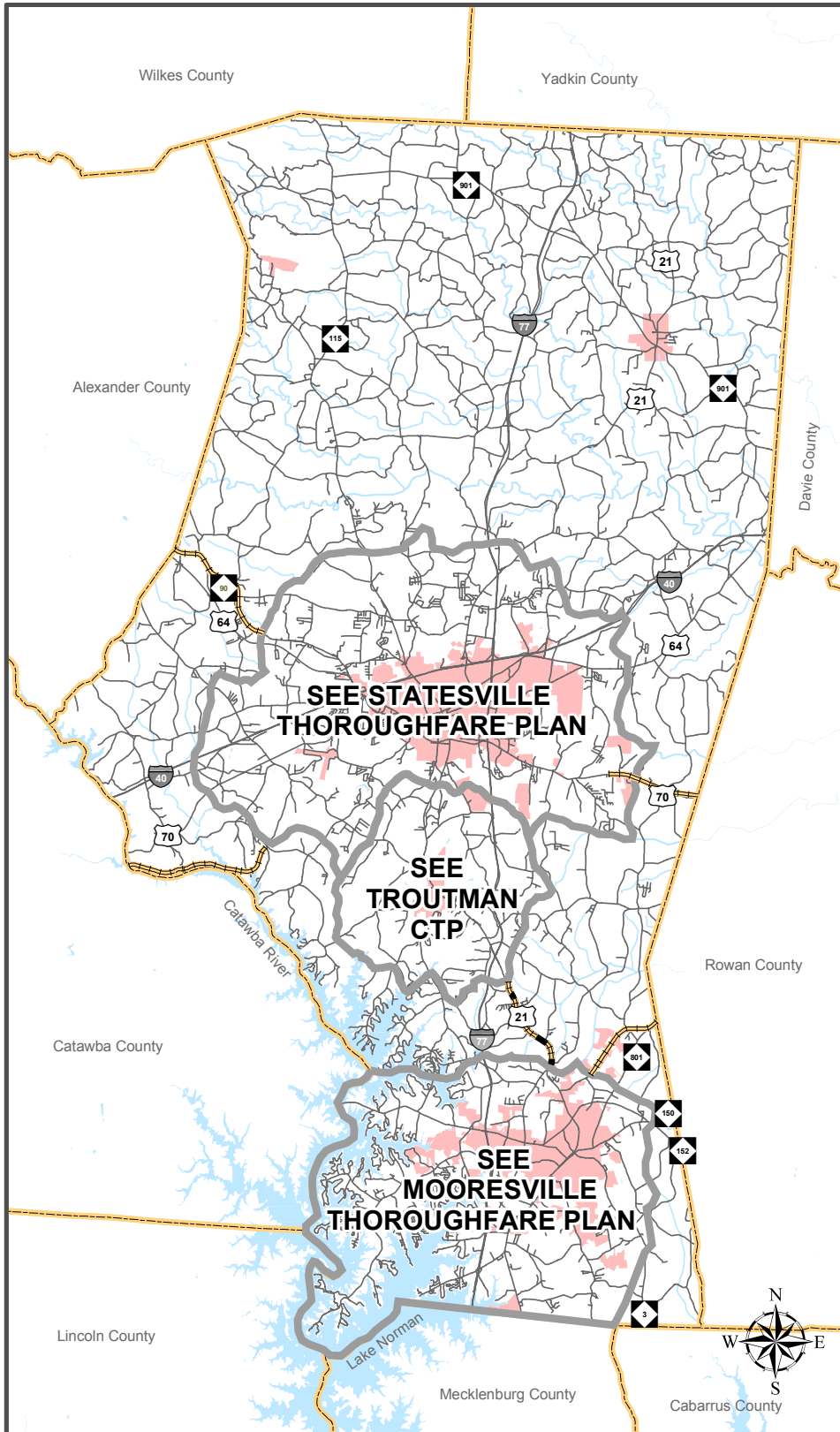


Sheet 2 of 5

Base map date: January 1, 2005

Refer to CTP document for more details





**Public Transportation and Rail Map**



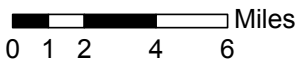
**Iredell County**

North Carolina

**Comprehensive Transportation Plan**

Plan date: October 10, 2005

- 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



Sheet 3 of 5

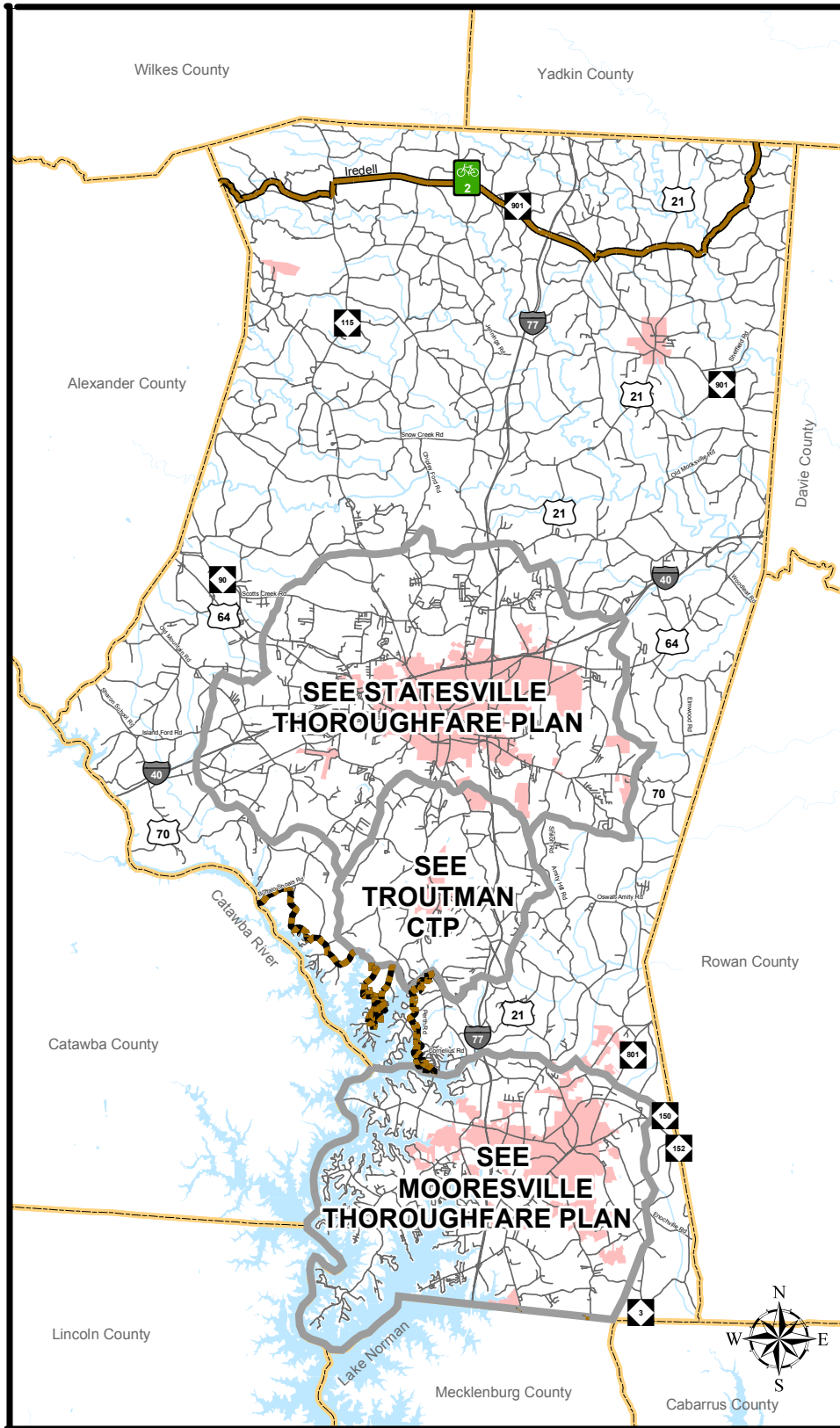
Base map date: January 1, 2005

Refer to CTP document for more details

Figure 1 - Sheet 3







## Bicycle Map



### Iredell County North Carolina

### Comprehensive Transportation Plan

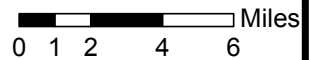
Plan date: October 10, 2005

#### On Road

- Existing
- Needs Improvement
- Recommended

#### Off Road

- Existing
- Needs Improvement
- Recommended



Sheet 4 of 5

Base map date: January 1, 2005

Refer to CTP document for more details





# I. Introduction

The transportation system is a region's lifeline. This system provides a means of transporting people and goods from one place to another quickly, conveniently, and safely, thereby contributing to its economic prosperity and social well being. A well-planned system should meet the existing travel demands and keep pace with the growth of the region. Iredell County recognized the importance of planning for future transportation needs and requested transportation planning assistance from the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) in September, 2000.

Iredell County is located in the Metrolina region of North Carolina. It is bordered on the north by Yadkin County and Wilkes County, on the east by Davie County and Rowan County, on the south by Cabarrus County and Mecklenburg County, and on the west by Lincoln County, Catawba County and Alexander County. The geographical location of the planning area is shown in Figure I-1.

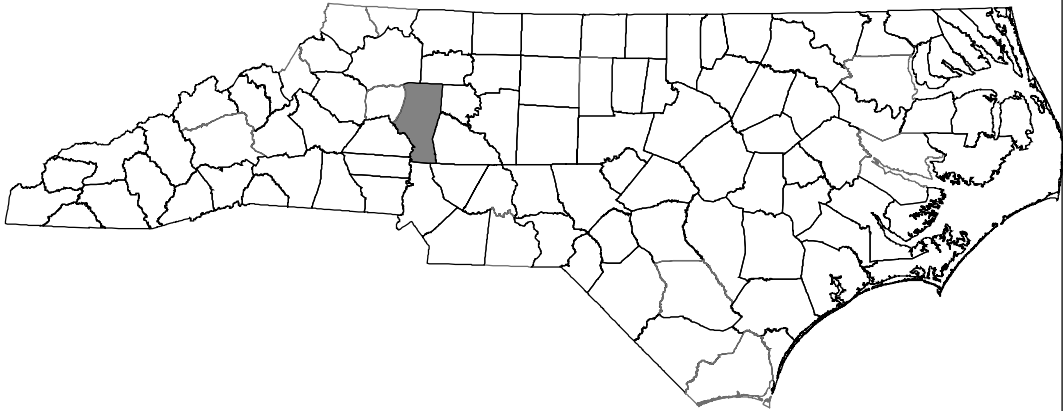
This report documents the development of the 2006 Iredell County Comprehensive Transportation Plan shown in Figure i. It replaces the 1993 Iredell County Thoroughfare Plan shown in Figure I- 2. This report presents recommendations for each mode of transportation. The Comprehensive Transportation Plan (CTP) will serve as an official guide to providing a well-coordinated, efficient, and economical transportation system for the future of the region. This document will be used by local officials to ensure that planned transportation facilities reflect the needs of the public, while minimizing the disruption to local residents, businesses, and the environment.

The initiative for implementing the CTP rests predominately with the policy boards and citizens of the planning area. The responsibility for implementing those recommendations is shared by Iredell County, the Lake Norman Rural Planning Organization, and the North Carolina Department of Transportation. As transportation needs throughout the state exceed available funding, it is imperative that the local planning areas aggressively pursue funding for desired projects.

The proposed CTP is based on the projected growth for the County. These recommended improvements are based on existing conditions and projected traffic volumes and were coordinated with County planners. The typical cross-sections used for the CTP are outlined in Appendix D.

It is possible that actual growth patterns will differ from those anticipated. As a result, it may be necessary to accelerate or delay the development of some recommendations found on the plan. Some portions of the plan may require revisions in order to accommodate unexpected changes in urban development. Therefore, any changes made to one element of the CTP should be consistent with the other elements.





# Iredell County






North Carolina

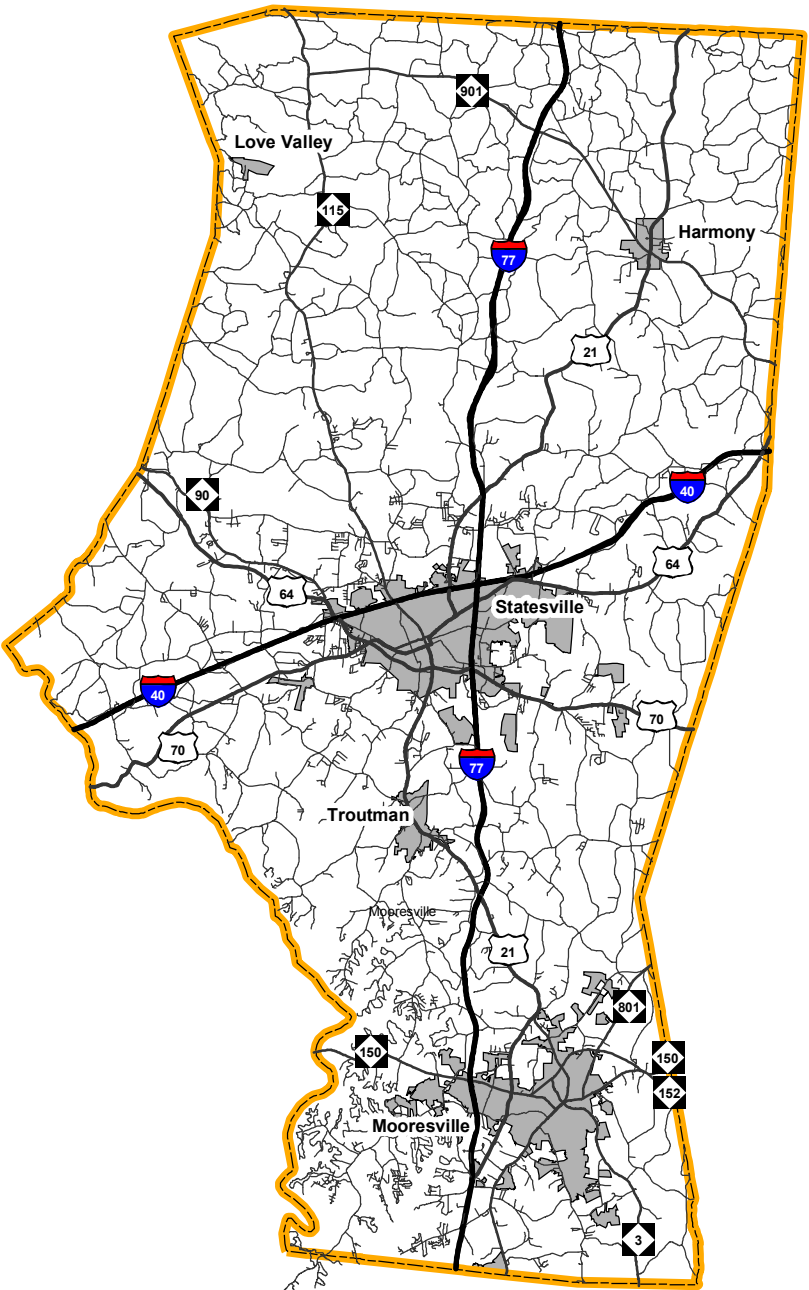
FIGURE I-1

## GEOGRAPHIC LOCATION MAP



### Legend

-  I
-  US
-  NC
-  SR
-  Municipal Boundaries



PREPARED BY THE  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 TRANSPORTATION PLANNING BRANCH

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







## II. Recommendations

The Iredell County Comprehensive Transportation Plan (CTP) represents a system of modal transportation elements. They are highways, public transit, rail, and bicycle elements. The primary objective of the CTP is to suggest ways to reduce traffic congestion and improve safety in an area by reducing existing and expected deficiencies in the transportation system.

The process for determining and then evaluating recommendations includes the assessment of such factors as the goals and objectives of the public, existing roadway characteristics, identified facility and system deficiencies, environmental impacts, and current land use plans.

Each mode of transportation in the CTP is represented on a different map. The following problem statements document the purpose and need for each recommended improvement on the CTP.

### Highway Map

The recommended plan for the highway element of the CTP is shown on **Sheet 2 of Figure i**. The highway facilities fall into five categories: freeways, expressways, boulevards, other major thoroughfares, and minor thoroughfares. See **Appendix B** for a more detailed description of each category and see **Appendix C** for an inventory of the facilities and the recommended improvements.

Recommendations for the CTP are based on the *practical capacity* of the roadway, which is the number of vehicles on a roadway section correlating to high-density traffic bordering on unstable flow. When a roadway is operating at its practical capacity, small increases in traffic flow will cause substantial deterioration in service; the freedom to maneuver is limited resulting in driver discomfort; and minor incidents create substantial traffic backups. Refer to Appendix E for additional information on the analysis used as the basis for CTP recommendations.

### Freeway Recommendations

#### I-40

- **Summary of Need**

There is a need to improve I-40 through Iredell County to accommodate projected traffic volumes and to relieve growing congestion along the facility. This recommendation covers the portion of I-40 outside the Statesville planning boundary. The sections are from Catawba County to the western boundary and from the eastern boundary to Davie County.

- **Summary of Purpose**

Improving existing I-40 should allow the facility to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- I-40 presently has a four-lane divided, rural cross section. The speed limit through the County is 65 mph from Catawba County to US 64. It is 55 mph from US 64 to Old Mocksville Rd. It is 70 mph from Old Mocksville Rd to Davie County.

- **Existing Conditions**

- The 2003 average daily traffic west of Statesville is 40,000 vpd and the practical capacity is 67,200 vpd. The current volume-to-capacity ratio is 0.60, which means that this section of I-77 is currently operating at a satisfactory level. The volume east of the Statesville planning area is 30,100 vpd and the practical capacity is 67,100 vpd. The current volume-to-capacity ratio is 0.45, which means that this section of I-77 is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volumes will increase to 86,900 vpd west of Statesville and to 66,900 vpd east of Statesville, exceeding the present practical capacity in several locations.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported 18 crashes around the interchange with US 64 at the Davie County line. The majority of the crashes were with a fixed object or rear end.

- **System Linkages**

- **Existing Roadway Network**

- I-40 runs west to east from Barstow, California to Wilmington, North Carolina. In North Carolina, it connects the Asheville, Hickory, Winston-Salem, Greensboro, Burlington, Durham, Raleigh, and Wilmington metropolitan areas. It intersects with I-26, I-77, I-85, and I-95.

- **Transportation Plans**

- I-40 is classified as a freeway on the Iredell County CTP and as a freeway on the federal functional classification system. I-40 is part of the national Interstate Highway System. It is also part of Corridor 6 on the North Carolina Strategic Highway Corridor system. It is part of the North Carolina Intrastate System. It is also part of the 1993 Statesville Thoroughfare Plan.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The existing minority population along the western stretch of I-40 is below the county average and along the eastern stretch it is twice the county average. The median household income on the western side is below the county median and on the eastern side it is above the county average.

- **Economic**



I-40 is a freeway and accessible only at interchanges. There is very little commercial development around the interchanges outside the Statesville planning boundary.

**Environmental**

On the northeastern section of the corridor, I-40 crosses the Yadkin River and Fifth Creek. There are wetlands at both those locations listed on the National Wetlands Inventory. They would be affected by any widening to the bridge crossings. The southwestern section of the I-40 corridor passes through the Catawba River water supply watershed. It also crosses two creeks containing wetlands. I-40 also crosses the Catawba River. Any environmental effects should be reviewed and examined during the project planning stage.

- **Cost Estimate**

A preliminary estimate for the cost of widening both sections of the I-40 corridor to a six-lane divided freeway is \$3,600,000 and to widen the bridge over the Catawba River alone would be \$669,000,000.

**I-77**

- **Summary of Need**

There is a need to improve the section of I-77 between the Mooresville planning area and the Troutman planning area to accommodate projected traffic volumes and to relieve growing congestion along this facility.

- **Summary of Purpose**

Improving this section of existing I-77 should allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

**Existing Characteristics**

This section of I-77 currently has a four-lane divided, rural cross section. The speed limit between the Mooresville planning area and the Troutman planning area is 65 miles per hour (mph).

**Existing Conditions**

The 2003 average daily traffic between the Mooresville planning area and the Troutman planning area is 53,500 vehicles per day (vpd) and has a practical capacity of 67,200 vpd. The current volume-to-capacity ratio is 0.80, which means that this section of I-77 is currently operating at a satisfactory level.

**Projected Conditions**

In 2030, the anticipated volumes between the Mooresville planning area and the Troutman planning area will increase to 104,200 vpd, which exceeds the current practical capacity.

**Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes along this section of I-77.

- **System Linkages**

**Existing Roadway Network**

I-77 runs south to north from Columbia, South Carolina to Cleveland, Ohio. In North Carolina, it connects the Charlotte and Statesville metropolitan areas. It intersects with I-85, I-277, I-40, and US-421.

### **Transportation Plans**

I-77 is designated as a freeway on the Iredell County CTP. I-77 is part of the national Interstate Highway System. It is also part of Corridor 21 on the North Carolina Strategic Highway Corridor system. It is part of the North Carolina Intrastate System. It was also part of the 1993 Statesville Thoroughfare Plan.

- **Demographic, Economic, and Environmental Conditions**

#### **Demographic**

The existing minority population along this stretch of I-77 is below the county average and the median household income is above the county median.

#### **Economic**

This corridor is an interstate highway and accessible only at interchanges. At the interchange with Cornelius Road (SR 1302), the property is rural in nature on all four quadrants. There is a truck stop on the southeast side of the interchange with US 21. There is also a rest area located between the two interchanges. When the interchanges are widened, the ramps will have an impact on all of those areas.

#### **Environmental**

Part of this section of I-77 crosses Cornelius Creek, which is an arm of Lake Norman. It is part of the water supply watershed from Lake Norman. The CTP recommendation to widening this section of I-77 will have an effect on the natural environment in the area. An interchange modification could impact these areas.

- **Cost Estimates**

A preliminary cost estimate for the expansion of this section of I-77 from the existing four-lane divided freeway to an eight-lane divided freeway is \$432,000,000. This includes the widening of the bridge over Cornelius Creek.

### **I-77**

- **Summary of Need**

There is a need to improve the section of I-77 between the Statesville planning area and Yadkin County to accommodate projected traffic volumes and to relieve growing congestion along this facility.

- **Summary of Purpose**

Improving this section of existing I-77 should allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

#### **Existing Characteristics**

This section of I-77 has a four-lane divided, rural cross section. The speed limit is 70 mph from the Statesville planning area to Yadkin County.

**Existing Conditions**

The 2003 average daily traffic north of Statesville planning area is between 26,300 and 33,300 vpd and the practical capacity is 56,600 vpd. The current volume-to-capacity ratio is 0.45, which means that this section of I-77 is currently operating at a satisfactory level.

**Projected Conditions**

In 2030, the anticipated volumes between the Statesville planning area and Yadkin County will range between 58,300 vpd and 73,900 vpd which exceeds the current practical capacity.

**Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported eight accidents around the interchange with Tomlin Mill Road and ten crashes around the interchange with NC 901. The majority of the accidents were collisions with a fixed object, left turns across traffic, and rear ends.

- **System Linkages**

**Existing Roadway Network**

I-77 runs south to north from Columbia, South Carolina to Cleveland, Ohio. In North Carolina, it connects the Charlotte and Statesville metropolitan areas. It intersects with I-485, I-277, I-40, and US-421.

**Transportation Plans**

I-77 is part of the national Interstate Highway System. It is part of the North Carolina Intrastate System I-77 from the Statesville planning area to Yadkin County is classified as a freeway on the Iredell County CTP. It is also part of Corridor 21 on the North Carolina Strategic Highway Corridor system. TIP Project I-3819 deals with the widening and reconfiguration of the interchange of I-40 and I-77 in Statesville. It is recommended that this section of I-77 be widened to a six-lane divided cross section. This is consistent with the cross section recommended for I-77 on the 2005 Yadkin County Comprehensive Transportation Plan.

- **Demographic, Economic, and Environmental Conditions**

**Demographic**

The existing minority population along the eastern side of this stretch of I-77 is below the county average but on the western side it is nearly twice the county average. The median household income on the eastern side of I-77 is below the county median, but on the western side it is about or above the county median.

**Economic**

This corridor is an interstate highway and, therefore, access is only at interchanges. There are only two interchanges outside the urban planning boundaries. The interchange with NC 901 is relatively open land. There is a truck stop on the southeast corner of the interchange with Tomlin Mill Road. This business maybe affected by any widening of the ramps at that interchange.

### **Environmental**

This section of I-77 crosses the Yadkin River and Fifth Creek. Each of these has wetlands listed on the National Wetlands Inventory. It also traverses a water supply watershed in the northern part of the County. This section also crosses an area of conservation space managed by The Land Trust for Central North Carolina.

- **Cost Estimate**

It is recommended that I-77 be widened to a six-lane divided freeway section from the Statesville planning area to Yadkin County. A preliminary estimate for the cost of widening this section of the I-77 corridor would be \$412,000,000.

## Expressway Recommendations

There are no Expressways on the Iredell County Plan.

## Boulevard Recommendations

### **US 70**

- **Summary of Need**

There is a need to improve the section of US 70 between the Statesville planning area and Rowan County to accommodate projected traffic volumes and to relieve growing congestion.

- **Summary of Purpose**

Improving this section of existing US 70 should allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

#### **Existing Characteristics**

US 70 between the Statesville planning area and Rowan County has a 24-foot wide, two- and three-lane, rural, shoulder cross section. Currently, there is little access control along the corridor. The speed limit in this section ranges from 45 to 55 mph.

#### **Existing Conditions**

The 2003 average daily traffic east of Statesville is 10,800 vpd and the practical capacity is 13,100 vpd. The current volume-to-capacity ratio is 0.84, which means that this section of US 70 is currently operating at a satisfactory level.

#### **Projected Conditions**

In 2030, the anticipated volume will increase to 25,600 vpd east of Statesville exceeding the present practical capacity in several locations.

#### **Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported 13 crashes around the Elmwood Road intersection.

- **System Linkages**

- **Existing Roadway Network**

- In North Carolina, US 70 runs west to east from the City of Asheville to the Town of Atlantic. It was a major west east artery through the State before the Interstate System was established. US 70 is classified as an other principal arterial on the federal functional classification system.

- **Transportation Plans**

- The eastern section of US 70 from the Statesville planning area to Rowan County is classified as a boulevard on the Iredell County CTP. US 70 is part of Corridor 6 on the North Carolina Strategic Highway Corridor system. The recommended improvement is to widen this section of US 70 to a four-lane, urban section with a median and turn lanes where necessary. This section of US 70 is part of a current TIP project R-2911A and the planning document was completed in 1999. Construction work began in 2004 on the part of the project in Rowan County. Construction in Iredell County should be completed in 2008.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population along this section of US 70 is close to twice the county average. The median household income is below the county average.

- **Economic**

- The land uses along this corridor range from agricultural, residential, commercial, and industrial. The expected growth along the corridor is mostly commercial, industrial and manufacturing.

- **Environmental**

- Several potential historic architectural and archaeological sites were investigated in the planning document. Two nearby properties were possibly eligible for the National Register of Historic places. They are the Wood-Fleming House and Cameron Presbyterian Church. One property is already on the register. It is Farmville Plantation. Over twenty archaeological sites were surveyed.

- **Cost Estimate**

- The recommended improvement for this section of US 70 is widening to a four-lane, raised median, urban cross section with turn lanes. The preliminary estimated cost is \$29.4M.

## **NC 150/NC 152**

- **Summary of Need**

- There is a need to improve NC 150 from the Mooresville planning area to NC 152 east to accommodate projected traffic volumes and to relieve growing congestion.

- **Summary of Purpose**

- Improving NC 150 should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

### **Existing Characteristics**

This section of NC 150 is classified as a rural major collector on the federal functionally classified highway system. This section has several uncontrolled access points and a poorly aligned intersection with NC 152. This section of NC 150 has a 22-foot, two-lane, rural cross section. The speed limit is 55 mph.

### **Existing Conditions**

The 2003 average daily traffic on this section of NC 150 is 12,800 vpd and the practical capacity is 13,100 vpd. The current volume-to-capacity ratio is 0.98, which means that this section of NC 150 is not currently operating at a satisfactory level.

### **Projected Conditions**

In 2030, the anticipated volumes will increase to 28,400 vpd exceeding the present practical capacity in several locations.

- **Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported 32 crashes along this relatively short section of NC 150. This location had the highest number of crashes collected.

- **System Linkages**

#### **Existing Roadway Network**

In North Carolina, NC 150 runs south to north and connects Shelby, Cherryville, Lincolnton, Mooresville, Salisbury, Winston-Salem, Kernersville, and Reidsville. It intersects with US 321, I-77, I-85, I-40, US 29, and US 158.

#### **Transportation Plans**

This section of NC 150 is classified as a boulevard on the Iredell County CTP. The recommended improvement is to widen NC 150 along the 0.13 mile stretch where it is concurrent with NC 152 to a four-lane urban cross section with a raised median and turn lanes and realign the intersection with NC 152.

- **Demographic, Economic, and Environmental Conditions**

#### **Demographic**

In this area of the county the minority population is well below the county average. The median household income is also well below the county average. There is not enough right-of-way along the present facility for the proposed cross section, therefore, the recommended improvements will impact several residential properties along the alignment. But, because this is such a short section of road, there will be little or no impacts on residential neighborhood stability or minority development areas.

#### **Economic**

The present and anticipated land uses along this corridor are mostly residential and commercial. The raised median will prevent intermittent left turns along the length of the section reducing direct access to the residences and businesses.

## **Environmental**

There are no recorded human, floral, or faunal environmental features in the immediate vicinity. This roadway is located in a high quality water zone in the Yadkin River basin.

- **Cost Estimate**

The recommended improvement is to widen NC 150 along the 0.13 mile stretch where it is concurrent with NC 152 to a four-lane urban cross section with a raised median and turn lanes and realign the intersection with NC 152. A preliminary estimate for improving this small section of NC 150 is \$1,700,000.

## **Oswalt Amity Road (SR 1001)**

- **Summary of Need**

There is a need to improve the section of Oswalt Amity Road from the Troutman planning area to Amity Hill Road to accommodate projected traffic volumes and to relieve growing congestion along the facility.

- **Summary of Purpose**

Improving this section of existing Oswalt Amity Road should allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- Oswalt Amity Road between the Troutman planning area and Amity Hill Road is a 22-foot, rural cross section. The speed limit is 55 mph.

- **Existing Conditions**

- The 2003 average daily traffic is 2,500 vpd and the practical capacity is 12,400 vpd. The current volume-to-capacity ratio is 0.20, which means that this section of Oswalt Amity Road is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume will increase to 13,700 vpd, exceeding the present capacity in several locations.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes along the facility during that time period.

- **System Linkages**

- **Existing Roadway Network**

- Oswalt Amity Road runs from US 21 south of Troutman to Salisbury.

- **Transportation Plans**

- This section of Oswalt Amity Road is classified as a boulevard on the Iredell County CTP. Oswalt Amity Road from the Troutman planning area to Amity Hill Road is classified as a minor collector on the federal functional classification system. The recommended improvement is to widen Oswalt Amity Road from the Troutman planning area to Amity Hill

Road to a four-lane, urban cross section with a raised median and median breaks for turns.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population in this area of the county is below the county average and the median household income is about or below the county median. The recommended improvements would impact approximately 30 residences and businesses.

- **Economic**

- The regional shopping mall and any resulting future commercial development around the mall will increase the economic impact along this section of Oswalt Amity Road.

- **Environmental**

- The recommended improvement would not impact any known natural environment.

- **Cost Estimate**

- The recommended improvement is to widen Oswalt Amity Road from the Troutman planning area to Amity Hill Road to a four-lane, urban cross section with a raised median and median breaks for turns. A preliminary estimate for improving this section of Oswalt Amity Road is \$14,000,000.

## Other Major Thoroughfare Recommendations

### US 21

- **Summary of Need**

- There is a need to improve the section of US 21 between the Mooresville planning area and the Troutman planning area to accommodate projected traffic volumes and to relieve growing congestion along the facility.

- **Summary of Purpose**

- Improving this section of US 21 should allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- US 21, between the Mooresville planning area and the Troutman planning area, has a 22-foot, two-lane, rural cross section. The speed limit on this section of the road 45 mph. There are both commercial and residential driveways mainly along the western side of the facility.

- **Existing Conditions**

- The 2003 average daily traffic is 12,000 vpd and the practical capacity is 13,800 vpd. The current volume-to-capacity ratio is 0.87, which means that this section of US 21 is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume will increase to 26,400 vpd in several locations, exceeding the present practical capacity in those locations.



### **Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported 29 crashes along this stretch of road.

- **System Linkages**

#### **Existing Roadway Network**

In North Carolina, US 21 runs south to north paralleling I-77 through Charlotte, Huntersville, Cornelius, Davidson, Mooresville, Troutman, Statesville, Elkin, and Sparta. It intersects with I-77, I-485, I-277, I-85, NC 115, NC 73, NC 150, US 70, I-40, US 421, The Blue Ridge Parkway, and US 221.

#### **Transportation Plans**

US 21, between the Mooresville planning area and the Troutman planning area, is classified as an other major thoroughfare on the Iredell County CTP. It is designated as a rural major collector on the federal functional classification system. The recommendation is to widen this section of US 21 to a four-lane, urban section with turn lanes where necessary.

- **Demographic, Economic, and Environmental Conditions**

#### **Demographic**

The minority population of this area is below the county average. The median household income is about or above the county median. There is not enough right of way along the facility at present, but the majority of the land along the eastern side of this section of US 21 is mostly open farm land and widening can take place on that side. This would cause the least amount of impact on residences and businesses along the facility.

#### **Economic**

The majority of the traffic along this stretch of US 21 is commuter or through traffic. The expected development in the area should not change that.

#### **Environmental**

This section of US 21 is essentially an eastern boundary for the Catawba River water supply watershed in Iredell County.

- **Cost Estimate**

The recommendation is to widen this section of US 21 to a four-lane, urban section with turn lanes where necessary. A preliminary estimate for improving this section of US 21 is \$41,000,000.

## **US 64**

- **Summary of Need**

Iredell County requested improvement to the section of US 64 from the Statesville planning area to Barry Oak Road to increase the safety of traffic along that section of highway.

- **Summary of Purpose**

Improving this section of existing US 64 should allow the roadway to accommodate the emergency vehicles from the two fire stations along US 64 east of Statesville.

- **Roadway Conditions**

- **Existing Characteristics**

- This section of US 64 has a two-lane, 24-foot rural cross section. The speed limit is 55 mph. There are several driveways along the facility.

- **Existing Conditions**

- The 2003 average daily traffic on this section of US 64 is 2,500 vpd and the practical capacity is 13,800 vpd. The current volume-to-capacity ratio is 0.18, which means that this section of US 64 is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume will increase to 6,700. This means that the through volumes and volume-to-capacity ratio will still be at a satisfactory level.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes reported along this section of the facility.

- **System Linkages**

- **Existing Roadway Network**

- In North Carolina, US 64 runs west to east and connects Murphy, Brevard, Hendersonville, Rutherfordton, Morganton, Lenoir, Statesville, Mocksville, Lexington, Asheboro, Siler City, Pittsboro, Apex, Raleigh, Rocky Mount, Tarboro, Williamston, Plymouth, and Manteo. It intersects US 158, I-95, I-40, US 1, US 421, US 220, I-85, US 29, US 52, I-40, US 321, US 74, and I-26.

- **Transportation Plans**

- This section of US 64 is classified as an other major thoroughfare on the Iredell County CTP. US 64 from the Statesville planning area to Barry Oak Road (SR 2305) is classified as a major collector federal functional classification system.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population in this area of the county is below the county average and the median household income is about the county median. The section of US 64 in question, though, is less than a mile and would only have proximity impacts on the properties along US 64.

- **Economic**

- In the base year, the development along this stretch is mostly suburban in nature. The recommended cross section was requested by the County and it will take a lot of diligence on the part of the local jurisdictions to encourage access management of the present and future development on the abutting properties.

- **Environmental**

- The recommended improvement would not impact any known natural environment.

- **Cost Estimate**

The recommended improvement is to widen this section of US 64 to a four-lane, urban cross section with left turn lanes only where necessary. A preliminary estimate for improving this section of US 64 is \$9,100,00.

**Amity Hill Road (SR 2342)**

- **Summary of Need**

There is a need to improve the section of Amity Hill Road between the Troutman planning area to Oswalt Amity Road to accommodate projected traffic volumes and to relieve growing congestion.

- **Summary of Purpose**

Improving existing Amity Hill Road should allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- Amity Hill Road has an 18-foot, two-lane rural cross section. The speed limit is 45 mph along this stretch of the road.

- **Existing Conditions**

- The 2003 average daily traffic is 1,800 vpd and the practical capacity is 11,000 vpd. The current volume-to-capacity ratio is 0.16, which means that this section of Amity Hill Road is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volumes will increase to 34,000 vpd west of Shiloh Road (SR 2318) and to 27,000 vpd east of Shiloh Road, exceeding the present practical capacity in several locations. This is due to the growth in the area around the future shopping mall.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes reported along the facility during that time.

- **System Linkages**

- **Existing Roadway Network**

- Amity Hill Road runs from US 21 in Statesville to Oswalt Amity Road east of Troutman. It has an interchange with I-77.

- **Transportation Plans**

- This section of Amity Hill Road is classified as an other major thoroughfare on the Iredell County CTP. Amity Hill Road between the Troutman planning area and Oswalt Amity Road was not on the 1993 Iredell County Thoroughfare Plan. The recommended improvement is to widen Amity Hill Road to a four-lane cross section with turn lanes where necessary.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population in this area is below the county average and the median household income is below the county median. The increase in right-of-way would impact at least ten residences and businesses.

### **Economic**

The regional shopping mall and any resulting future commercial development around the mall will increase the economic impact along this section of Amity Hill Road.

### **Environmental**

The recommended improvement would not impact any known natural environment.

- **Cost Estimate**

The recommended improvement is to widen Amity Hill Road to a four-lane cross section with turn lanes where necessary. A preliminary estimate for improving this section of Amity Hill Road is \$22,000,000.

### **Cornelius Road (SR 1302)**

- **Summary of Need**

There is a need to improve Cornelius Road between Perth Road and Cornelius Creek to accommodate projected traffic volumes and to relieve growing congestion along the facility.

- **Summary of Purpose**

Improving existing Cornelius Road should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- Cornelius Road presently has a 20-foot, two-lane rural cross section. The current speed limit is 45 mph.

- **Existing Conditions**

- The 2003 average daily traffic is 3,500 vpd and the practical capacity is 12,400 vpd. The current volume-to-capacity ratio is 0.28, which means that this section of Cornelius Road is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume will increase to 11,200 vpd and will approach the existing practical capacity.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes on this section of road during that time period.

- **System Linkages**

- **Existing Roadway Network**

- Cornelius Road connects Perth Road with US 21 on the west side of I-77.

- **Transportation Plans**

- Cornelius Road is classified as an other major thoroughfare on the Iredell County CTP. Cornelius Road is designated as a rural minor collector on the federal functional classification system. There is a recommendation on the existing Mooresville thoroughfare plan to connect Cornelius Road to Mazeppa Road on the eastern side of I-77.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population in this area is below the county average and the median household income is above the county median. The improvements may impact at least 25 residences and businesses along the facility itself.

- **Economic**

- The potential for an increase in commercial development is very low because it is located in the water supply watershed.

- **Environmental**

- The recommended improvement would impact the frontage of the Cornelius House, a National Register property. Cornelius Road also crosses three tributaries of Cornelius Creek. Based on a preliminary estimate the proposed CTP widening would impact approximately five acres of wetlands.

- **Cost Estimate**

- The recommended improvement is to widen Cornelius Road to a four-lane, urban cross section with left turn lanes where necessary. A preliminary estimate for improving this section of Cornelius Road is \$21,000,000

### **Fairmount Road (SR 1919)**

- **Summary of Need**

- There is a need to improve Fairmount Road between Tomlin Mill Road and US 21 to accommodate projected traffic volumes and to relieve growing congestion.

- **Summary of Purpose**

- Improving existing Fairmount Road will enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- Fairmount Road presently has an 18-foot, two-lane rural cross section. The current speed limit is 55 mph.

- **Existing Conditions**

- The 2003 average daily traffic is less than 1000 vpd and the practical capacity is 11,400 vpd. The current volume-to-capacity ratio is 0.09, which means that this section of Fairmount Road is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume will increase to 11,000 vpd due to an increase in development in the area and will approach the existing practical capacity.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported 5 crashes on this section of road during that time period.

- **System Linkages**

- **Existing Roadway Network**

- Fairmount Road connects Tomlin Mill Road with US 21. Tomlin Mill Road also allows access between NC 115, US 21, and I-77.

- **Transportation Plans**

- Fairmount Road is classified as an other major thoroughfare on the Iredell County CTP. Fairmount Road is designated as a rural minor collector on the federal functional classification system. The recommended improvement is to widen Fairmount Road to a four-lane, urban cross section with left turn lanes where necessary.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population in this area is below the county average and the median household income is below the county median. The recommended improvements may impact 11 residences and businesses.

- **Economic**

- Fairmount Road borders the western side of the Lowes Distribution Center property. The residential development in the area is projected to increase at least eight percent over the next thirty years.

- **Environmental**

- A pipe or transmission line crosses the north end of Fairmount Road. The Allison Woods Historic National Register site is located in the southeastern quadrant of the intersection of US 21 and Fairmount Road.

- **Cost Estimate**

- The recommended improvement is to widen Fairmount Road to a four-lane, urban cross section with left turn lanes where necessary. A preliminary estimate for improving this section of Fairmount Road is \$12,000,000.

### **Perth Road (SR 1303)**

- **Summary of Need**

- There is a need to improve Perth Road from the Troutman planning area to the Mooresville planning area to accommodate growing traffic volumes and alleviate growing congestion along the facility.

- **Summary of Purpose**

- Improving existing Perth Road should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- Perth Road between Troutman and Mooresville is a full 24-foot, rural cross-section. The speed limit is 55 mph.

- **Existing Conditions**

- The 2003 average daily traffic averages 5,000 vpd for the length of the facility and the practical capacity is 13,800 vpd. The current volume-to-capacity ratio is 0.36, which means that this section of Perth Road is currently operating at a satisfactory level.

### **Projected Conditions**

In 2030, the anticipated volume will average 17,500 vpd, exceeding the present practical capacity in several locations.

### **Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported nine crashes along the facility during that time period.

- **System Linkages**

#### **Existing Roadway Network**

Perth Road runs from the Troutman town limits to NC 150 in Mooresville and is a feeder facility between development southwest of Troutman and into Mooresville.

#### **Transportation Plans**

This section of Perth Road is classified as an other major thoroughfare on the Iredell County CTP. Perth Road from the Troutman planning area to the Mooresville planning area is classified as a minor collector on the federal functional classification system. The recommended improvement is to widen Perth Road from the Troutman planning area to the Mooresville planning area to a four-lane, urban cross section with left turn lanes where necessary.

#### **Modal Relationships**

This section of Perth Road is recommended for inclusion on the Lake Norman Bike Trail.

- **Demographic, Economic, and Environmental Conditions**

#### **Demographic**

The minority population in this area is well below the county average and the median household income is above the county median. Based on preliminary estimates the widening of this section of Perth Road will impact at least 30 residences and businesses.

#### **Economic**

The majority of land uses along this section of Perth Road are residential. Widening of the facility will not have any direct impact on the economic aspect around the facility. Widening the road, though, will make it easier to get to the commercial areas in Troutman and Mooresville.

#### **Environmental**

Perth Road is within the water supply watershed. There is also a surface water intake location just across the Cornelius Creek bridge in Mooresville.

- **Cost Estimate**

The recommended improvement is to widen Perth Road from the Troutman planning area to the Mooresville planning area to a four-lane, urban cross section with left turn lanes where necessary. A preliminary estimate for improving this section of Perth Road is \$47,000,000.

## **Shiloh Road (SR 2318)**

- **Summary of Need**

There is a need to improve the section of Shiloh Road between Amity Hill Road and the Statesville planning boundary to accommodate projected traffic volumes and to relieve anticipated congestion along the facility.

- **Summary of Purpose**

Improving existing Shiloh Road will enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

- Shiloh Road has an 18-foot, two-lane rural cross section. The current speed limit is 55 mph.

- **Existing Conditions**

- The 2003 average daily traffic is 2,000 vpd and the practical capacity is 11,000 vpd. The current volume-to-capacity ratio is 0.18, which means that this section of Shiloh Road is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume will increase to 11,300 vpd, exceeding the present practical capacity in several locations.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes on this section of road during that time period.

- **System Linkages**

- **Existing Roadway Network**

- Shiloh Road connects Amity Hill Road with US 70 on the east side of Troutman.

- **Transportation Plans**

- This section of Shiloh Road is classified as an other major thoroughfare on the Iredell County CTP. Shiloh Road from Amity Hill Road to US 70 is classified as a minor collector on the federal functional classification system. The recommended improvement is to widen Shiloh Road to a four-lane, urban cross section with left turn lanes where necessary.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population in this area is below the county average and the median household income is below the county median. The recommended improvements may impact at least 25 residences and businesses along the facility itself.

- **Economic**

- The regional shopping mall and any resulting future commercial development around the mall will increase the economic impact along this section of Shiloh Road.



### **Environmental**

The recommended improvement would not impact any known natural environment.

- **Cost Estimate**

The recommended improvement is to widen Shiloh Road to a four-lane, urban cross section with left turn lanes where necessary. A preliminary estimate for improving this section of Shiloh Road is \$41,000,000.

### **Tomlin Mill Road (SR 1890)**

- **Summary of Need**

There is a need to improve Tomlin Mill Road between Jennings Road and Fairmount Road to accommodate projected traffic volumes and relieve growing congestion.

- **Summary of Purpose**

Improving existing Tomlin Mill Road will allow the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

- **Existing Characteristics**

Tomlin Mill Road presently has an 18-foot, two-lane rural cross section on the west side of I-77 and a full 24-foot, two-lane cross section on the east side of I-77. The current speed limit is 55 mph.

- **Existing Conditions**

The 2003 average daily traffic east of I-77 is 1,000 vpd and 2,400 vpd west of I-77. The practical capacity is 11,000 vpd. The current volume-to-capacity ratios are 0.09 and 0.22, respectively, which means that this section of Tomlin Mill Road is currently operating at a satisfactory level.

- **Projected Conditions**

In 2030, the anticipated volumes will increase to 6,000 vpd east and 6,900 vpd west of I-77. This is sixty percent of the existing practical capacity.

- **Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2004 reported eight crashes at the interchange during that time period.

- **System Linkages**

- **Existing Roadway Network**

Tomlin Mill Road links Jennings Road and Fairmount Road to I-77. Tomlin Mill Rd also links NC 115 and US 21 to I-77.

- **Transportation Plans**

This section of Tomlin Mill Road is classified as an other major thoroughfare on the Iredell County CTP. Tomlin Mill Road from Jennings Road to Fairmount Road is classified as rural minor collector on the federal functional classification system. The recommended improvement is to widen Tomlin Mill Road to a four-lane, urban cross section with left turn lanes where necessary.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population is at or below the county average in this area. The median household income on the western side of I-77 is above the county median and the median household income on the east side is below the county median. The improvements may impact at least five residences and businesses on the east side of the interstate, including a truck stop. Based on preliminary estimates, on the western side of the interstate the improvements would impact only two residences or businesses.

- **Economic**

- With the addition of the Lowes Distribution Center and anticipated businesses around the interchange, access management must be strongly advised.

- **Environmental**

- The recommended improvement would not impact any known natural environment.

- **Cost Estimate**

- The recommended improvement is to widen Tomlin Mill Road to a four-lane, urban cross section with left turn lanes where necessary. A preliminary estimate for improving this section of Tomlin Mill Road is \$4,800,000.

The following facilities are recommended for widening to improve safety and capacity. Each section of roadway currently has lane widths less than 12 feet and is recommended for widening to two full 12-foot lanes. Prior to any roadway improvements, the NCDOT Bicycle and Pedestrian Division should also be consulted on the most appropriate cross section.

**US 21** from the Statesville planning area to Yadkin County. A preliminary estimate for improving this section is \$59,000,000.

**US 70** from Catawba County to the Statesville planning area including the Catawba River bridge. A preliminary estimate for improving this section is \$85,000,000.

**NC 3** from NC 150 to Cabarrus County. A preliminary estimate for improving this section is \$10,000,000.

**NC 150** from NC 152 to Rowan County. A preliminary estimate for improving this section is \$4,500,000.

**NC 152** from NC 150 to Rowan County. A preliminary estimate for improving this section is \$5,000,000.

**NC 901** from NC 115 to US 21. A preliminary estimate for improving this section is \$57,000,000.

## Minor Thoroughfares

The following facilities are recommended for widening to improve safety and capacity. Each section of roadway currently has lane widths less than 12 feet and is recommended for widening to two full 12-foot lanes. Prior to any roadway improvements, the NCDOT Bicycle and Pedestrian Division should also be consulted on the most appropriate cross section.

**Oswalt Amity Road (SR 1001)** from Amity Hill Road (SR 2342) to Rowan County. A preliminary estimate for improving this section is \$14,000,000.

## Public Transportation and Rail Map

The recommended plan for the public transportation and rail element is shown on **Sheet 3 of Figure i. Appendix C** contains an inventory of the facilities and the recommended improvements.

### Public Transportation

The Iredell County Area Transportation System (ICATS) offers several public transportation service alternatives within the county. ICATS provides transportation service to human service agencies and the general public. Many passengers are low-income, disabled workers and the elderly.

The service uses subscription routes, demand response routing and deviated fixed loop routes within various zones around the County. The loops have designated stops, but can deviate to accommodate the needs of their passengers. Any recommendations for these transit facilities that fall inside the urban areas will be determined during the Statesville and Mooresville CTP updates.

The fleet of 25 vehicles operates on extended hours Monday through Friday. Limited service is offered on Saturday. One of the goals for ICATS is to offer extended service Monday through Saturday.

ICATS has several other goals for the future. ICATS will continue marketing to the general public to increase the size and range of the system and reduce passenger cancellation rates. ICATS will seek to incorporate more advanced technology to enhance the productivity and overall performance of the system. ICATS management would like to participate in more regional communication opportunities and provide for improved training for its employees. More information about the service can be found at the ICATS web site:

<http://www.co.iredell.nc.us/Departments/Transportation/transportation.asp>

## **Rail**

There are several existing active and inactive rail lines in Iredell County. They are the Norfolk Southern (NS) L-line, NS O-line, NS S-line and the Alexander Railroad Company (ARC) line. These are shown in Figure II-1.

The L-line runs east to west from Rowan County into Mooresville. It parallels NC 801 carrying two trains per day.

The O-line runs south to north from Mecklenburg County into Mooresville and parallels US 21 and NC 115. A section of the O-line between Mooresville and Troutman has been abandoned. The O-line continues from Troutman into Statesville. The active section of this line carries two trains per day.

The S-line runs east to west from Rowan County, through Statesville, to Catawba County. It parallels US 70 through Iredell County, carrying twenty trains per day.

The Alexander Railroad Company (ARC) line runs east to west from Statesville to Taylorsville in Alexander County. It carries two trains per day and 3000 cars annually.

The NS S-line provides an east to west corridor between Statesville to Asheville. This would allow passenger service to the mountains in the future. The Charlotte Area Transit System (CATS) has long range plans to extend light rail service to southern Iredell County. It is recommended that service be extended to Statesville.

Information about events, funding, maps, policies, projects, and processes that involve the rail system in North Carolina is available from the NCDOT Rail Division.

## Bicycle Map

The NCDOT envisions that all citizens of North Carolina and its visitors should be able to walk and bicycle safely and conveniently to their chosen destinations with reasonable access to roadways. Information on events, funding, maps, policies, projects, and processes dealing with these modes of transportation are available by contacting the NCDOT Bicycle and Pedestrian Division.

The recommended plan for the bicycle element is shown on **Sheet 4 of Figure i**. This map classifies the bicycle routes into two categories depending on the type of service the route provides. These classifications – on-road and off-road – are described in detail in **Appendix B**. See **Appendix C** for an inventory of the bicycle facilities and the recommended improvements.

There are two bicycle routes on the Bicycle CTP map. NC Bicycle Route 2 exists today and the Lake Norman Bicycle Route is proposed. Additional information on these routes can be obtained from the NCDOT Bicycle and Pedestrian Division.

### **NC Bicycle Route 2**

- **Summary of Need**

There is a need to improve NC 901 within the planning area to provide a safer bicycle facility.

- **Summary of Purpose**

Improving existing NC 901 should enable the roadway to accommodate both projected automobile and bicycle volumes, while providing a safer facility for cyclists.

- **Roadway Conditions**

- **Existing Characteristics**

- NC 901 has a two-lane undivided cross section. The actual pavement width is 20 feet wide. The right of way is 100 feet. The speed limit is 55 mph.

- **Existing Conditions**

- The 2003 average daily traffic on NC 901 between NC115 and Eagle Mills Road is 6000 vpd. The practical capacity is 12,400 vpd. The current volume-to-capacity ratio is 0.48, which means that this section of NC 901 is currently operating at a satisfactory level.

- **Projected Conditions**

- In 2030, the anticipated volume between NC 115 and Eagles Mill Road is 11,000 vpd. The volume-to-capacity ratio will approach 0.89, which means that this section of NC 901 will be approaching its practical capacity.

- **Safety Analysis**

- An inventory of crash data collected between January, 2001 and December, 2004 reported no crashes on this section of the route during that time period.

- **System Linkages**

NC 901 is classified as an other major thoroughfare on the Iredell County. Part of NC Bicycle Route 2 follows NC 901 in Iredell County. NC Bicycle Route 2 is one section of the 700-mile “Mountains to the Sea” route through North Carolina. It begins in Murphy. It travels through the Nantahala National Forest, Cullowhee, the Blue Ridge Parkway, through Asheville, Pisgah National Forest, Little Switzerland, Linville Falls, and Lenoir. It enters Iredell County near Love Valley and leaves Iredell County north of Houstonville. It travels south of Winston-Salem, north of High Point. It travels south of Chapel Hill to Jordan Lake, north of Umstead State Park, across Falls Lake, north of Wake Forest, north of Wilson, through Greenville, through Washington, through Bath, through Belhaven, across the Intercoastal Waterway, through Swan Quarter, across the Croatan Sound to Manteo.

- **Demographic, Economic, and Environmental Conditions**

- **Demographic**

- The minority population along this stretch of NC 901 is below the county average and the median household income level along this stretch of NC 901 is at or below the county median.

- **Economic**

- Improving the cross section of NC 901 will encourage more cyclists to use this section of Route 2. This will increase potential visitors to the recreational events and attractions in Love Valley and Union Grove.

- **Environmental**

- This section of NC 901 is the southern boundary of the Yadkin River water supply watershed.

- **Cost Estimates**

- The recommended improvement is to widen NC 901 to full 24-foot two-lane asphalt pavement. A preliminary cost estimate for the expansion of this 10-mile section of NC 901 from NC 115 to Eagle Mills Road is \$57,000,000.

### **Lake Norman Bicycle Route**

- **Summary of Need**

- There is a need to connect neighborhoods and facilitate non-vehicular travel in the area.

- **Summary of Purpose**

- The purpose is to provide the connections between major attractions in the region to promote bicycling and walking in the area and to promote a healthy lifestyle for the population.

- **Roadway Conditions**

- **Existing Characteristics**

- One section of the on-road portion of the proposed Lake Norman Bicycle Loop in Iredell County is on the Highway Map of the CTP. Buffalo Shoals Road is classified as a minor thoroughfare on the Iredell County CTP. Buffalo Shoals Road between the Catawba River and Laurel Cove Road

has a two-lane undivided cross section. The actual pavement width is 20 feet wide. The right of way is 100 feet. The speed limit is 55 mph. The cross sections on the other facilities range from 18 to 24 feet.

**Existing Conditions**

The 2003 volume of vehicular traffic on that section of Buffalo Shoals Road is 3000 vpd. The practical capacity is 13,800 vpd. The current volume-to-capacity ratio is 0.22, which means that this section of Buffalo Shoals Road is currently operating at a satisfactory level. The volumes on the other sections are too low to warrant measurement.

**Projected Conditions**

In 2030, the anticipated volume on Buffalo Shoals Road is 6,400 vpd and the facility is expected to continue operating at a satisfactory level..

- **Safety Analysis**

An inventory of crash data collected between January, 2001 and December, 2003 reported 36 crashes involving bicycles in the rural sections of Iredell County. Nine of these resulted in injuries and three involved deaths.

- **System Linkages**

**Transportation Plans**

The Lake Norman Bicycle Loop is meant to link municipalities, government facilities and recreational facilities around Lake Norman. The route connects existing and proposed systems in Iredell County with Mecklenburg County, Lincoln County and Catawba County.

- **Demographic, Economic, and Environmental Conditions**

**Demographic**

The minority population in this area of Iredell County is under half the county average. The median household income is about or above the county median.

**Economic**

The section of the Lake Norman Bicycle Route in Iredell County is meant to link existing and future locations of local interest. Connecting these with an alternative mode of travel and safer connections may increase the patronage of those sites.

**Environmental**

All of the roads on the portion of the proposed Loop in Iredell County are located in the Catawba River water supply watershed. There is also a surface water intake facility on Perth Road where the Loop crosses into the Mooresville planning area. A portion of the route also goes through the Lake Norman State Park.

- **Cost Estimates**

The recommended improvement is to widen Buffalo Shoals Road from Catawba County and Pineville Road (SR 1332) to include four-foot paved shoulders. This would give both automobiles and bicycles room to travel on the same road. A preliminary cost estimate for the expansion of these sections of the Route is \$16,000,000.





# III. Population, Land Use, and Existing Transportation System

A comprehensive transportation plan must be based reliable forecasts of future travel patterns. These forecasts depend on careful analysis of population changes, economic trends, land development, the ability of the existing transportation system to meet existing and future travel demand. Other items that influence forecasts include legal controls, public utilities and transportation facilities, and topographic and other physical features of the area.

An urban planning boundary encompasses an area that may be urban in nature by the planning horizon. There are three urban areas in Iredell County that have their own transportation plans. They are Statesville, Troutman, and Mooresville. A map of Iredell County showing the planning boundaries for the three urban areas as they were at the time of this study is shown on **Figure i of 5**. The recommendations inside those planning boundaries were adopted by the appropriate governmental bodies independent of the Iredell County CTP. However, those recommendations were reviewed for consistency at the planning boundaries.

## Population

Since the volume of traffic on a roadway is related to the size and distribution of the population that it serves, population data is used in the development of the transportation plan. Future population estimates typically rely on past population trends.

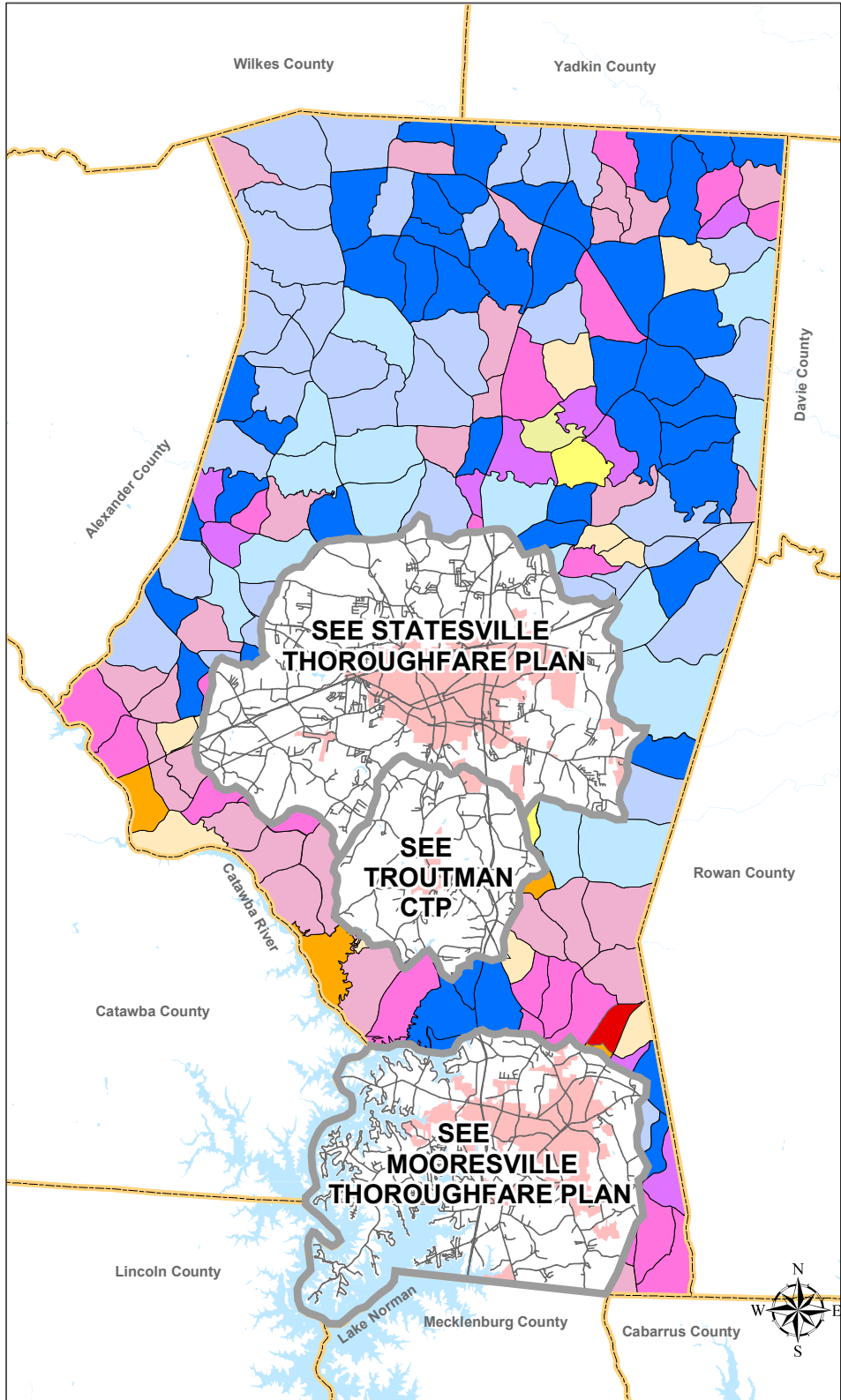
Table III-1 Population Growth							
	2030	2020	2010	2000	1990	1980	1970
North Carolina	12,467,232	10,943,973	9,441,440	8,046,807	6,632,448	5,880,095	5,084,411
Iredell County	225,452	189,625	155,695	122,660	92,935	82,538	72,197

**Table III-1** shows the population trends and projections for Iredell County and North Carolina. Population growth in an urban area is typically 1-3% annually. The population of Iredell County should grow an average of 1.5% per year through 2030. **Figure III-1** shows the expected growth in population over the study period in the county outside the urban areas. This data is based on the 2003 and 2030 data used for the Metrolina Regional Model.

## Land Use

The transportation demand along a particular facility is related to the type of through traffic on the facility and on the type of land use adjacent to the facility. For example, a retail business generates more trips than an apartment building. Land uses can be divided into several different classifications depending on the jurisdiction. **Figure III-2** shows the 1997-2010 Land Use plan for Iredell County adopted January 6, 1998. Iredell County has divided their land uses into four categories: residential and agricultural uses; commercial uses; industrial uses; and transitional uses. These groupings are based on the County zoning districts. The vast majority of the land outside the urban areas is zoned residential and agricultural.





**Iredell County**  
North Carolina

**Population Growth Map**  
**2003 to 2030**  
**Figure III-1**

**Legend**

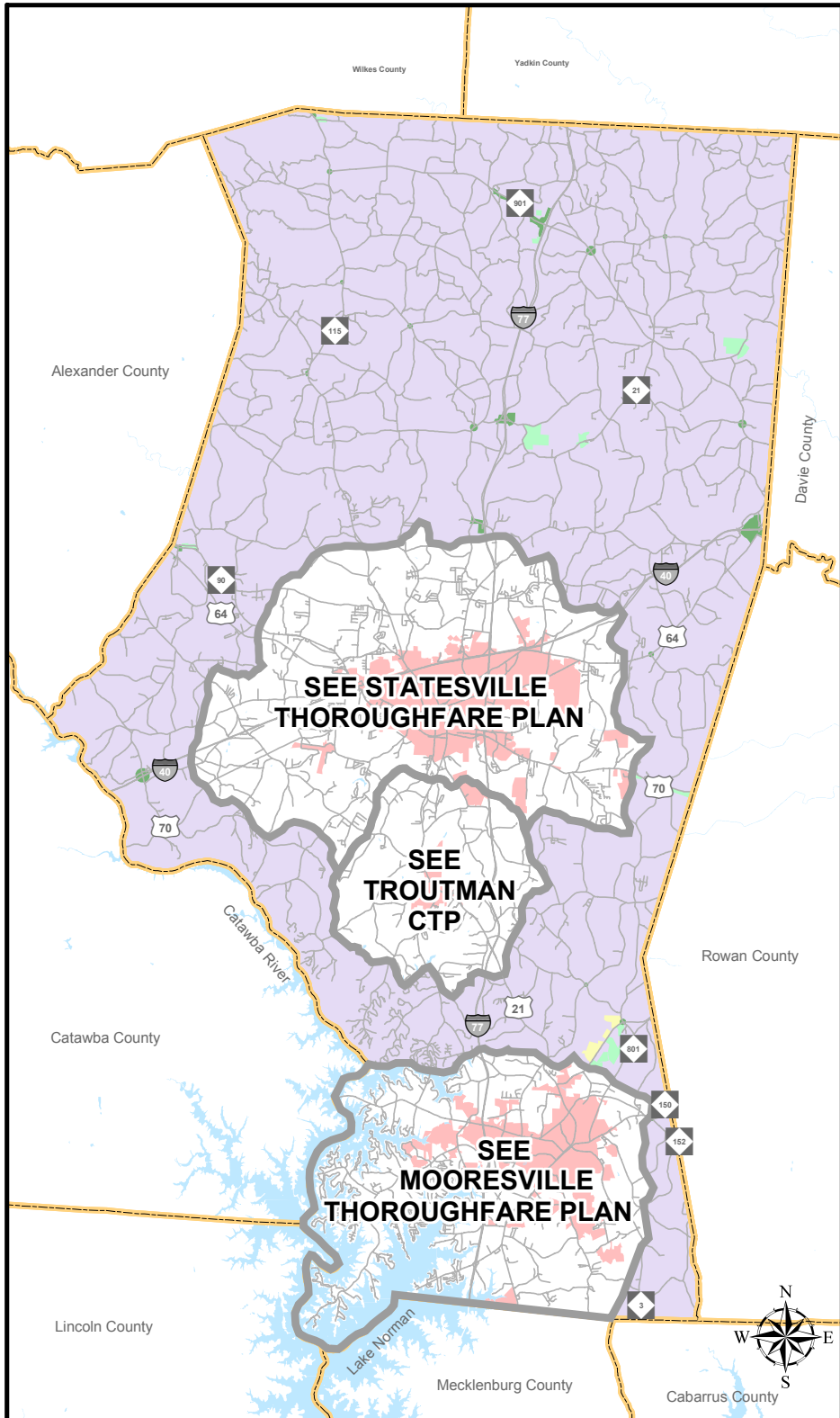
- Population Growth**
- 0 to 0.99% increase
  - 1.00 to 1.99% increase
  - 2.00 to 2.99% increase
  - 3.00 to 3.99% increase
  - 4.00 to 4.99% increase
  - 5.00 to 5.00% increase
  - 6.00 to 6.99% increase
  - 7.00 to 7.99% increase
  - 8.00 to 8.99% increase
  - 9.00 to 9.00% increase
  - 10+ % increase
  - Urban Planning Boundary

**0 1 2 4 6 Miles**

Base map date: January 1, 2005

Refer to CTP document for more details





## Iredell County

North Carolina

### Future Land Use Map 1997 - 2007

Figure III-2

#### Legend

- City Boundaries
- Urban Planning Boundary
- Iredell County Boundary
- Residential and Agricultural
- Commercial
- Industrial
- Transitional
- Rivers and Streams
- Lakes



Base map date: January 1, 2005

Refer to CTP document for more details



## **Existing Roadway System**

An important stage in the development of a comprehensive transportation plan is the analysis of the existing roadway system and its ability to serve the area's travel desires. Analysis is usually done on the road system in the planning area as a whole, on individual facilities, intersections or on bridges. Problems may be from inadequate pavement widths, intersection geometry, or intersection controls. Emphasis is placed not only on detecting the existing deficiencies, but also on understanding the causes of these deficiencies.

The roadway system for the study was based on the on the Federal Functional Classification System network of roads in Iredell County in 2003. Any additional facilities that were considered essential to the efficiency of the system were added during the course of the study. Characteristics for each segment of the facilities on the network were collected. These include lane widths, number of lanes, speed limits, and segment lengths. These characteristics are tabulated in **Appendix C**.

### **Bridge Conditions**

Bridges are an important element of a highway system. If a bridge is not up to safe design standards it can decrease the efficiency of the entire transportation system. Therefore, bridges must be constructed to the same, or higher, design standards as the rest of the system and must be inspected regularly to ensure the safety of the traveling public.

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

A bridge is considered deficient if it is either Structurally Deficient or Functionally Obsolete. A bridge at least ten years old is considered structurally deficient if it is in relatively poor condition or has insufficient load-carry capacity due to either the original design or to deterioration. The bridge is considered functionally obsolete if it is narrow, has inadequate under-clearances, has insufficient load-carrying capacity, is poorly aligned with the roadway, and can no longer adequately serve existing traffic. A bridge must be classified as deficient in order to qualify for Federal replacement funds. In addition, the bridge must have a certain sufficiency rating to qualify for these funds. To qualify for replacement, the sufficiency rating must be less than 50%; for rehabilitation, the sufficiency rating must be less than 80%. Deficient bridges within the planning area are given in **Table III-2** with the location of these bridges shown in **Figure III-3**.







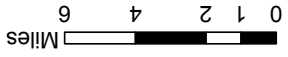
# Iredell County

North Carolina

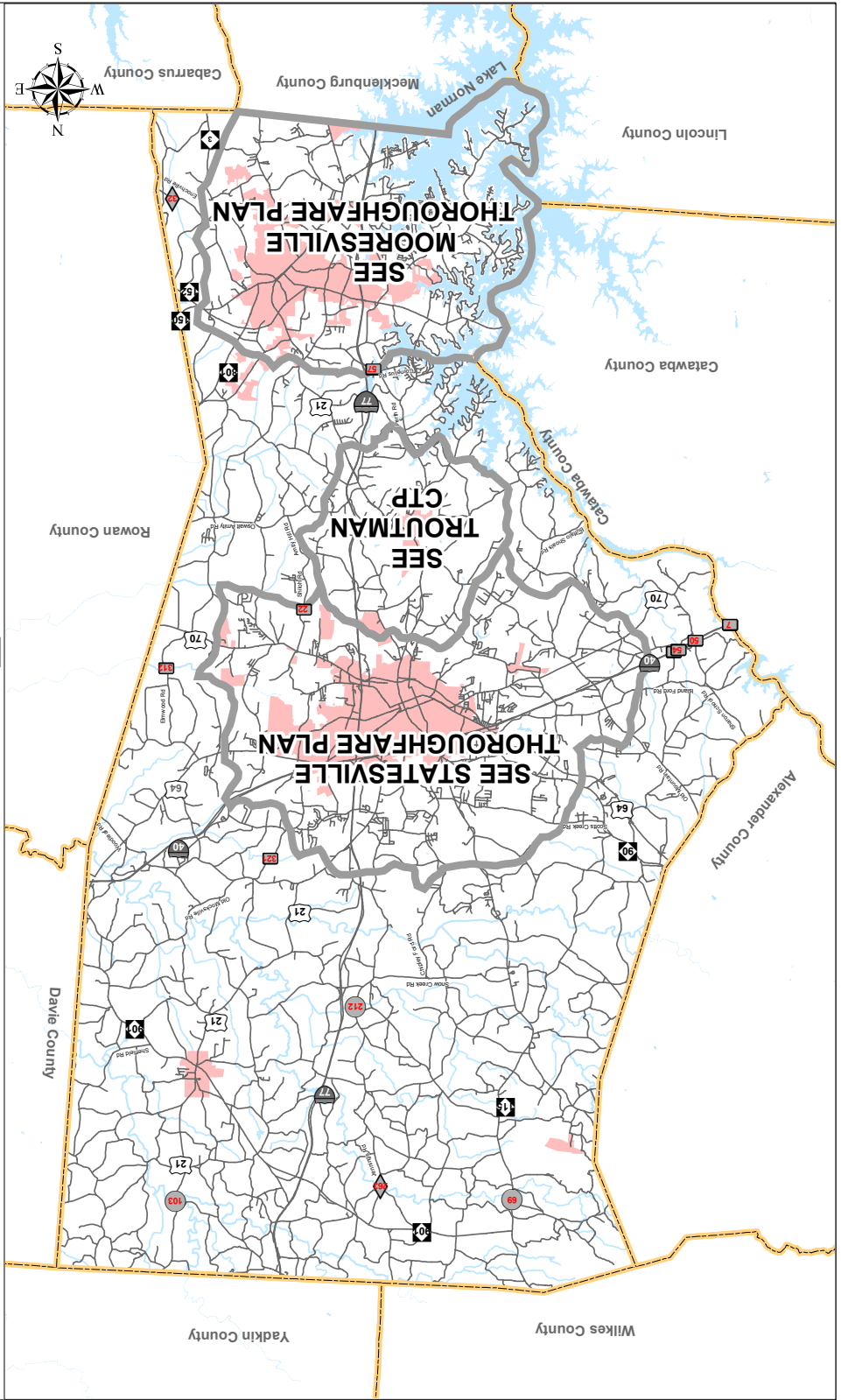
## Bridge Location Map

Figure III-3

- Legend**
- Functionally Obsolete
  - Structurally Deficient, Functionally Obsolete
  - Structurally Deficient
  - Urban Planning Boundary
  - Surrounding Counties
  - Municipal Boundary
  - Rivers and Streams
  - Lakes
  - # Bridge Number



Base map date: January 1, 2005  
Refer to CTP document for more details





**Table III-2 Deficient and Obsolete Bridges**

Number	Facility	Feature	Condition
6	I-40 Eastbound	Catawba River	Functionally Obsolete
7	I-40 Westbound	Catawba River	Functionally Obsolete
22	SR 2318	Third Creek	Functionally Obsolete
32	SR 1150	Coddle Creek	Structurally Deficient
50	SR 1502	I-40	Functionally Obsolete
51	I-40 Eastbound	Buffalo Shoals Creek	Functionally Obsolete
54	I-40 Westbound	Buffalo Shoals Creek	Functionally Obsolete
57	SR 1302	Cornelius Creek	Functionally Obsolete
65	I-40 Eastbound	SR 1505 & Little Creek	Functionally Obsolete
66	I-40 Westbound	SR 1505 & Little Creek	Functionally Obsolete
69	NC 115	Rocky Creek	Structurally Deficient & Functionally Obsolete
103	US 21	Hunting Creek	Structurally Deficient & Functionally Obsolete
212	SR 1892	Patterson Creek	Structurally Deficient & Functionally Obsolete
263	SR 1892	Rocky Creek	Structurally Deficient
312	SR 2308	Fourth Creek	Functionally Obsolete
321	SR 2158	Fifth Creek	Functionally Obsolete

### Traffic Crash Analysis

Traffic crash data can reveal whether transportation improvements may increase safety. Some causes of crashes can not be impacted by transportation improvements, such as those that result from driver or vehicle performance, or the weather. Types of crashes that may be reduced by transportation improvements include those due to traffic conditions or roadway characteristics. For example, traffic crashes may be an indicator of congestion problems that can be reduced by projects that add capacity or congestion management strategies. Crashes may also be a result of the physical characteristics of the roadway like substandard design, inadequate signing, ineffective parking, or poor sight distance. Some of these crashes may be prevented with physical design or traffic control changes such as the installation of stop signs or traffic signals.

Crash data for the period from January 2001 to December 2003 was studied as part of the development of the plan. The crash analysis considered both crash frequency and severity. Crash frequency is the total number of reported collisions while crash severity is the crash rate based upon injuries and property damage incurred. In general, a higher severity index indicates more severe accidents. Listed below are levels of severity for various index ranges.

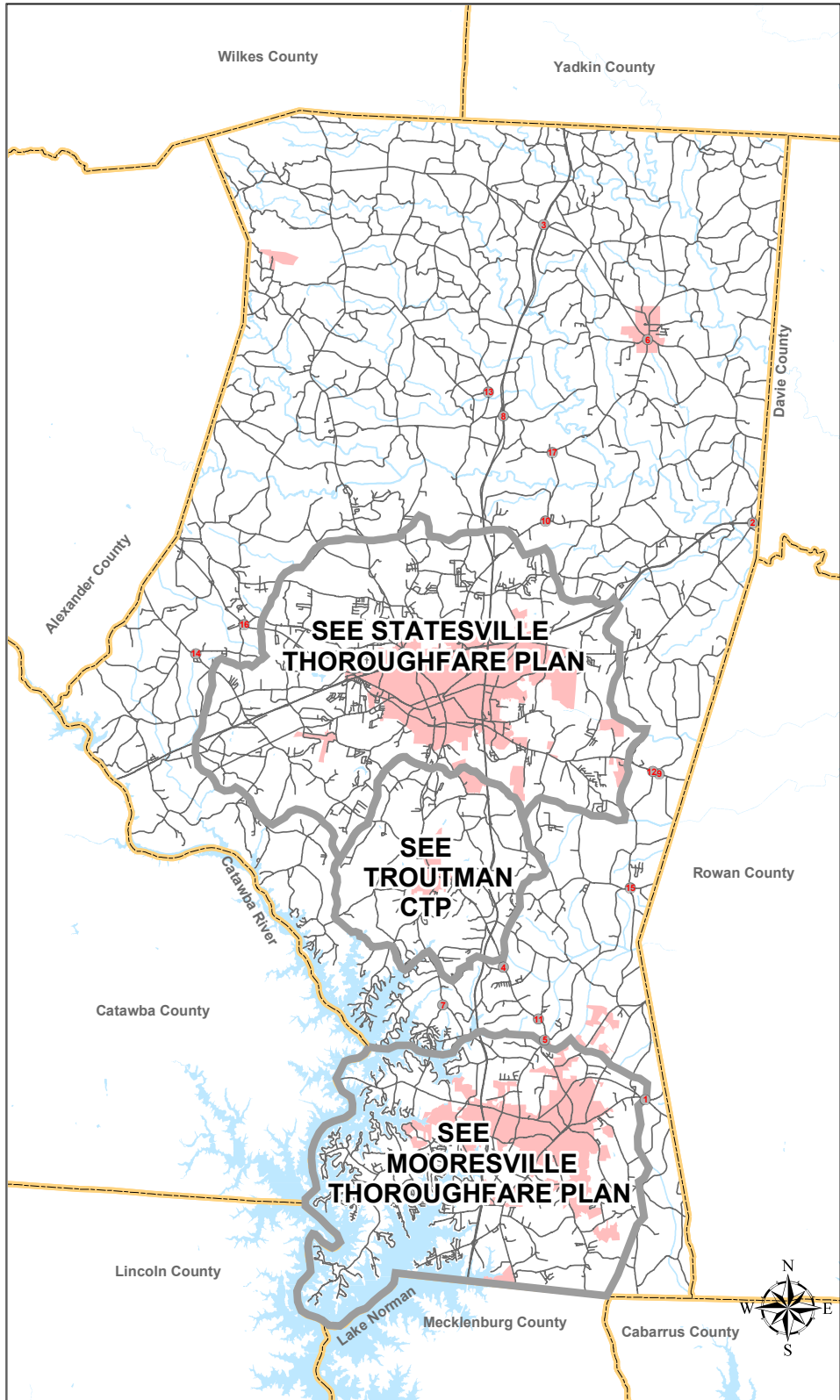
- Low < 6.0
- Average 6.0 to 7.0
- Moderate 7.0 to 14.0
- High 14.0 to 20.0
- Very High > 20.0

These two factors help determine the worst intersections within the planning area. They are summarized in **Table III-3** and shown in **Figure III-4**. The NCDOT actively investigates and improves many of these locations when it is warranted. To request a more detailed analysis for any of those intersections contact the Division Traffic Engineer. Contact information for the Division Traffic Engineer is included in **Appendix A**.

<b>Table III-3 Rank According to Number of Crashes</b>				
<b>Location</b>	<b>Crashes</b>	<b>Road A</b>	<b>Road B</b>	<b>Index</b>
1	32	NC 150	NC 152	7.53
2	18	I-40	US 64	2.23
3	10	I-77	NC 901	11.54
4	12	US 21	SR 1312 Flower House Loop	9.78
5	11	US 21	SR 2383 Shillville Rd	3.69
6	15	US 21	NC 901	5.93
7	9	SR 1303 Perth Rd	SR 1378 Judas Rd	1.82
8	8	I-77	SR 1890 Tomlin Mill Rd	2.85
9	7	US 70	SR 2308 Elmwood Rd	13.94
10	7	US 21	SR 2141 Dunlop Gate Rd	6.29
11	6	US 21	SR 2389 Shepherd Rd	4.70
12	6	US 70	SR 2362 Triplett Rd	3.47
13	5	SR 1892 Jennings Rd	SR 1953 Raider Rd	3.96
14	5	SR 1005 Old Mountain Rd	SR 1520 Massey Deal Rd	2.48
15	5	SR 1001 Ostwalt Amity Rd	SR 2362 Triplett Rd	5.44
16	5	US 64	SR 1521 Lippard Farm Rd	22.08
17	5	US 21	SR 1919 Fairmount Rd	3.96

### **Bicycle Crash Analysis**

There were 107 crashes involving bicycles in Iredell County between January, 2001 and December, 2003. Thirty-six were in the rural areas of the County. Nine of those in the rural area resulted in disabling injuries and three involved deaths.



**Iredell County**  
North Carolina

**Crash Location Map**  
**Figure III-4**

**Legend**

- Crash Locations
- ▭ Urban Planning Boundary
- ▬ Surrounding Counties
- ▭ Municipal Boundary
- Rivers and Streams
- ▭ Lakes
- # Crash Number



Base map date: January 1, 2005  
Refer to CTP document for more details



## IV. Environmental Screening

In recent years, the environmental considerations in transportation have become an increasingly important part of the planning process. Section 102 of the National Environmental Policy Act (NEPA) requires the completion of an Environmental Impact Statement (EIS) for projects that have a significant impact on the environment. An EIS includes consideration of impacts on wetlands, wildlife, water quality, historic properties, and public lands. While this report does not cover environmental issues to the detail of an EIS many of these factors were incorporated into the development of the Iredell County Comprehensive Transportation Plan and related recommended improvements. Environmental features found in the planning area are shown in **Figure IV-1**. The environmental data that was collected for the Comprehensive Transportation Plan were obtained from different sources and date from different time periods, but reflect the most current data available at the time. Prior to implementing any project level studies current environmental information should be collected.

### Wetlands

Wetlands are those lands where saturation with water is the dominant factor that determines the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands are crucial ecosystems in our environment. They help regulate and maintain the hydrology of our rivers, lakes, and streams by storing and slowly releasing floodwaters. Wetlands help maintain the quality of water by storing nutrients, reducing sediment loads, and reducing erosion. They are also critical to fish and wildlife populations by providing an important habitat for approximately one-third of the plant and animal species that are federally listed as threatened or endangered. The National Wetland Inventory shows several wetlands throughout the planning area.

### Threatened and Endangered Species

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

A preliminary review of the Federally Listed Threatened and Endangered Species in the planning area was completed to determine what effects, if any, the recommended improvements may have on wildlife. Mapping from the N.C. Department of Environment and Natural Resources revealed occurrences of threatened or endangered plant and/or animal species in the planning area which are summarized in **Table IV-1**. These species are not impacted by any recommendations found in the Comprehensive Transportation Plan.

<b>Table IV-1 Threatened or Endangered Species</b>				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Group</b>	<b>Status*</b>	
			<b>NC</b>	<b>Federal</b>
Neotoma magister	Alleghany or Appalachian woodrat	Vertebrates	Endangered Of Concern	Of Concern
Clemmys muhlenbergii	Bog turtle	Vertebrates	Threatened	Threatened S/A
Lotus helleri	Heller's trefoil or Carolina Birdfoot trefoil	Vascular Plants	Candidate	Of Concern
Delphinium exaltatum	Tall larkspur	Vascular Plants	Of Concern	Of Concern

\* See Appendix G for definitions of status.

## Historic Sites

Section 106 of the National Historic Preservation Act requires the Department of Transportation to identify historic properties listed in, or eligible for, the National Register of Historic Places (NRHP). The NCDOT must consider the impacts of transportation projects on these properties and consult with the Federal Advisory Council on Historic Preservation. N.C. General Statute 121-12(a) requires the NCDOT to identify historic properties listed on the National Register, but not necessarily those that are eligible to be listed. The NCDOT must consider any impacts and consult with the N.C. Historical Commission, but is not bound by their recommendations.

The location of historic sites within the planning area, both single locations and larger areas, were noted for possible impact by the recommended improvements. This investigation identified several NRHP historic properties outside the urban areas. They are listed in **Table IV-2**.

<b>Table IV-2 Historic Sites</b>
Ebenezer Academy
Henry Turner House
Bethamy Presbyterian Ch & Cem
Feimster House
King-Flowers-Keaton House
Allison Woods
Snow Creek Methodist Ch/Buryin
Holland-Summers House
Damascus Baptist Church Arbor
Gaither House
Morrison-Campbell House
Daltonia
Perciphull Campbell House
Welch-Nicholson Hs & Mill Site
Welch-Nicholson Hs & Mill Site
Farmville Plantation
Bethesda Presbyterian Church



## **Archaeological Sites**

There are several identifiable archaeological sites outside the urban areas. They are at : the Reed House, the Stirewalt Boiler Pit, the Kelly House, the Pleba House, the Pera House, the Reed Blacksmithy, the Grist Mill and the Stamp Mill. None of the currently identified sites would be adversely affected by any of the recommended improvements. Archaeological sites are often difficult to identify without actual field excavation. As a result, possible sites may not be identified during the initial planning process and each proposed project should be evaluated individually prior to construction.

## **Educational Facilities**

The location of educational facilities in the planning area was considered during the development of the Comprehensive Transportation Plan. No proposed facilities or improvements will displace any school or other educational facility.

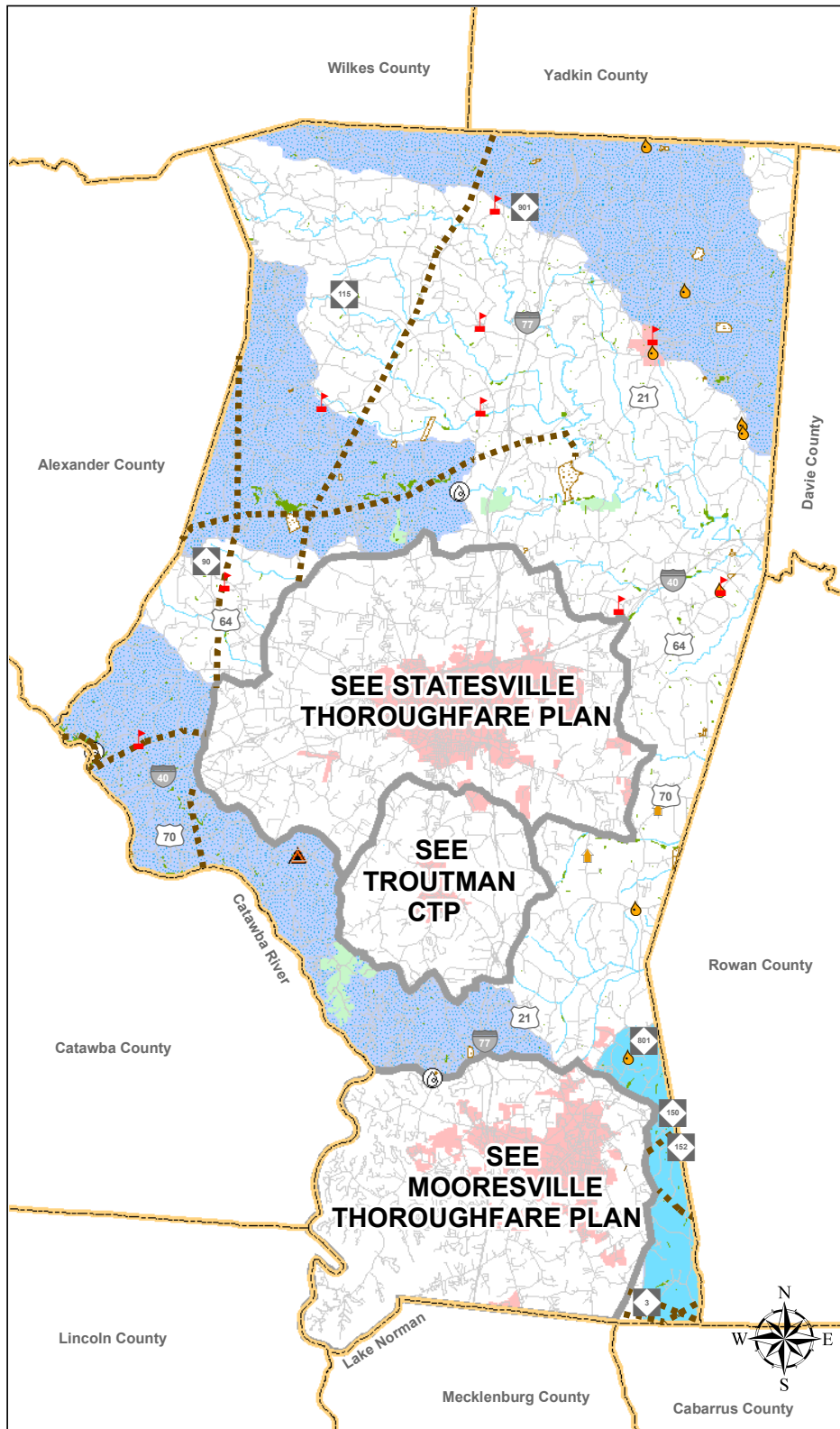
## **Demographics**

As mandated in Title VI of the Civil Rights Act of 1964 and Executive Order 12898, the proposed actions recommended in the CTP were reviewed with respect to any impact on minority and low-income populations as determined by the 2000 U.S. Census. The Centralina Council of Governments calculated that approximately 20% of the population of Iredell County is classified as "minority" based on 2000 Census data. The 2000 Census also determined that the median household income for Iredell County is \$41,920 per year. The results of this review for each recommended improvement are included in Chapter II.

## **Parks and Open Spaces**

The location of park facilities and open spaces was considered during the development of the Comprehensive Transportation Plan. The Duke Power State Park and the Lake Norman State Park are located in the southwest corner of the County. The Land Trust for Central North Carolina owns property in the northern part of the County. The proposed Lake Norman Bike Route runs through sections of the Duke Power State Park and the Lake Norman State Park. A section of I-77 recommended for widening to six lanes runs across a piece of the property owned by the Land Trust.





**Iredell County**  
North Carolina

**Figure IV-1**

**Environmental Features Map**

**Legend**

- Schools
- Pipe or Transmission Lines
- National Register Sites
- STATUS**
- National Register Districts
- Water Supply Watershed
- High Quality Water Zones
- Lakes
- Groundwater Incidents
- Municipal Boundary
- Surface Water Intakes
- Urban Planning Boundary
- Conservation and Open Spaces
- Hazardous Substance Disposal Sites
- National Wetlands Inventory



Base map date: January 1, 2005



## **V. Public Involvement and Local Coordination**

The Federal Intermodal Surface Transportation Efficiency act (ISTEA) (23 CFR 450) passed in 1991 required that states put a stronger emphasis on public involvement in transportation planning. During the transportation planning process there are several points in the planning process to solicit input from the local citizens, policy boards, and staffs. This is an overview of the methods use during the Iredell County Comprehensive Transportation Plan study. Documents that were used appear in **Appendix F**.

### **Meetings with Local Planning Staff**

Iredell County requested an update of their Thoroughfare Plan in September, 2000. On September 4, 2003, NCDOT Transportation Planning Branch met with the Iredell County Planning staff to discuss current local transportation issues, the transportation planning process, and the availability of data. On September 29, 2003 Transportation Planning Branch staff and County Planning staff drove around the County to view significant and controversial development. Transportation Planning Branch staff met with County Planning staff on February 23, 2005 to review the data collected and to share any input based on that data. Transportation Planning staff met again with County Planning staff on May 19, 2005 discuss deficiencies, improvements, and recommendations for the new CTP.

### **Public Meetings**

On June 14, 2005, Transportation Planning Branch staff and County Planning staff held a telephone interview with reporters from the Iredell Neighbors and the Statesville Record and Landmark newspapers in preparation for the public meeting to be held on June 28, 2005. An announcement for the public meeting was placed in the Statesville Record and Landmark on June 17, 2005 and June 24, 2005. The public meeting was held in the Commissioners' Chamber in the Iredell County Government Center. The draft Highway, Public Transportation and Rail and Bicycle maps were displayed and copies were provided as handouts. A brochure with general information on transportation planning and the CTP was also provided. Additionally, surveys soliciting comments on the bicycle system in the County and the public involvement process were available. Nine citizens attended and provided their comments on the draft CTP. There were generally favorable comments on the meeting itself. There was ample notice, opportunity to comment, and held at a convenient time and place. Those people that answered the survey about the bicycle system in the County expressed dissatisfaction with the convenience, safety, and shortage of routes in the County. There were several questions and comments about the Brawley School Road area in southwest Iredell County. Staff explained that that area was not part of the Iredell County CTP study, but inside of the Mooresville planning area and will be considered during the Mooresville CTP study.

### **County Planning Board Meetings**

It is the policy of the Iredell County Planning Board to hear agenda items at least once before voting on them. On July 6, 2005 Transportation Planning Branch staff presented the recommended CTP to the Iredell Planning Board. On December 7, 2005 Transportation Planning Branch staff made a second presentation to the Planning Board at which they recommended that it be presented to the County Commissioners. No changes were made.

## **County Commissioners Meetings**

On January 17, 2006 the Iredell County Commissioners adopted the 2006 Iredell County Comprehensive Transportation Plan following a public hearing opportunity.

## **Rural Planning Organization Meetings**

The Lake Norman Rural Planning Organization Technical Coordinating Committee met on August 10, 2005 to hear a presentation on the recommended CTP. The Transportation Advisory Committee met on August 23, 2005 to hear a presentation on the recommended CTP. The Technical Coordinating Committee met on November 9, 2005 and recommended that the TAC endorse the Iredell County Comprehensive Transportation Plan. On November 28, 2005 the Lake Norman Rural Planning Organization endorsed the 2006 Iredell County Comprehensive Transportation Plan.

## **NCDOT Board of Transportation Meeting**

The North Carolina Department of Transportation Board of Transportation adopted the 2006 Iredell County Comprehensive Transportation Plan on March 2, 2006.

**Appendix A.**  
**NCDOT Contacts**





# Appendix A

## Customer Service Office

1-877-DOT4YOU

1-877-368-4968

## Secretary of Transportation

1501 Mail Service Center

Raleigh, NC 27699-1501

(919) 733-2520

## Board of Transportation Member

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

## Highway Division 12

Division Engineer

Contact the Division Engineer with general questions concerning NCDOT activities within Division 12 or information on Small Urban Funds.

1710 E. Marion St.

Shelby, NC 28151-0047

(704) 480-9020

Division Construction Engineer

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

1710 E. Marion St.

Shelby, NC 28151-0047

(704) 480-9024

Division Traffic Engineer

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

1710 E. Marion St.

Shelby, NC 28151-0047

(704) 480-9033

District Engineer

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

124 Prison Camp Rd.

Statesville, 28625

(704) 876-0602

County Maintenance Engineer

Contact the County Maintenance Engineer regarding any maintenance activities, such as drainage adjacent to state roadways.

124 Prison Camp Rd.

Statesville, NC 28625

(704) 876-1828

## **Transportation Planning Branch**

1554 Mail Service Center  
Raleigh, NC 27699-1554  
(919) 715-5737

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

## **Secondary Roads Office**

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

Contact the Secondary Roads Officer for information regarding the Industrial Access Funds Program or paving of secondary roads.

## **Program Development Branch**

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

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

## **Project Development & Environmental Analysis Branch**

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

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

## **Traffic Engineering & Safety Systems Branch**

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

Contact the Traffic Engineering & Safety Systems Branch for information regarding Development Reviews and signal issues.

## **Highway Design Branch**

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

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

## **Bicycle and Pedestrian Division**

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

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

## **Public Transportation Division**

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

Contact the Public Transportation Division for information regarding planning and funding for public transportation projects.

## **Railroad Division**

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

Contact the Railroad Division for information regarding engineering and safety, operations, and planning.

## **Other departments**

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



**Appendix B.**  
**Definitions of Comprehensive  
Transportation Plan Categories**



# Appendix B.

## Definitions for CTP Maps

### Highway Map

- Freeways<sup>1</sup>
  - 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 1,000' or for 350' plus 650' 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<sup>1</sup>
  - 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 2,000 feet; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways limited in location and number; use of acceleration/deceleration or right turning lanes
  - Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
  - Driveways – right-in/right-out only; direct driveway access via service roads or other alternate connections
- Boulevards
  - Functional purpose – moderate mobility; moderate access, moderate volume, medium speed
  - Posted speed – 30 to 55 mph
  - Cross section – two or more lanes with median (median breaks allowed for U-turns per 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
  - 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 45 mph
  - Cross section – ultimately three lanes (no more than one lane per direction) or less without median
  - Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
  - 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*
- 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 public transportation meet such as where light rail and a bus route come together in one location or a bus station.
- Park and Ride Lot – A strategically located parking lot that is free of charge to anyone who parks a vehicle and commutes by transit or in a carpool.

## **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 the highway facility to accommodate bicycle transportation; however, highway improvements are necessary to create safe travel conditions for the cyclists.
- On Road-Recommended – At the systems level, it is desirable for a recommended highway facility to accommodate bicycle transportation. The highway should be designed and built to safely accommodate cyclists.

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

## **Pedestrian Map**

Format for the pedestrian map is under development.

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<sup>1</sup>Every effort will be made to ensure that all Tier 1 (Statewide importance) facilities on the NCMIN (North Carolina Multimodal Investment Network) will be Freeway or Expressway on the Comprehensive Transportation Plan

**Table B-1 Definitions for CTP**

	<b>Functional Purpose</b>	<b>Posted Speed</b>	<b>Cross Section</b>	<b>Multi-Modal Elements</b>	<b>Access Control</b>	<b>Access Management</b>	<b>Intersecting Facilities</b>	<b>Driveways</b>
Freeway	high mobility, high volume, high speed	55+	minimum four lanes with continuous median	HOV/HOT lanes, busways, truck lanes, park/ride, adjacent shared use path	full control	interchange spacing (urban - one mile, non-urban - three miles), full control of access for 1000' or island or median, frontage roads, service roads	interchange or grade separation	not allowed
Expressway	high mobility, high volume, medium-high speed	45 to 60	minimum four lanes with median	HOV lanes, busways, wide paved shoulders (rural), shared use paths	limited or partial	minimum interchange/intersection spacing 2000', median breaks only at intersections with minor roadways, or to permit U-turns, frontage roads, service roads, driveways limited in number and location, acceleration/deceleration lanes or right turn lanes	interchange, at-grade intersection with minor roadways, right-in/right-out and/or left-over or grade separation (no signalization for through traffic	right-in/right-out only, direct driveway access via service roads or other alternate connections
Boulevard	moderate mobility, moderate access, moderate volume, medium speed	30 to 55	two or more lanes with median (breaks allowed for U-turns)	bus stops, bike lanes (urban) or wide paved shoulders (rural), sidewalks (urban optional)	limited, partial, no control	two lane facilities may have median cross overs, medians with turning pockets or turn lanes, acceleration/deceleration or right turn lanes optional, shared driveways, internal connectivity	at-grade intersections and driveways, interchanges at high volume intersections	right in/right out or combined with median leftovers, major driveways may be full access if necessary
Other Major Thoroughfare	balanced mobility and access, moderate volumes, low to medium speed	25 to 55	numbered routes regardless of lanes. minimum four lanes without median	bus stops, bike lanes or wide outside lane (urban) or wide paved shoulder (rural), sidewalks (urban)	no control	continuous left turn lanes, shared driveways, internal connectivity	intersections and driveways	full movement on two lane roadway with center turn lane as permitted
Minor Thoroughfare	balanced mobility and access, moderate volumes, low to medium speed	25 to 45	ultimately three lanes (no more than one lane per direction) or less without median	bus stops, bike lanes or wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)	no control	continuous left turn lanes, shared driveways, internal connectivity	intersections and driveways	full movement on two lane roadway with center turn lane as permitted



**Appendix C.**  
**Comprehensive Transportation Plan**  
**Inventory and Recommendations**



## Highway

Facility & Segment From	To	Existing System				Proposed System						
		Distance (mi)	Cross-Section (ft)	Speed Limit (mph)	Capacity (vpd)	2003 ADT	Capacity (vpd)	2030 ADT	Cross- Section	ROW (ft)	Other Maps	
<b>I-40</b>												
Catawba County	Statesville Planning Boundary	5.59	48	65	67,200	40,000	87,400	86,900	L	ADQ		
Statesville Planning Boundary	Davie County	3.13	48	70	67,100	30,100	87,400	66,900	L	ADQ		
<b>I-77</b>												
Mooresville Planning Boundary	Troutman Planning Boundary	2.48	48	65	67,200	53,500	105,800	104,200	L	ADQ		
Statesville Planning Boundary	Tomlin Rd	1.58	48	70	56,600	33,300	87,400	73,900	L	ADQ		
Tomlin Rd	NC 901	6.50	48	70	56,600	29,800	87,400	66,100	L	ADQ		
NC 901	Yadkin County	5.48	48	70	56,600	26,300	87,400	58,300	L	ADQ		
<b>US 21</b>												
Mooresville Planning Boundary	Shepherd Rd (SR 2389)	0.78	22	55	13,800	15,500	33,000	27,700	G	90		
Shepherd Rd (SR 2389)	Troutman Planning Boundary	2.45	22	45	13,800	12,000	33,000	26,400	G	90		
Statesville Planning Boundary	South Yadkin River	2.91	22	55	13,100	4,600	13,800	10,100	K	ADQ		
South Yadkin River	Harmony SCL	4.00	22	55	13,100	5,100	13,800	10,300	K	ADQ		
Harmony SCL	Harmony NCL	1.58	30	35	13,100	4,300	13,800	7,300	K	ADQ		
Harmony NCL	Yadkin County	6.11	24	55	13,800	1,300	13,800	2,600	K	ADQ		
<b>US 64</b>												
Alexander County	Statesville Planning Boundary	4.60	48	50	28,000	5,500	28,000	9,400	ADQ	ADQ		
Statesville Planning Boundary	Barry Oak Rd	0.82	24	55	13,800	2,500	22,000	6,700	G	90		
Barry Oak Rd	Woodleaf Rd	3.49	24	55	13,800	2,600	13,800	6,100	ADQ	ADQ		
Woodleaf Rd	I-40	1.50	24	55	13,800	2,700	13,800	5,900	ADQ	ADQ		
I-40	Davie County	0.50	24	55	13,800	2,500	13,800	5,600	ADQ	ADQ		
<b>US 70</b>												
Catawba County	Statesville Planning Boundary	3.61	22	50	13,100	1,600	13,800	5,800	ADQ	ADQ		
Statesville Planning Boundary	Rowan County	2.00	24	55	13,100	10,800	51,400	25,600	E	110		

HWY-Highway Map B and P-Bicycle and Pedestrian Map  
Refer to Appendix D for Cross Sections

## Highway

Facility & Segment From		Existing System						Proposed System						
		To	Distance (mi)	Cross-Section (ft)	lanes	ROW (ft)	Speed Limit (mph)	Capacity (vpd)	2003 ADT	Capacity (vpd)	2030 ADT	Cross- Section	ROW (ft)	Other Maps
<b>NC 3</b>														
Cabarrus County		NC 150	2.40	20	2	100	55	12,400	7,500	13,800	13,800	13,800	13,800	ADQ
<b>NC 90</b>														
Statesville Planning Boundary		Alexander County	4.05	22	2	60	50	13,100	2,900	13,800	5,300	13,800	5,300	ADQ
<b>NC 115</b>														
Statesville Planning Boundary		Branchwood Rd (SR 1908)	1.04	24	2	130	55	13,800	7,000	13,800	11,900	13,800	11,900	ADQ
Branchwood Rd (SR 1908)		Hams Grove Rd (SR 2017)	3.73	24	2	120	55	13,800	5,400	13,800	9,800	13,800	9,800	ADQ
Hams Grove Rd (SR 2017)		Prospect Rd (SR 1861)	4.80	24	2	60	55	13,800	4,500	13,800	7,700	13,800	7,700	ADQ
Prospect Rd (SR 1861)		NC 901	7.50	20	2	60	55	12,400	2,800	12,400	5,200	12,400	5,200	ADQ B & P
NC 901		Wilkes County	2.22	20	2	60	55	12,400	3,500	12,400	6,500	12,400	6,500	ADQ
<b>NC 150</b>														
Mooresville Planning Boundary		NC 152	0.13	22	2	60	55	13,100	12,800	39,200	28,400	39,200	28,400	E 100
NC 152		Rowan County	1.08	22	2	60	55	13,100	5,400	14,000	12,700	14,000	12,700	ADQ
<b>NC 152</b>														
NC 150		Rowan County	1.23	22	2	60	55	13,100	8,100	14,500	14,500	14,500	14,500	ADQ
<b>NC 801</b>														
Mooresville Planning Boundary		Mazeppa Rd	2.21	20	2	60	55	12,400	3,700	12,400	10,000	12,400	10,000	ADQ
Mazeppa Rd		Rowan County	0.50	20	2	60	55	12,400	3,700	12,400	10,000	12,400	10,000	ADQ
<b>NC 901</b>														
NC 115		Jennings Rd (SR 1892)	4.70	20	2	100	50	12,400	3,100	13,800	6,000	13,800	6,000	ADQ B & P
Jennings Rd (SR 1892)		Pioneer Rd (SR 1851)	2.00	20	2	100	50	12,400	5,900	13,800	11,400	13,800	11,400	ADQ B & P
Pioneer Rd (SR 1851)		I-77	0.70	24	2	100	50	13,800	9,200	13,800	13,800	13,800	13,800	ADQ B & P
I-77		US 21	4.96	20	2	100	55	12,400	3,500	13,800	5,500	13,800	5,500	ADQ B & P
US 21		Davie County	5.67	24	2	60	55	13,800	2,200	13,800	3,700	13,800	3,700	ADQ

HWY-Highway Map B and P-Bicycle and Pedestrian Map  
Refer to Appendix D for Cross Sections



Highway													
Facility & Segment From	To	Distance (mi)	Cross-Section (ft)	lanes	ROW (ft)	Existing System			Proposed System				
						Speed Limit (mph)	Capacity (vpd)	2003 ADT	Capacity (vpd)	2030 ADT	Cross-Section	ROW (ft)	Other Maps
<b>Amity Hill Rd (SR 2342)</b>													
Troutman Planning Boundary	Shiloh Rd	0.18	18	2	40	55	11,000	1,800	34,200		G	90	
Shiloh Rd	Oswalt Amity Rd	1.64	18	2	40	55	11,000	1,800	28,000		G	90	
<b>Barry Oak Rd SR (2305)</b>													
Elimwood Rd (SR 2308)	US 64	1.14	18	2	50	55	11,000	2,300	11,000	4,700	ADQ	ADQ	
<b>Buffalo Shoals Rd (SR 1004)</b>													
Catawba County	Pineville Rd (SR 1332)	1.22	24	2	60	55	13,800	2,900	13,800	6,400	ADQ	100	B & P
Pineville Rd (SR 1332)	Statesville Planning Boundary	2.53	20	2	60	55	12,400	3,800	12,400	8,500	ADQ	100	
<b>Chipley Ford Rd (SR 1907)</b>													
Statesville Planning Boundary	Snow Creek Rd (SR 1904)	4.01	18	2	60	55	11,000	900	11,000	1,500	ADQ	100	
<b>Cornelius Rd (SR 1302)</b>													
Perth Rd (SR 1303)	Mills Forest Ln (SR 2765)	0.97	20	2	50	45	12,400	3,200	12,400	10,400	G	90	
Mills Forest Ln (SR 2765)	Cornelius Creek	0.79	20	2	50	55	12,400	3,600	12,400	11,200	G	90	
<b>Elimwood Rd (SR 2308)</b>													
US-70	Barry Oak Rd (SR 2305)	4.20	18	2	50	55	11,000	700	11,000	1,900	ADQ	ADQ	
<b>Enochville Rd (SR 1150)</b>													
Mooresville Planning Boundary	Coddle Creek	1.50	20	2	50	55	12,400	2,100	12,400	6,100	ADQ	ADQ	
Coddle Creek	Rowan County	0.13	20	2		55	12,400	1,300	12,400	3,700	ADQ	ADQ	
<b>Fairmount Rd (SR 1919)</b>													
Tomlin Mill Rd (SR 1890)	US-21	2.00	18	2	50	55	11,000	900	12,400	10,000	G	90	

Highway													
Facility & Segment		Existing System				Proposed System				Other			
From	To	Distance (mi)	Cross-Section (ft)	Speed Limit (mph)	Capacity (vpd)	2003 ADT	Capacity (vpd)	2030 ADT	Cross-Section	ROW (ft)	Maps	2030 ADT	Cross-Section
<b>Island Ford Rd (SR 1006)</b>													
Sharon School Rd (SR 1529)	Cotton Gin Rd (SR 1525)	0.79	18	45	11,000	800	11,000	1,900	ADQ	ADQ		1,900	ADQ
Cotton Gin Rd (SR 1525)	Statesville Planning Boundary	1.89	18	45	11,000	1,200	11,000	2,800	ADQ	ADQ		2,800	ADQ
<b>Jennings Rd (SR 1892)</b>													
NC 901	Mt. Vernon Church Rd (SR 1880)	3.10	20	55	12,400	900	12,400	2,400	ADQ	ADQ		2,400	ADQ
Mt. Vernon Church Rd (SR 1880)	Tomlin Mill Rd (SR 1890)	3.70	20	55	12,400	1,800	12,400	4,700	ADQ	ADQ		4,700	ADQ
Tomlin Mill Rd (SR 1890)	Snow Creek Rd (SR 1904)	0.40	20	55	12,400	3,200	12,400	8,100	ADQ	ADQ		8,100	ADQ
<b>Old Mocksville Rd (SR 2158)</b>													
Statesville Planning Boundary	Dunlop Gate Rd (SR 2141)	2.35	20	55	12,400	2,400	12,400	6,100	ADQ	ADQ		6,100	ADQ
Dunlop Gate (SR 2141)	Yadkin River	2.85	18	55	11,000	2,000	11,000	4,300	ADQ	ADQ		4,300	ADQ
Yadkin River	NC 901	3.46	22	55	12,400	400	12,400	900	ADQ	ADQ		900	ADQ
<b>Old Mountain Road Rd (SR 1005)</b>													
Alexander County	Statesville Planning Boundary	3.67	24	55	13,800	3,100	13,800	5,300	ADQ	ADQ		5,300	ADQ
<b>Ostwait Amity Rd (SR 1001)</b>													
Troutman Planning Boundary	Amity Hill Rd	1.35	20	55	12,400	2,500	14,000	13,700	E	100		13,700	E
Amity Hill Rd	Rowan County	3.40	20	55	12,400	1,900	12,400	11,800	K	100		11,800	K
<b>Perth Rd (SR 1303)</b>													
Mooresville Planning Boundary	Cornelius Rd (SR 1302)	0.74	24	55	13,800	5,000	28,000	17,400	G	90		17,400	G
Cornelius Rd (SR 1302)	Judas Rd (SR 1378)	0.92	24	55	13,800	3,200	28,000	17,500	G	90		17,500	G
Judas Rd (SR 1378)	Troutman Planning Boundary	1.74	24	55	13,800	6,200	28,000	17,900	G	90		17,900	G
<b>Scotts Creek Rd (SR 1551)</b>													
NC 90	Statesville Planning Boundary	1.60	18	45	11,000	1,400	11,000	2,500	ADQ	ADQ		2,500	ADQ

Highway													
Facility & Segment		Existing System				Proposed System							
From	To	Distance (mi)	Cross-Section (ft)	lanes	ROW (ft)	Speed Limit (mph)	Capacity (vpd)	2003 ADT	Capacity (vpd)	2030 ADT	Cross-Section	ROW (ft)	Other Maps
<b>Sharon School Rd (SR 1502, SR 1529)</b>													
US-70	I-40	1.71	20	2	60	55	12,400	1,900	12,400	5,800	ADQ	ADQ	
I-40	Island Ford Rd (SR 1006)	1.65	20	2	50	55	12,400	3,300	12,400	9,500	ADQ	ADQ	
Island Ford Rd (SR 1006)	Alexander County	2.15	20	2	50	55	12,400	2,100	12,400	6,000	ADQ	ADQ	
<b>Sheffield Rd (SR 2126)</b>													
NC 901	Davie County	3.40	18	2	50	55	11,000	1,300	11,000	3,200	ADQ	ADQ	
<b>Shiloh Rd (SR 2318)</b>													
Amity Hill Rd	Statesville Planning Boundary	2.00	18	2	50	55	11,000	2,000	12,400	11,300	G	90	
<b>Snow Creek Rd (SR 1904)</b>													
NC 115	Chipley Ford Rd (SR 1907)	3.10	18	2	60	55	11,000	900	11,000	2000	ADQ	ADQ	
Chipley Ford Rd (SR 1907)	Jennings Rd (SR 1892)	1.70	20	2	60	55	12,400	1,400	12,400	3,300	ADQ	ADQ	
<b>Tomlin Mill Rd (SR 1890)</b>													
Jennings Rd (SR 1892)	I-77	0.70	18	2	60	55	11,000	1,000	12,400	6,000	G	90	
I-77	Fairmount Rd (SR 1919)	0.50	24	2	100	55	11,000	2,400	12,400	6,900	G	ADQ	
<b>Woodleaf Rd (SR 1003)</b>													
US 64	Rowan County	1.20	18	2	50	55	11,000	1,500	11,000	2,500	ADQ	ADQ	

## Public Transportation and Rail

Facility and Segment		To	Class	Speed Limit (mph)	Distance (mi)	Existing System			Proposed System			
From	Type					ROW (ft)	Trains per day	Type	ROW (ft)	Trains per day	Other Maps	
<b>Norfolk Southern Railway (NC)</b>												
<b>L-line</b>												
Rowan County (L-48.9)	NS O-Line Wye (L-53.4)		II	25	0.20	Freight	200	1	Freight	100	1	
<b>O-line</b>			II	25	1.40	Freight	100	1	Freight	100	1	
Meck (O-22.5)	NS S-Line wye (o-45.6)											
<b>S-line</b>			II	25	0.20	Freight	100	1	Freight	100	1	
Rowan (S-17.4)	Alexander (S-37.1)											
<b>Alexander Railroad Company (ARC)</b>												
NS S-Line (ARC-46)	Alexander (ARC-55.2)										2	

## Bicycle and Pedestrian

Facility and Segment	Existing System				Proposed System			Other Maps
	From	To	Distance (mi)	Cross-Section (ft)	lanes	Type	Cross-Section	
<b>NC 901 (Route 2)</b>								
Alexander County	NC 115	NC 115	4.40	20	2	On-road	B-4	
NC 115	NC 115	NC 115	0.50	24	2	On-road	B-4	HWY
NC 115	Eagle Mills Rd (SR 1832)	Eagle Mills Rd (SR 1832)	9.00	20	2	On-road	B-4	HWY
Eagle Mills Rd (SR 1832)	Yadkin County	Yadkin County	8.50	18	2	On-road	B-4	
<b>Lake Norman Bicycle Loop</b>								
Catawba County	Laurel Cove Rd (SR 1437)	Laurel Cove Rd (SR 1437)	1.22	20	2	On-road	B-4	HWY
Laurel Cove Rd (SR 1437)	Troutman Planning Boundary	Troutman Planning Boundary	4.74	18	2	On-road	B-4	
Troutman Planning Boundary	Troutman Planning Boundary	Troutman Planning Boundary	4.05	18	2	On-road	B-4	
Troutman Planning Boundary	Mooreville Planning Boundary	Mooreville Planning Boundary	3.4	24	2	On-road	B-4	

HWY-Highway Map Band P-Bicycle and Pedestrian Map  
Refer to Appendix D for Cross Sections  
C-7



**Appendix D.**  
**Typical Comprehensive**  
**Transportation Plan**  
**Cross-Sections**





# Appendix D.

## Typical Transportation 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. Certain cross sections are typical for facilities on new location and where right-of-way constraints are not critical. For widening projects and urban projects with limited right-of-way, special cross sections should be developed that meet the needs of the project.

On all existing and proposed roadways delineated on the comprehensive transportation plan, 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 D** 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.

Recommended design standards relating to grades, sight distances, degree of curve, superelevation, and other considerations for roadways are given in **Appendix C**. The typical cross sections are described below and are shown on **pages D-5 through D-11**.

### **A: Four Lanes Divided with Median**

Cross section "A" is recommended for freeways/expressways in rural areas. The minimum median width for this cross section is 46 feet, but a wider median is desirable. This cross section could apply to freeways or expressways.

### **B: Seven Lanes - Curb & Gutter**

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

**C: Five Lanes - Curb & Gutter**

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

**D: Six Lanes Divided with Raised Median - Curb & Gutter****E: Four Lanes Divided with Raised Median - Curb and Gutter**

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

**F: Four Lanes Divided – Grass Median**

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

**G: Four Lanes - Curb and Gutter**

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

**H: Three Lanes - Curb and Gutter**

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

**I: Two Lanes – Curb and Gutter, Parking both sides****J: Two Lanes – Curb and Gutter, Parking one side**

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

### **K: Two Lanes - Paved Shoulder**

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

### **L: Six Lanes Divided with Grass Median**

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

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

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

### **Bicycle Cross Sections**

Cross sections B-1, B-2, B-3, B-4, and B-5 are typical bicycle cross sections. Contact the NCDOT Division of Bicycle and Pedestrian Transportation for more information regarding these cross sections.

### **B-1: Four Lanes Divided with Wide Outside Lanes**

#### **B-2: Five Lanes with Wide Outside Lanes**

A widened outside lane is an effective way to accommodate bicyclists riding in the same lane with motor vehicles. With a wide outside lane, motorists do not have to change lanes to pass a bicyclist. The additional width in the outside lane also improves sight distance and provides more room for vehicles to turn onto the roadway. Therefore, on roadways with bicycle traffic, widening the outside lane can improve the capacity of that roadway. Also, by widening the outside lane by a few extra feet both motorists and bicyclists have more space in which to maneuver. This facility type is generally considered for use in urban, suburban, and occasionally rural conditions on roadways where there is a curb and gutter. Wide outside lanes can be applied to several different roadway cross sections.

#### **B-3: Bicycle Lanes on Collector Streets**

Bicycle lanes may be considered when it is desirable to delineate road space for preferential use by cyclists. Streets striped with bicycle lanes should be part of a connected bikeway system rather than being an isolated feature. Bicycle lanes function most effectively in mid-block situations by separating bicyclists from overtaking motor vehicles. Integrating bicyclists into complicated intersection traffic patterns can sometimes be problematic. Strip development areas, or roadways with a high number of commercial driveways, tend to be less suitable for bicycle lanes due to frequent and

unpredictable motorist turning movements across the path of straight-through cyclists. Striped bike lanes can be effective as a safety treatment, especially for less-experienced bicyclists. Two-lane residential/collector streets with lower traffic volume, low-posted speed limit, adequate roadway width for both bike lanes and motor vehicle travel lanes, and an absence of complicated intersections. A median-divided multi-lane roadway with lower traffic volumes and a low volume of right and left turning traffic would be a more appropriate location for bicycle lanes than a high traffic volume undivided multi-lane roadway with a continuous center turn lane. Most bicyclists will choose a route that combines direct access with lower traffic volumes. An origin and destination of less than 4 miles is desirable to generate usage on a facility.

#### **B-4: Wide Paved Shoulders**

On urban streets with curb and gutter, wide outside lanes and bicycle lanes are usually the preferred facilities. Shoulders for bicycle use are not typically provided on roadways with curb and gutter. On rural roadways where bicycle travel is common, such as roads in coastal resort areas, wide paved shoulders are highly desirable. On secondary roadways without curb and gutter where there are few commercial driveways and intersections with other roadways, many bicyclists prefer riding on wide, smoothly paved shoulders.

#### **B-5: Multi-use Pathway**

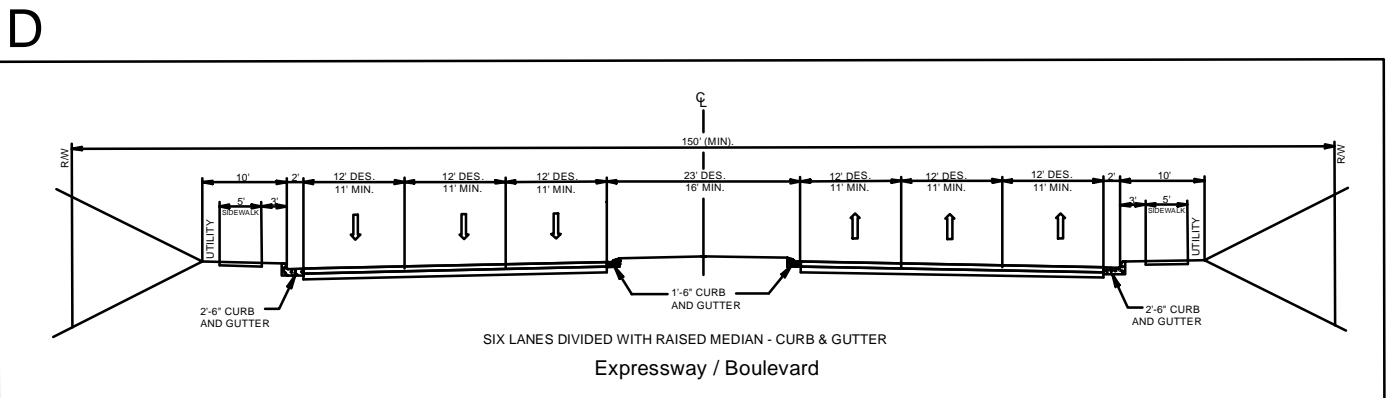
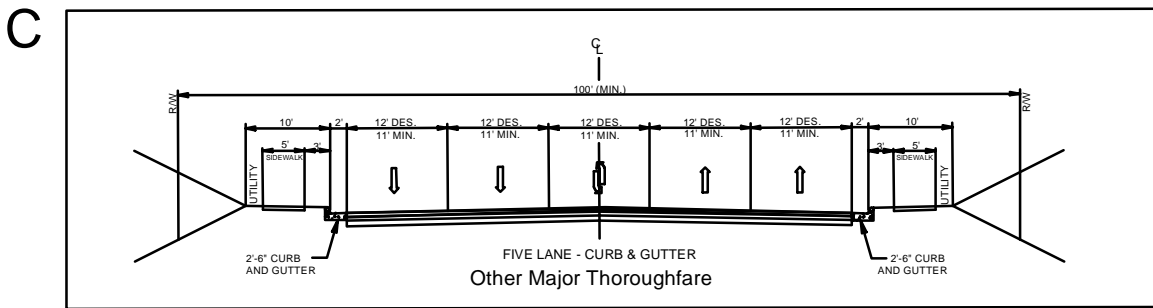
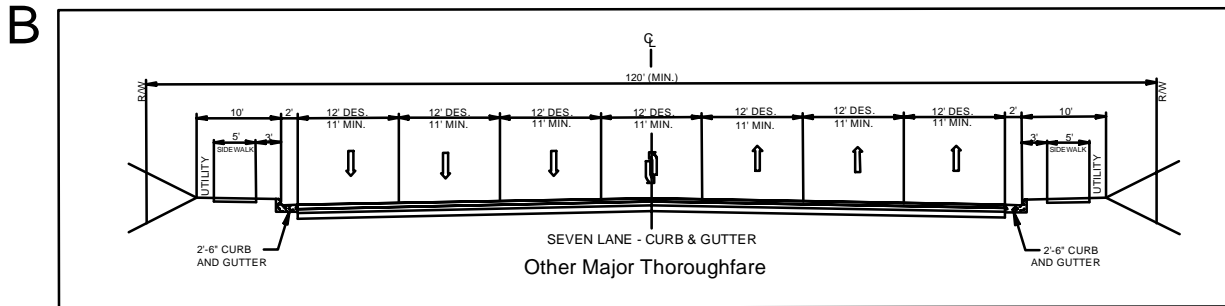
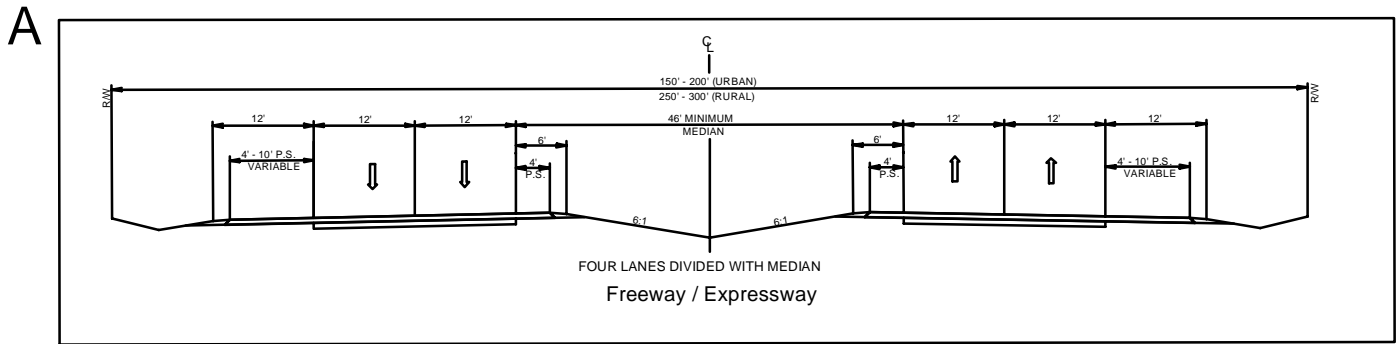
When properly located, multi-use pathway can be a safer type of facility for novice and child bicyclists because they do not have to share the path with motor vehicles. The design standards used for this cross section provides adequate width for two-directional use by both cyclists and pedestrians, provisions of good sight distance, avoidance of steep grades and tight curves, and minimal cross-flow by motor vehicles. A multi-use pathway can serve a variety of purposes, including recreation and transportation. This pathway should not be located immediately adjacent to a roadway because of safety considerations at intersections with driveways and roads. Sidewalks should never be used as a multi-use pathway.

#### **General**

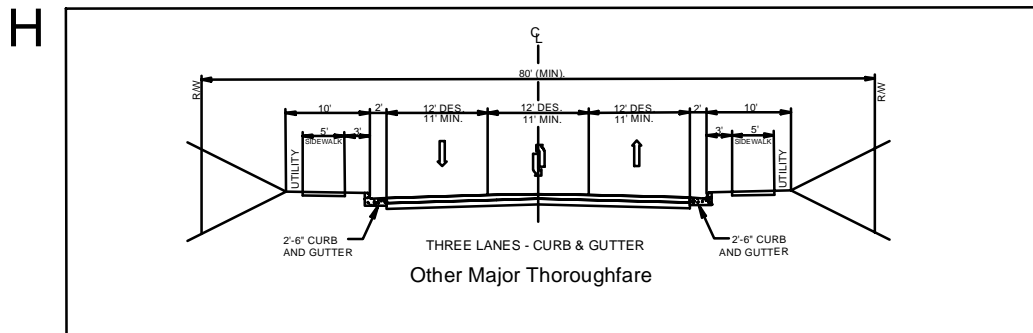
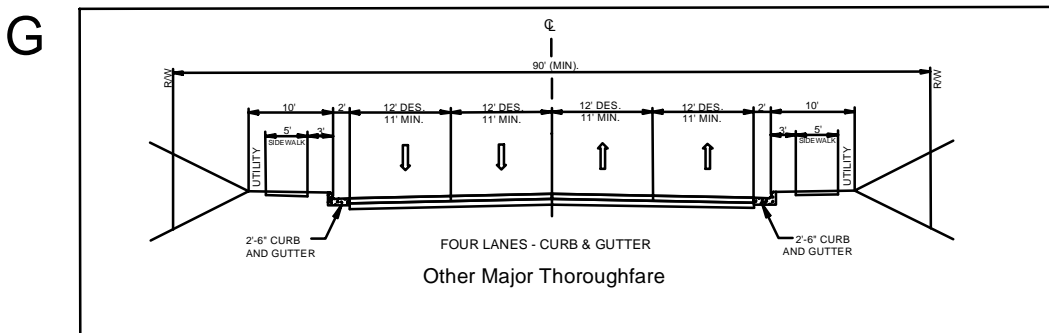
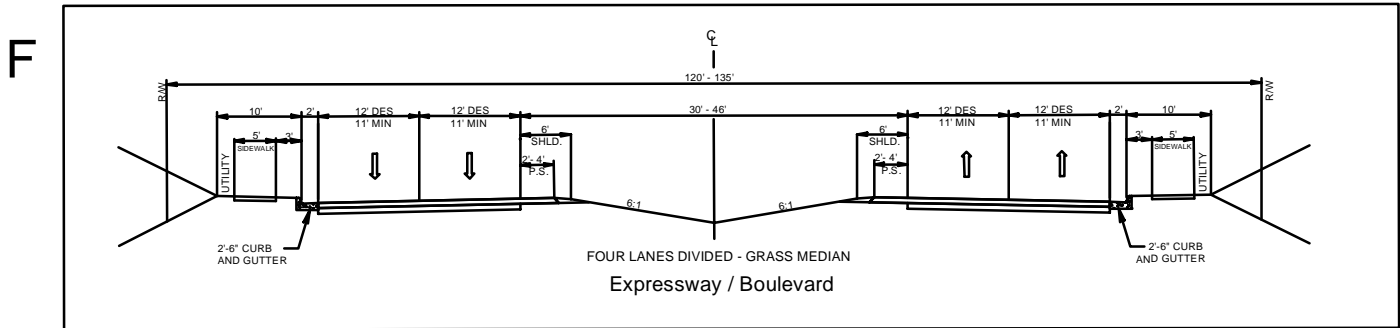
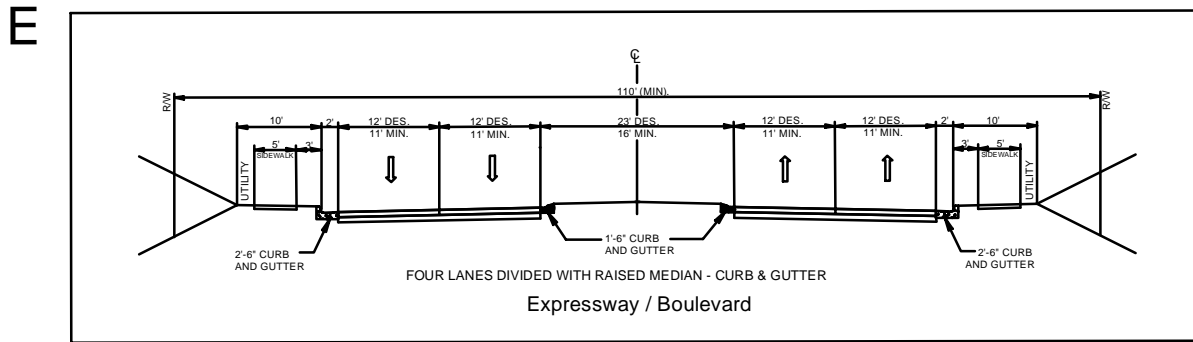
The urban curb and gutter cross sections all illustrate the sidewalk adjacent to the curb with a buffer such as a utility strip or landscaping between the sidewalk and the minimum right-of-way line. This permits adequate setbacks for the safety of the pedestrians while providing locations for utilities. If it is desired to move the sidewalk farther away from the street to provide additional separation for pedestrians or for aesthetic reasons, additional right-of-way must be provided to insure adequate setbacks for the pedestrian's safety was accomplished while providing locations for utilities.

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

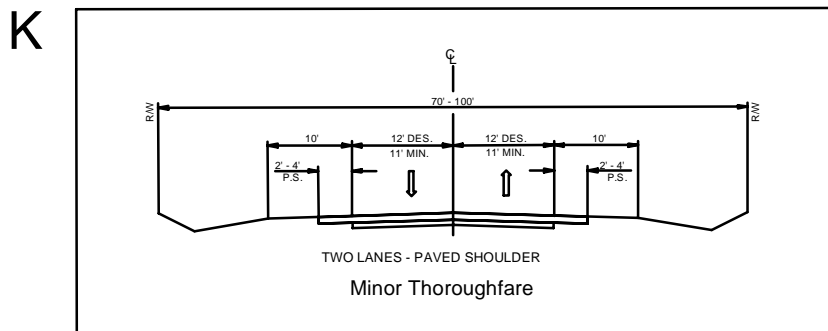
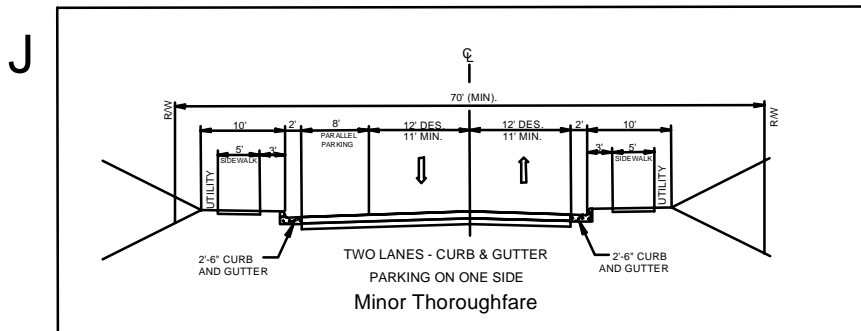
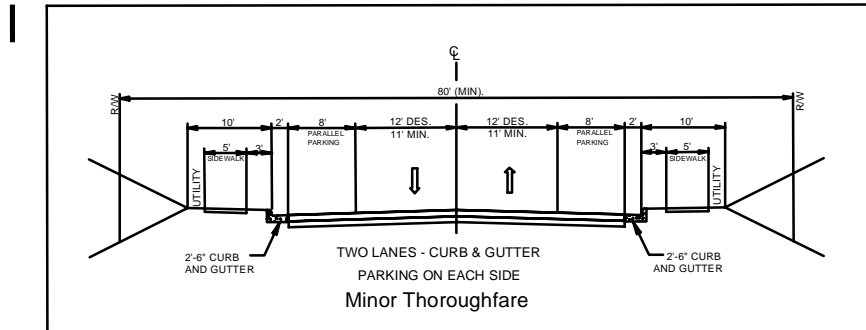
# APPENDIX D: TYPICAL HIGHWAY CROSS SECTIONS



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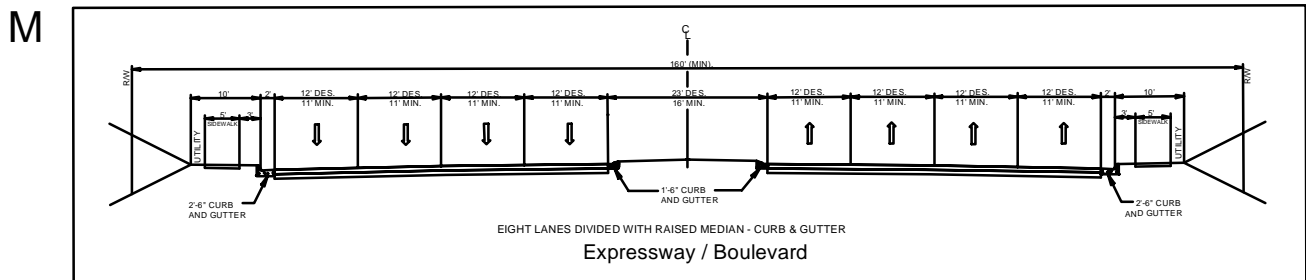
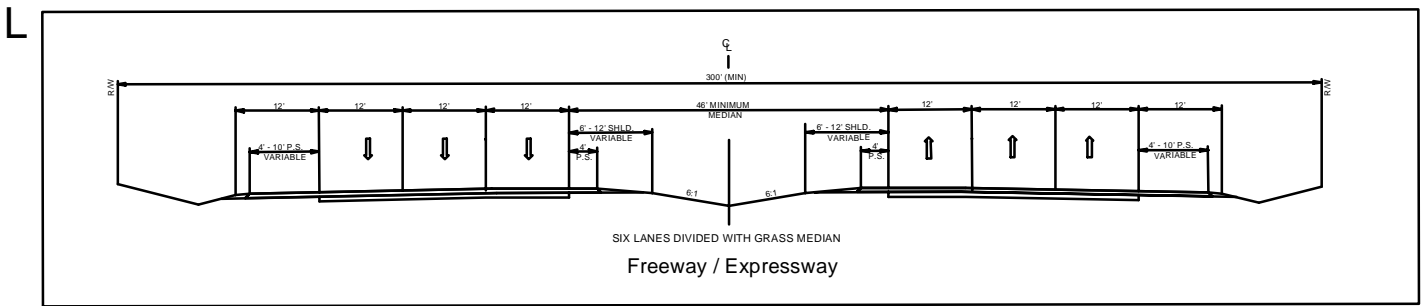


# APPENDIX D: TYPICAL HIGHWAY CROSS SECTIONS



# APPENDIX D:

## TYPICAL HIGHWAY CROSS SECTIONS



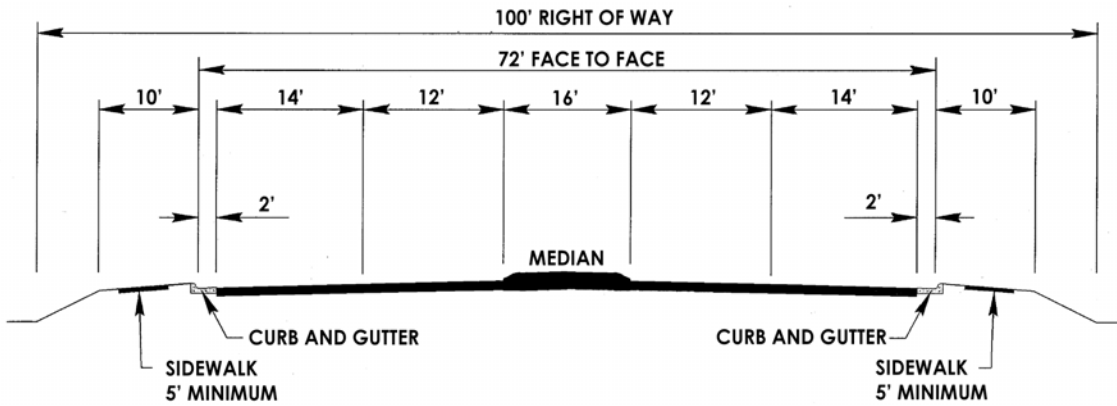


# Typical Bicycle Cross Sections

## WIDE CURB LANES

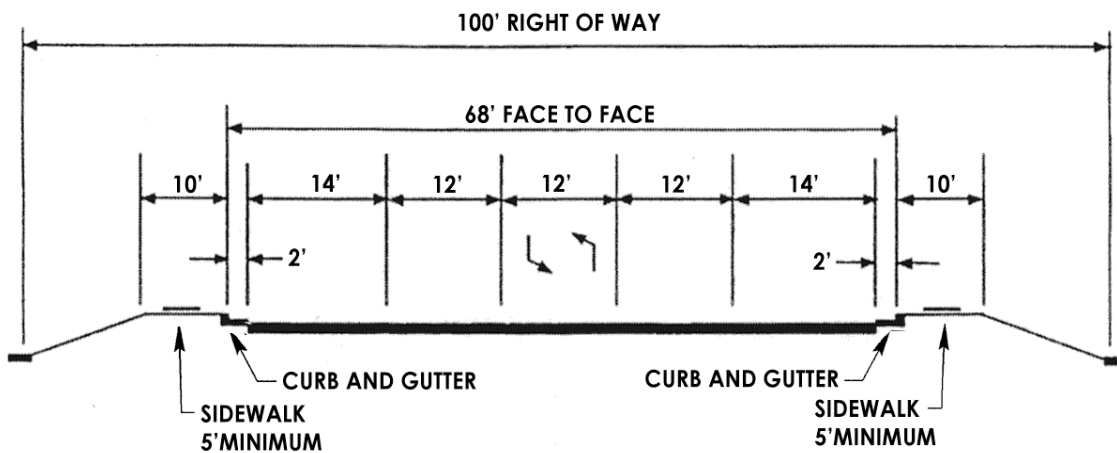
### B-1 4-LANE MEDIAN DIVIDED TYPICAL SECTION

With Wide Outside Lanes



### B-2 5-LANE TYPICAL SECTION

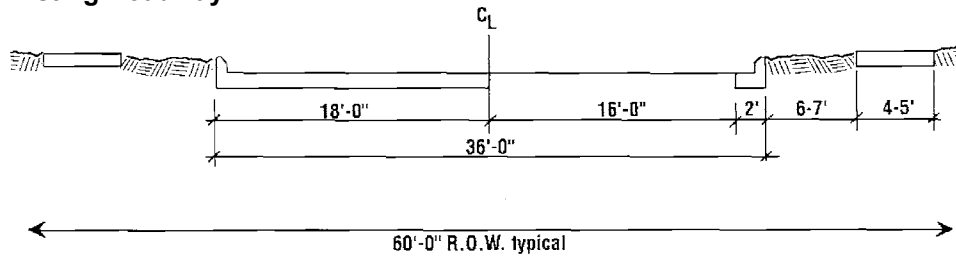
With Wide Outside Lanes



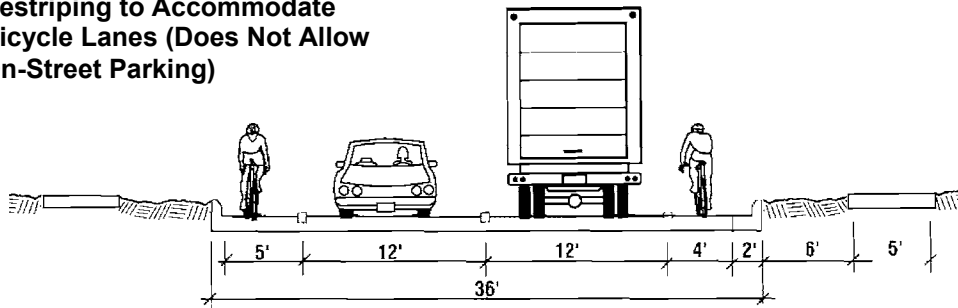
# Typical Bicycle Cross Sections

## **B-3 BICYCLE LANES ON COLLECTOR STREETS**

**Existing Roadway**



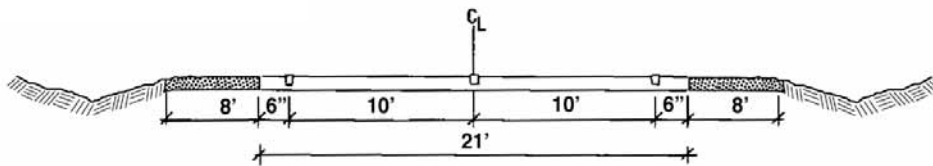
**Restriping to Accommodate Bicycle Lanes (Does Not Allow On-Street Parking)**



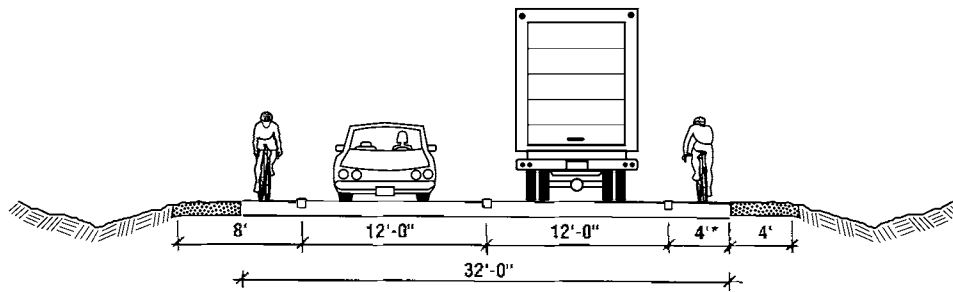
# Typical Bicycle Cross Sections

## **B-4 WIDE PAVED SHOULDERS**

Existing Roadway



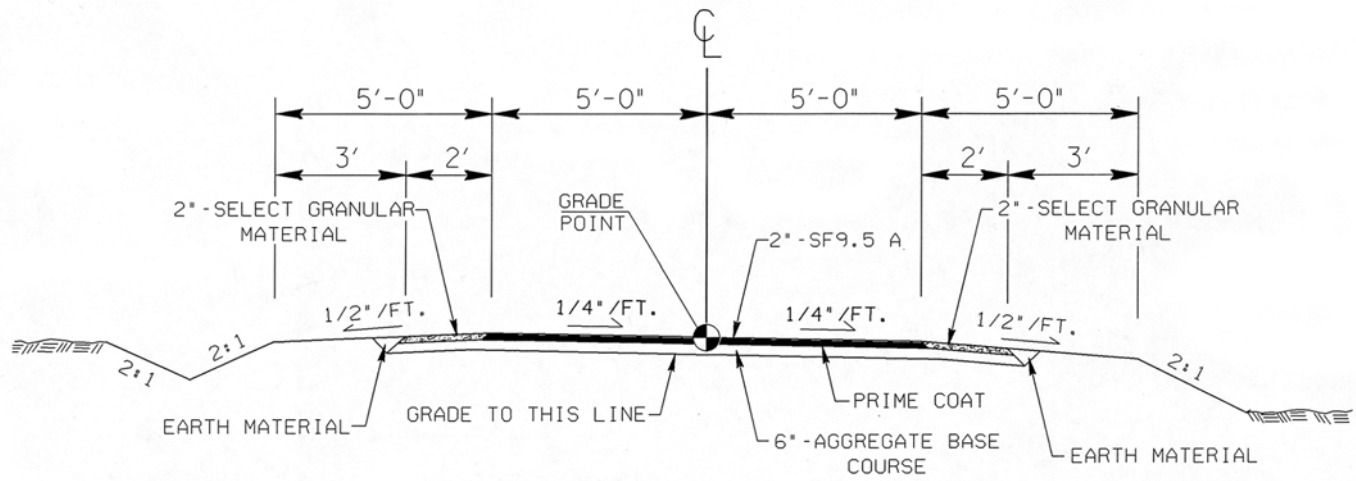
Roadway Retrofitted with  
4-Ft Paved Shoulders



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

## Typical Bicycle Cross Sections

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



**Appendix E.**  
**Technical Supplement**



# **Appendix E.**

## **Travel Forecasting and Technical Analysis**

### **Travel Forecasting Methodology**

There are several methodologies to use to calculate base year and future year travel data. The first step is to determine which methodology to use. The methodology used for this study is called the “trend-line” method. Base Year volumes were projected using the compound interest formula:

$$F=P(1+i)^n$$

Where:

- P equals any present volume;
- F equals any future volume;
- i equals the growth rate over time; and
- n equals the number of years over which the volumes were projected.

Ninety “ground count” locations are on the base year highway network. Historic volumes were collected at each of those ninety locations. The Traffic Surveys Unit of the Transportation Planning Branch collects the Average Annual Daily Traffic volumes on facilities throughout North Carolina. The historic volumes at the locations for the Iredell County Plan were compiled from count data collected between 1983 and 2002. Using the above formula, a 2003 volume and a future year 2030 volume were calculated.

A pure mathematical model does not necessarily correlate with what is actually happening. Therefore, the mathematical model volumes were adjusted to better represent the existing and the expected development in the County based on the available population, land use, and other development information.

Analysis of the roadway system is usually done on several different levels. It is usually done for the road system as a whole, on individual facilities, on individual intersections, on traffic collisions, and on deficient bridges. Problems may result from systemic problems such as missing travel links, bypass routes, loop facilities, or radial routes. Problems may also be from inadequate pavement widths, intersection geometry, or intersection controls.

### **System Analysis**

The roadway system for the study was based on the Federal Functional Classification System network of roads in Iredell County in 2003. These facilities carry the more significant volumes of traffic that travel between the more

significant locations in a region. Some examples in Iredell County include I-77, US 64, NC 901, and Sharon School Road. The list of all the facilities studied can be found in **Appendix C**.

The first step in the analysis of the road network is to analyze how well the facilities are spaced, and if all of the major travel producers and attractions are served by at least one facility. There must be a balance between a too dense network and a too sparse network. Rural areas tend to have a more sparsely distributed network than an urban area. If it is necessary, facilities can be added to fill in the rural network.

## Facility Analysis

One measure of efficiency is Level of Service (LOS). If any section of road is nearing or over capacity it is not operating at an optimum level of service. In general, the capacity of a facility is defined as the maximum number of vehicles that can pass over a given section of roadway during a given time period under prevailing roadway and traffic conditions while still maintaining a level of service that is acceptable to drivers. Many factors contribute to the amount of capacity on a roadway including:

- Geometry of the road, including number of lanes, horizontal and vertical alignment, and proximity of perceived obstructions to safe travel along the road;
- Typical users of the road, such as commuters, recreational travelers, or trucks;
- Access control, including streets and driveways, or lack thereof, along the roadway;
- Development along the road, including residential, commercial, and industrial development;
- 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 at any given time.

There are no standardized LOS capacities for North Carolina. The LOS tables for LOS D developed by the Florida Department of Transportation were used to calculate the practical capacities of the facilities on the Iredell County network. The location, facility type, number of lanes, signals per mile, and the presence of medians and left-turn lanes were used to calculate capacities. The capacities for each facility can be found in **Appendix C**.

Deficiencies in the individual facilities also reflect on the efficiency of the system as a whole. After the road system to be analyzed was established, the traffic volumes from each count location were distributed to all the facilities on the



network based on development patterns and facility types. The individual facilities were then analyzed for any deficiencies in their capacity. The locations where the ground counts were taken are shown in **Figure E-1**.

Capacity deficiencies exist wherever the demand volume on a roadway is close to or more than the capacity of that roadway. The demand volume is the total number of vehicles that wish to use a roadway on a daily basis. The ratio between the volume on the road and the capacity of the road is called the V/C ratio. The closer to 1.00 that the ratio is, the more congested the road is. Values greater than 1.00 indicate that the road is over capacity.

The existing 2003 volumes on the network were compared to the existing capacities of the facilities on the network. Likewise, the 2030 design year volumes were compared to the 2003 practical capacities. If any section of road is nearing or over capacity it will not operate efficiently in the design year. The Volume to Capacity analysis is in **Table E-1**.

**Table E-1 Volume/Capacity Analysis**

Station	Facility	Location	2003			2030			
			Volume	Capacity	2003/2003 V/C	Volume	2030/2003 V/C	Capacity	
1	I-40	East of Garden Valley Rd	30100	67100	0.45	66900	1.00	105800	0.63
2	I-40	West of Goble Rd	40000	67200	0.60	86900	1.29	103600	0.84
3	I-40	West of Sharon School Rd	40000	67200	0.60	86900	1.29	103600	0.84
4	I-77	North of Union Grove Rd	26300	56600	0.46	58300	1.03	87400	0.67
5	I-77	South of Mann Mullis Rd	26000	56600	0.46	57800	1.02	87400	0.66
6	I-77	South of NC 901	47000	56600	0.83	67000	1.18	87400	0.77
7	I-77	South of Northern Olin Loop	29800	56600	0.53	66100	1.17	87400	0.76
8	I-77	North of Jennings Rd	33300	56600	0.59	73900	1.31	87400	0.85
9	I-77	North of Cornelius	53500	67200	0.80	104200	1.55	105800	0.98
10	US 64	North of I-40 Exit 162	2500	13800	0.18	5600	0.41	39200	0.14
11	US 64	South of Campground Rd	2500	13800	0.18	6700	0.49	13800	0.49
12	US 64	North of Page Farm Rd	2700	13800	0.20	5900	0.43	13800	0.43
13	US 64	North of Barry Oak Rd	3500	13800	0.25	6800	0.49	13800	0.49
14	US 64	West of Lackey Farm Rd	5500	13800	0.40	9400	0.68	13800	0.68
15	US 70	East of Elmwood Rd	10800	13100	0.82	25600	1.95	51400	0.50
16	US 21	North of Anthony Rd	900	13800	0.07	1500	0.11	13800	0.11
17	US 21	South of Houstonville Rd	1300	13800	0.09	2600	0.19	13800	0.19
18	US 21	North of Houstonville Rd	1100	13800	0.08	2100	0.15	13800	0.15
19	US 21	North of Butler Mill Rd	2100	13800	0.15	5100	0.37	13800	0.37
20	US 21	North of NC 901	4300	13800	0.31	7300	0.53	13800	0.53
21	US 21	South of NC 901	5100	13100	0.39	8700	0.66	13800	0.63
22	US 21	North of Chief Thomas Rd	4600	13100	0.35	10300	0.79	13800	0.75
23	US 21	North of Blackweider Rd	4600	13100	0.35	10100	0.77	13800	0.73
24	NC 115	South of NC 901	2300	12400	0.19	3900	0.31	12400	0.31
25	NC 115	South of Prospect Rd	2900	13800	0.21	5200	0.38	13800	0.38
26	NC 115	South of Dobson Farm Rd	4500	13800	0.33	7700	0.56	13800	0.56
27	NC 115	South of Ford Farm Rd	5400	13800	0.39	9800	0.71	13800	0.71
28	NC 115	North of Branchwood Lane	7000	13800	0.51	11900	0.86	13800	0.86
29	US 21/NC 115	North of Parkertown Rd	12000	13800	0.87	26400	1.91	33900	0.78
30	US 21/NC 115	South of Shinnville Rd	15500	13800	1.12	27700	2.00	33900	0.82
31	NC 801	North of Wiggins Rd	3000	12400	0.24	1000	0.81	12400	0.81
32	NC 3	South of Patterson Farm Rd	8100	12400	0.65	13800	1.11	13800	1.00
33	NC 150/NC 152	South of Oak Meadow Dr	12800	13100	98	28400	217	39200	72

Table E-1 Volume/Capacity Analysis

Station	Facility	Location	2003			2030			
			Volume	Capacity	2003/2003 V/C	Volume	2030/2003 V/C	Capacity	
35	NC 152	East of Teeter Rd	8100	13100	0.62	14500	1.11	14500	1.00
36	NC 901	East of Boundary Lane	2200	13800	0.16	3700	0.27	13800	0.27
37	NC 901	East of US 21	4100	13800	0.30	7000	0.51	13800	0.51
38	NC 901	West of US 21	3000	12400	0.24	5500	0.44	13800	0.40
39	NC 901	South of Dutchman Rd	3200	12400	0.26	7600	0.61	13800	0.55
40	NC 901	East of I-77	3800	12400	0.31	9600	0.77	13800	0.70
41	NC 901	West of I-77	9200	12400	0.74	13800	1.11	13800	1.00
42	NC 901	East of Howards Bridge Rd	5900	12400	0.48	11400	0.92	13800	0.83
43	NC 901	East of NC 115	3100	12400	0.25	6000	0.48	13800	0.43
44	NC 90	West of Midway Rd	2800	13100	0.21	5300	0.40	13100	0.40
45	NC 90	West of Antietam Rd	2800	13100	0.21	5300	0.40	13100	0.40
46	NC 90	South of Scotts Creek	2500	13100	0.19	5100	0.39	13100	0.39
47	Jennings Rd	South of NC 901	900	12400	0.07	1900	0.15	12400	0.15
48	Jennings Rd	South of Eueptic Springs Rd	900	12400	0.07	2400	0.19	12400	0.19
49	Jennings Rd	South of Vernon Church Rd	1800	12400	0.15	4700	0.38	12400	0.38
50	Jennings Rd	South of Tomlin Mill Rd	3200	12400	0.26	8100	0.65	12400	0.65
51	Sheffield Rd	East of NC 901	1300	11000	0.12	3200	0.29	11000	0.29
52	Sheffield Rd	East of Dyson Rd	1200	11000	0.11	3200	0.29	11000	0.29
53	Old Mocksville Rd	South of NC 901	300	12400	0.2	900	0.07	12400	0.07
54	Old Mocksville Rd	East of White Oak Branch Rd	1200	11000	0.11	2700	0.25	11000	0.25
55	Old Mocksville Rd	West of Chief Thomas Rd	1500	11000	0.14	3600	0.33	11000	0.33
56	Old Mocksville Rd	West of Jefferson Farm Rd	2500	11000	0.23	5800	0.53	11000	0.53
57	Old Mocksville Rd	North of Chestnut Grove Rd	2400	12400	0.19	6100	0.49	12400	0.49
58	Snow Creek Rd	West of Chipley Ford Rd	900	11000	0.08	2000	0.18	11000	0.18
59	Snow Creek Rd	West of Jennings Rd	1400	12400	0.11	3300	0.27	12400	0.27
60	Tomlin Mill Rd	East of Fairmount Rd	2400	13800	0.17	6900	0.50	28000	0.25
61	Fairmount Rd	North of Mitchell Farm Rd	900	11000	0.08	1700	0.15	28000	0.06
62	Fairmount Rd	West of US 21	800	11000	0.07	10000	0.91	28000	0.36
63	Elmwood Rd	South of Barry Oak Rd	600	11000	0.05	1700	0.15	11000	0.15
64	Elmwood Rd	North of US 70	700	11000	0.06	1900	0.17	11000	0.17
65	Barry Oak Rd	East of Mills Garden Rd	2300	11000	0.21	4700	0.43	11000	0.43
66	Scotts Creek Rd	East of NC 90	1400	11000	0.13	2500	0.23	11000	0.23
67	Sharon School Rd	West of New Stirling Rd	2100	12400	0.17	6000	0.48	12400	0.48

**Table E-1 Volume/Capacity Analysis**

Station	Facility	Location	2003			2030		
			Volume	Capacity	2003/2003 V/C	Volume	Capacity	2030/2030 V/C
68	Sharon School Rd	South of Lookout Dam Rd	3300	12400	0.27	9500	12400	0.77
69	Sharon School Rd	South of I-40	2200	12400	0.18	6300	12400	0.51
70	Sharon School Rd	South of Mock Mill Rd	2000	12400	0.16	5800	12400	0.47
71	Sharon School Rd	North of US 70	1500	12400	0.12	4400	12400	0.35
72	Island Ford Rd	West of Cotton Gin Rd	800	11000	0.07	1900	11000	0.17
73	Island Ford Rd	East of Pope Farm Rd	1200	11000	0.11	2800	11000	0.25
74	Buffalo Shoals Rd	South of Pineville Rd	2900	13800	0.21	6400	13800	0.46
75	Buffalo Shoals Rd	South of Eufola Rd	3800	12400	0.31	8500	12400	0.69
76	Ostwalt Amity Rd	East of Cottonwood Cook Rd	2000	12400	0.16	8500	12400	0.69
77	Ostwalt Amity Rd	East of Bethesda Rd	3000	12400	0.24	11800	12400	0.95
78	Ostwalt Amity Rd	East of Amity Hill Rd	2400	12400	0.19	13700	14000	0.98
79	Perth Rd	North of Judas Rd	6200	13800	0.45	17900	28000	0.64
80	Perth Rd	South of Judas Rd	3200	13800	0.23	17500	28000	0.63
81	Perth Rd	South of Cornelius Rd	5000	13800	0.36	17400	28000	0.62
82	Cornelius Rd	East of Perth Rd	3600	12400	0.29	10400	12400	0.84
83	Cornelius Rd	West of I-77	3200	12400	0.26	11200	12400	0.90
84	Enochville Rd	North of Teeter Rd	2100	12400	0.17	6100	12400	0.49
85	Enochville Rd	East of Patterson Farm Rd	1300	12400	0.10	3700	12400	0.30
86	NC 115	Wilkes County Line	3500	12400	0.28	6500	12400	0.52
87	US 70	Catawba County Line	1600	13100	0.12	5800	13800	0.42
88	Old Mountain Rd	East of New Sterling Rd	3100	13800	0.22	5300	13800	0.38
89	Chipley Ford Rd	South of Blue Gill Lane	900	11000	0.08	1500	11000	0.14
90	Woodleaf Rd	East of US 64	1500	11000	0.14	2500	11000	0.23

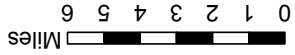


# Iredell County

North Carolina

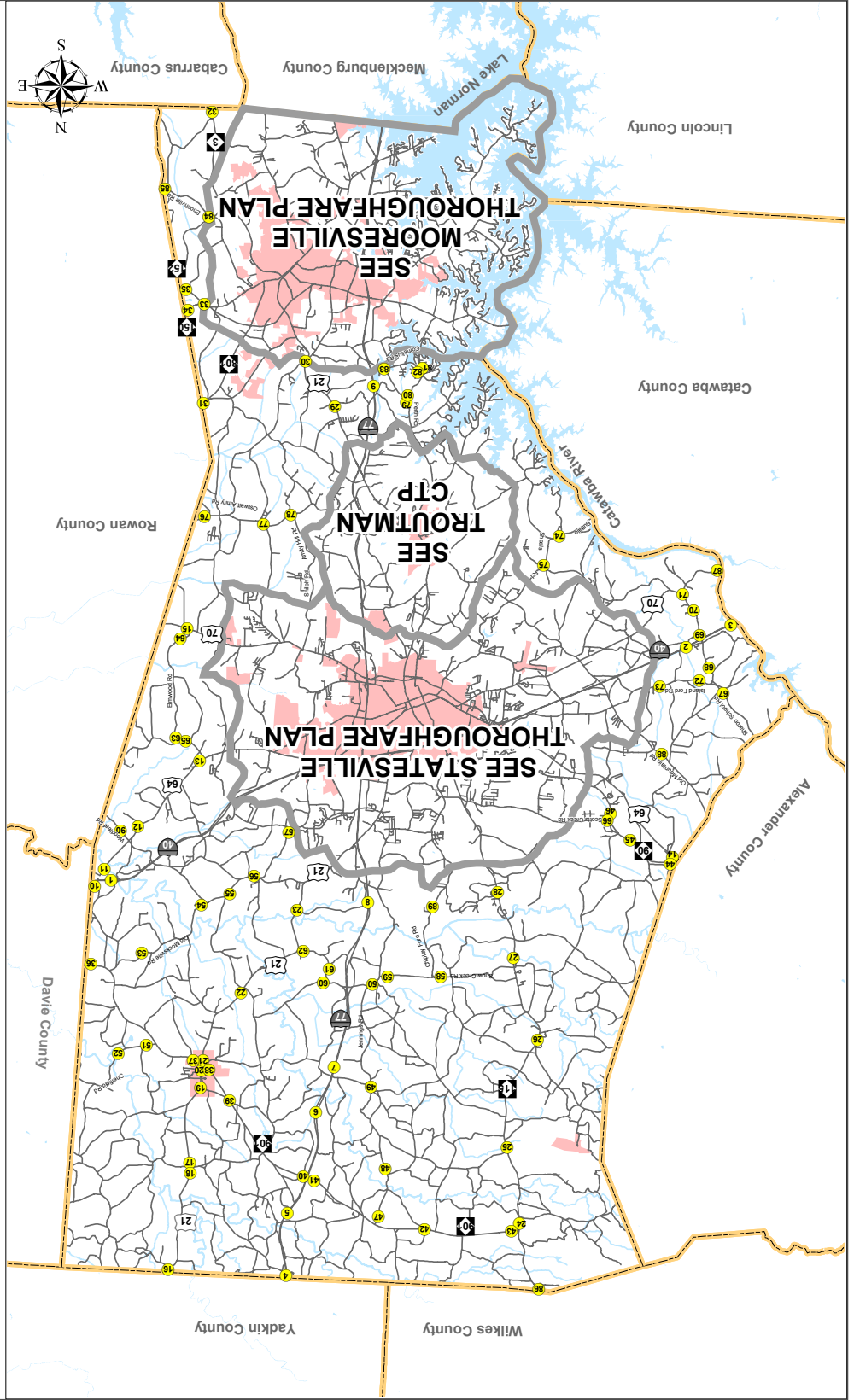
**Count Location Map**  
Figure E-1

- Legend**
- Count Locations
  - Urban Planning Boundary
  - Surrounding Counties
  - Municipal Boundary
  - Rivers and Streams
  - Bodies of Water
  - # Count Number



Base map date: January 1, 2005

Refer to CTP document for more details





**Appendix F**  
**Public Involvement**







The Transportation Planning Branch of the North Carolina Department of Transportation in cooperation with the Lake Norman Rural Planning Organization (RPO) is working with Iredell County to develop a Comprehensive Transportation Plan to address long-range transportation needs of Iredell County excluding Statesville, Troutman, and Mooresville Planning jurisdictions. A map of the County jurisdiction covered by the Transportation Plan is available for viewing at the office of the Iredell County Planning Supervisor.

The goal of the Comprehensive Transportation Plan is to help Iredell County meet anticipated transportation needs in the most efficient and least damaging manner possible. Planning now for future needs will minimize impacts to homes, businesses, and the environment in the future. This meeting will not cover changing local rezoning, land use, or current right of way plans.

**PUBLIC PARTICIPATION IS A CRITICAL ELEMENT TO THE COMPREHENSIVE TRANSPORTATION PLAN.**

A public informational drop-in session will be held with on June 28, 2005, from 6:00 p.m. to 8:00 p.m., in the Commissioner's Chamber at the Iredell County Government Center. Staff from NCDOT and Iredell County will be on-hand to discuss anticipated travel deficiencies, to receive comments and suggestions, and to answer questions from the public. Please contact Steve Warren, Planning Supervisor at 704-878-3130 with any questions regarding this meeting.

**BY ATTENDING THE PUBLIC INFORMATIONAL DROP-IN SESSION, YOU WILL HELP THE NCDOT, LAKE NORMAN RPO, AND IREDELL COUNTY DEVELOP THE BEST PLAN POSSIBLE FOR IREDELL COUNTY.**

Posted on Sun, Jun. 26, 2005

The Charlotte Observer

## Putting ideas back on the road

Iredell's draft transport guide will be opened up for public comment

KATHRYN WELLIN  
Staff Writer

Iredell County residents will have a chance Tuesday night to learn more about the county's long-range transportation plan and give state and local planners feedback.

The Comprehensive Transportation Plan is a roadmap state and local officials use to coordinate transportation improvements with future development and land-use plans. It addresses highway, public, bicycle and pedestrian transportation needs.

"The last one was approved in 1993, so obviously we've had a lot of change in the past 12 years, and we're overdue for a new plan," Iredell County Planning Supervisor Steve Warren said.

The county plan does not include roads in Mooresville, Troutman and Statesville, and some surrounding areas. The comprehensive Troutman plan is being updated, and the Mooresville and Statesville plans will be updated next year.

After public comment, the new plan must be approved by the county planning board, county commissioners and the N.C. Board of Transportation, and be endorsed by the Lake Norman Rural Planning Organization.

That doesn't mean the order of projects on the plan is fixed. As growth patterns shift, some recommended projects could be accelerated or delayed. Also, the state does not have enough money for all its transportation projects. Local officials are expected to lobby for an area's most needed projects.

Here are some ideas on the draft plan to be discussed Tuesday. (The projects do not extend into the areas on the towns' and city's transportation plans).

Widen to eight-lane divided highway:

- Interstate 77 between Mooresville and Troutman.

Widen to six-lane divided highway:

- Interstate 40 from Alexander County to Statesville and from Statesville to Davie County.
- Interstate 77 from Statesville to Yadkin County.

Widen to four lanes with raised medians and turn pockets:

- U.S. 70 from Statesville to Rowan County.
- N.C. 150 from Mooresville to N.C. 152.
- Perth Road from Troutman to Mooresville.
- Amity Hill Road between Troutman and Ostwalt Amity Road, and Ostwalt Amity Road between Troutman and Amity Hill Road.

Widen to five lanes:

- U.S. 21 between Mooresville and Troutman.

For more information on the plan or the public meeting, call Warren at (704) 878-3130.

### **Meeting Tuesday**

The public meeting on Iredell County's new Comprehensive Transportation Plan will be 6-8 p.m. Tuesday in the commissioners' room of the Iredell County Government Center, 200 S. Center St., Statesville.

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<http://www.charlotte.com>

## Steps in the process

### Study Initiation

- Meet with local staff and drive the area

### Data Collection

- Collect data on existing and future land use, population, employment information, and traffic volumes
- Research environmental/cultural concerns
- Solicit input regarding local area needs, issues, concerns, etc.

### Data Analysis

- Conduct existing deficiencies analysis
- Generate future transportation information
- Conduct future deficiencies analysis
- Share findings with local government
- ⇒ Conduct public informational workshops

### Plan Development

- Develop alternative plans
- Review project impacts
- Conduct cost-benefits analyses
- Discuss alternatives with local staff & policy boards
- Conduct public informational workshops
- Discuss/resolve public concerns with local staff
- Work with local staff/policy boards to select recommended plan

### Plan Adoption

- Local government conducts public hearings
- Present plan for adoption by local government and NCDOT Board of Transportation

### Plan Implementation

- Local government enforces land use controls
- Local government presents project request through TIP process

*For additional information please consult the following websites*



[www.ncdot.org/doh/preconstruction/tpb](http://www.ncdot.org/doh/preconstruction/tpb)



[www.co.iredell.nc.us](http://www.co.iredell.nc.us)

Lake Norman Rural Planning  
Organization

[www.centralina.org](http://www.centralina.org)

Draft 2006-2012  
Transportation Improvement  
Program

[http://www.ncdot.org/planning/development/  
TIP/TIP/Trans/division12.htm](http://www.ncdot.org/planning/development/TIP/TIP/Trans/division12.htm)

NCDOT Division of Bicycle and  
Pedestrian Transportation

[www.ncdot.org/transit/bicycle/](http://www.ncdot.org/transit/bicycle/)



Iredell County  
Comprehensive  
Transportation Plan

Transportation 2030



*For additional information please  
contact Steve Warren at  
(704) 878-3130.*

## Highway Category Descriptions

### *Highways divided by a center median*

#### **FREEWAY**

This roadway has high traffic volumes moving at high speeds. The intent is to move people and goods over long distances without interruption. Access to this roadway is only allowed at interchanges.  
Examples: I-77, I-40

#### **EXPRESSWAY**

This roadway has high traffic volumes moving at medium to high speeds (45-60 mph). Access is allowed to the highway at limited locations. There are no traffic signals, and median openings are limited. U-turns may be allowed at some locations.  
Examples: US 321

#### **BOULEVARD**

This roadway moves traffic at lower speeds (30-55 mph) to allow access to developed land. Traffic signals and driveway access are allowed.  
Examples: US 74 through Monroe

### *Undivided Highways*

#### **OTHER MAJOR THOROUGHFARE**

Roadways that have more than three lanes for travel are in this category. This category includes all undivided US and NC routes, regardless of number of lanes. These roads are to provide access to local development.  
Examples: NC 73, NC 16, NC 150

#### **MINOR THOROUGHFARE**

Undivided roadways that have three lanes or less for travel and do not meet the criteria for Other Major Thoroughfares are included in this category.  
Examples: Old Mountain Road, Old Mocksville Road

## What is Transportation Planning?

Transportation planning is the process of developing a long-range plan of action for roadway systems in an area. The main purpose of this plan is to ensure that the roadway system will be able to meet the needs of a community or region with development of land and increases in traffic volumes. It is a tool used by the local government to plan for future transportation needs, while keeping negative impacts to a minimum. By planning now for future transportation needs, transportation planning can reduce unnecessary costs and disruption to citizens, business, and environment, while improving traveler safety.

## What is plan implementation?

Implementation is an important part of the transportation planning process. Iredell County should use their CTP as technical support when requesting projects from the Board of Transportation, the Division Engineer, or the Transportation Improvement Program (TIP). These plans should be used when developing land use, park and recreation, or area comprehensive plans, or when making policy decisions to ensure compatibility of proposed developments with the proposed CTP.

## What is a Rural Planning Organization (RPO)?

RPOs are made of 3-15 counties and must have at least 50,000 population. The Lake Norman RPO contains Iredell County, Cleveland County, Lincoln County, and the north part of Gaston County and includes each municipality within those counties. The purpose of an RPO is to work cooperatively with NCDOT to plan rural transportation systems and to advise NCDOT on rural transportation policy.

## Local TIP projects

### **R-2911**

**US 70, Statesville to Salisbury, Widen to multi-lanes**

### **I-4730**

**I-40, Asheville to Winston-Salem, Study for future improvements**

### **I-4750**

**I-77, NC 73 to I-40, Widen to multi-lanes**

## Frequently Asked Questions

### What is a Comprehensive Transportation Plan?

The Comprehensive Transportation Plan (CTP) was created in response to a new law that requires transportation planning to be multi-modal and in coordination with local land development planning. The CTP is a set of five maps that provides coordinated planning between all modes of transportation in the area. Independently the highway map, public transportation and rail map, and bicycle map offer insight into the future modal elements for an area. Together, the maps form an all-inclusive look at the transportation system.





## How bikeable is your community?

Please take a moment to rate your community's bikeability. When you are finished, please drop the questionnaire in the colorful box by the doors on your way out.

### Did you have a place to bicycle safely?

#### On the road, sharing the road with motor vehicles

- Yes
  - Some problems (please note locations):
    - No space for bicyclists to ride
    - Bicycle lane or paved shoulder disappeared
    - Heavy and/or fast-moving traffic
    - Too many trucks or buses
    - No space for bicyclists on bridges
    - Poorly lighted roadways
- Other problems: \_\_\_\_\_
- 

#### On an off-road path or trail, where motor vehicles were not allowed?

- Yes
  - Some problems (please note locations):
    - Path ended abruptly
    - Path didn't go where I wanted to go
    - Path intersected with roads that were difficult to cross
    - Path was crowded
    - Path was unsafe because of sharp turns
    - Path was uncomfortable because of too many hills
    - Path was poorly lighted
- Other problems: \_\_\_\_\_
- 

The format of the meeting was engaging and allowed all attendees to participate.

- Strongly agree
  - Agree
  - Neutral
  - Disagree
- Other problems: \_\_\_\_\_
- 

The meeting increased my knowledge and understanding of the topic.

- Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
- Other problems: \_\_\_\_\_
- 

How would you rate this meeting?

- Excellent
  - Good
  - Average
  - Fair
  - Poor
- Other Problems: \_\_\_\_\_
- 

The meeting provided ample opportunities to comment (both written and orally).

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

The meeting increased my interest in the topic.

- Excellent
- Good
- Average
- Fair
- Poor

**Environment**

There was ample notice of the public meeting.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

The time of the meeting was convenient.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

The location of the meeting was convenient and suitable.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

How did you hear about the meeting?

- Newspaper
- Radio
- Television
- Friend
- Other \_\_\_\_\_

**Please include any additional comments on how Iredell County and NCDOT can improve its public meetings and workshops on the back of this page.**

***Thank you for your participation!***

**Additional Comments**

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IREDELL COUNTY PLANNING BOARD

# Board looks at long-term transit needs

*Preliminary 30-year plan includes roads, public transit, bicycles and pedestrians*

BY CARRIE J. SIDENER  
CSIDENER@STATESVILLE.COM

A plan for the needs of Iredell County's transportation system for the next 30 years is now under review.

The Iredell County Planning Board reviewed the preliminary Comprehensive Transportation Plan drawn up by the N.C. Department of Transportation with the help of the county planning department.

The planning board has not yet voted on the plan. It is expected to vote at its August meeting. Then the plan goes before the Iredell County commissioners for approval before going to the NCDOT for approval.

"Basically, this is a land-use plan

for planners," said planning board member Harry Tsomas.

The county's last transportation plan was created in 1993, said planning supervisor Steve Warren.

"The plan is long overdue for an update," Warren said. "Our current plan is almost 12 years old, and there have been a lot of changes in the county since then."

The plan does not include roads in Statesville, Mooresville and Troutman, which concerned some of the board members.

"In our county, it's about all the municipalities and the county working together," Tsomas said.

Linda Dosse, transportation engineer for the N.C. Department of Transportation, said the plans for the municipalities will be coordinated with the county's plan.

The plan consists of four maps —

one showing the roads, one for public transit, one for bicycles and one for pedestrians, although that plan is not finished.

"There's not a lot of change to the facilities recommended, because we feel these facilities can handle the traffic projected in 2030," Dosse said. "The Comprehensive Transportation Plan is a concept. Any recommendations that come out of the study for improvements that are needed over the next 30 years depends on the traffic and development that occurs."

Dosse said the plan doesn't mean that its recommendations will get funded, which is why it's up to the county to make the recommendations a priority.

"The initiative for implementing the plans has to come from the local boards," Dosse said.

The draft plan suggests: ■ Widening Interstate 77 to eight

lanes between Mooresville and Troutman.

■ Widening Interstate 49 to six lanes from Alexander to Davie counties and doing the same with Interstate 77 from Statesville to the Yadkin County line.

■ Widening to four lanes with a raised median and turn pockets roads U.S. 70 from Statesville to Rowan County, N.C. 150 from Mooresville to N.C. 152, Perth Road from Troutman to Mooresville and Amity Hill Road through Troutman to Oswalt Amity Road.

■ Widening to five lanes U.S. 21 between Mooresville and Troutman.

**MORE TRANSIT NEWS**

State board approves seven-year plan

**PAGE 7A**

**TROPICAL WEATHER**

# Twister touches down to the west

Trees uprooted, homes and stores





**Appendix G.**  
**Environmental Status Codes**



# **Appendix G**

## **Definitions Of Environmental Status Codes**

### **Natural Heritage Program List**

#### **North Carolina Status and Descriptions of Plants<sup>1</sup>**

**E Endangered**

“Any species or higher taxon of plant whose continued existence as a viable component of the States flora is determined to be in jeopardy” (GS 19B 106: 202.12). (Endangered species may not be removed from the wild except when a permit is obtained for research, propagation, or rescue which will enhance the survival of the species).

**T Threatened**

“Any resident species of plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” (GS 19B 106: 202.12). (Regulations are the same as for Endangered Species).

**SC Special Concern**

“Any species of plant in North Carolina which requires monitoring but which may be collected and sold under regulations adopted under the provisions of [the Plant Protection and Conservation Act]” (GS 19B 106:202.12). (Special Concern species which are not also listed as Endangered or Threatened may be collected from the wild and sold under specific regulations. Propagated material only of Special Concern species which are also listed as Endangered or Threatened may be traded or sold under specific regulations.)

**C Candidate**

Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are also either rare throughout their ranges (fewer than 100 population total) or disjunct in North Carolina from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in North Carolina, but fewer than 50 populations worldwide. These are species which have the preponderance of their distribution in North Carolina and whose fate depends largely on their conservation here. Also included are many species known to have once occurred in North Carolina but with no known extant occurrences in the state (historical or extirpated species); if these species are relocated in the state, they are likely to be listed as Endangered or Threatened. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened.

**SR Significantly Rare**

Species which are very rare in North Carolina, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 population range wide and are declining.

**-L Limited**

The range of the species is limited to North Carolina and adjacent states (endemic or near endemic). These are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. The preponderance of their distribution is in North Carolina and their fate depends largely on conservation here. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations range wide and declining.

**-T Throughout**

These species are rare throughout their ranges (fewer than 100 population total)

**-D Disjunct**

The species is disjunct to NC from a main range in a different part of the country or world.

**-P Peripheral**

The species is at the periphery of its range in NC. These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina.

**-O Other**

The range of the species is sporadic or cannot be described by the other Significantly Rare categories.

**-P Proposed**

A species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the legally mandated listing process.

**North Carolina Status and Description of Animals<sup>2</sup>**

**E Endangered**

"Any native or once-native species of wild animal whose continued existence as a viable component of the State's fauna is determined by the Wildlife Resources Commission to be in jeopardy or any species of wild animal determined to be an 'endangered species' pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).

**T Threatened**

"Any native or once-native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).

**SC Special Concern**

"Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this Article." (Article 25 of Chapter 113 of the General Statutes; 1987).

**SR Significantly Rare**

Any species which has not been listed by the N.C. Wildlife Resources Commission as an Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined by the N.C. Natural Heritage Program to need monitoring. (This is a N.C. Natural Heritage Program designation.) Significantly Rare species include "peripheral" species, whereby North Carolina lies at the periphery of the species' range (such as Hermit Thrush). The designation also includes marine and estuarine fishes identified as "Vulnerable" by the N.C. State Museum of Biological Sciences (Ross et al., 1988, Endangered, Threatened, and Rare Fauna of North Carolina. Part II. A Reevaluation of the Marine and Estuarine Fishes).

**EX Extirpated**

This is a species which is no longer believed to occur in the state.

**P Proposed**

Species has been proposed by a Scientific Council as a status (Endangered, Threatened, Special Concern, Watch List, or for De-listing) that is different from the current status, but the status has not yet been adopted by the Wildlife Resources Commission and by the General Assembly as law. In the lists of rare species in this book, these proposed statuses are listed in parentheses below the current status. Only those proposed statuses that are different from the current statuses are listed.

### **Federal Status Description<sup>3</sup>**

**E Endangered**

A taxon “which is in danger of extinction throughout all or a significant portion of its range” (Endangered Species Act, Section 3).

**T Threatened**

A taxon “which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” (Endangered Species Act, Section 3).

**EXN Endangered, nonessential experimental population.**

The Endangered Species Act permits the reintroduction of endangered animals as "nonessential experimental" populations. Such populations, considered nonessential to the survival of the species, are managed with fewer restrictions than populations listed as endangered.

**T(S/A) Threatened due to Similarity of Appearance.**

The Endangered Species Act authorizes the treatment of a species (subspecies or population segment) as threatened even though it is not otherwise listed as threatened if: (a) The species so closely resembles in appearance a threatened species that enforcement personnel would have substantial difficulty in differentiating between the listed and unlisted species; (b) the effect of this substantial difficulty is an additional threat to a threatened species; and (c) such treatment of an unlisted species will substantially facilitate the enforcement and further the policy of the Act. The American Alligator has this designation due to similarity of appearance to other rare crocodylians. The Bog Turtle (southern population) has this designation due to similarity of appearance to Bog Turtles in the threatened northern population.

**C Candidate**

A taxon under consideration for which there is sufficient information to support listing. This category was formerly designated as a Candidate 1 (C1) species.

**FSC Federal “Species of Concern”**

Formerly defined as a taxon under consideration for which there is insufficient information to support listing; formerly designated as a Candidate 2 (C2) species.

**PE Proposed Endangered**

Species has been proposed for listing as endangered.

**PD Proposed Delisted**

Species has been proposed for de-listing.

## **State Ranks Description**

- S1** Critically imperiled in North Carolina because of extreme rarity or otherwise very vulnerable to extirpation in the state.
- S2** Imperiled in North Carolina because of rarity or otherwise vulnerable to extirpation in the state.
- S3** Rare or uncommon in North Carolina
- S4** Apparently secure in North Carolina, with many occurrences.
- S5** Demonstrably secure in North Carolina and essentially ineradicable under present conditions.
- SA** Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species.
- SH** Of historical occurrence in North Carolina, perhaps not having been verified in the past 25 years, and suspected to be still extant in the state.
- SR** Reported from North Carolina, but without persuasive documentation for either accepting or rejecting the report.
- SX** Believed to be extirpated from North Carolina.
- SU** Possibly in peril in North Carolina, but status uncertain; more information is needed.
- S?** Unranked, or rank uncertain.
- S B** Rank of breeding population in the state. Used for migratory species only.
- S N** Rank of non-breeding population in the state. Used for migratory species only.
- SZ** Population is not of significant conservation concern; applies to transitory, migratory species.

<sup>1</sup> **Plant statuses** are determined by the Plant Conservation Program (NC Department of Agriculture) and the Natural Heritage Program (NC Department of Environment and Natural Resources). Endangered, Threatened, and Special Concern species are protected by state law (Plant Protection and Conservation Act, 1979). Candidate and Significantly Rare designations indicate rarity and the need for population monitoring and conservation action. Note that plants can have a double status, e.g., E-SC, indicates that while the plant is endangered, it is collected or sold under regulation.

<sup>2</sup> **Animal statuses** are determined by the Wildlife Resources Commission and the Natural Heritage Program. Endangered, Threatened, and Special Concern species of mammals, birds, reptiles, amphibians, freshwater fishes, and freshwater and terrestrial mollusks have legal protection status in North Carolina (Wildlife Resources Commission). The Significantly Rare designation indicates rarity and the need for population monitoring and conservation action.

<sup>3</sup> These statuses are designated by the US Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as amended through the 100th Congress. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 56, No. 225, November 21, 1991 (50 CFR Part 17).