

4. Analysis of Catawba's Roadway System

This chapter presents an analysis of the ability of the existing roadway system to serve the area's travel desires. Emphasis is placed not only on detecting the deficiencies, but also on understanding their cause. Travel deficiencies may be localized and the result of substandard highway design, inadequate pavement width, or intersection controls. Alternately, the underlying problem may be a system deficiency such as a need for a bypass, loop facility, construction of missing links, or additional radials.

Analysis of the roadway system involves examination of the existing travel patterns and identification of existing deficiencies. Roadway capacity and safety analyses are also essential in evaluating the existing transportation system. After a picture of the existing travel conditions has been developed, factors that will impact the future transportation system must be analyzed. These factors include projected population growth, economic development potential and land use trends. This information is used to determine anticipated future deficiencies in the transportation system.

Current Transportation Plans for Catawba County

Thoroughfare Plans

A thoroughfare plan is a tool to aid officials in the development of an appropriate transportation system. It is important that the communities within a county and county officials cooperate in the development of their transportation system. Thoroughfare plan development and implementation, jointly undertaken, will help ensure the development of an efficient system for travel throughout the county. The following thoroughfare planning studies have previously been done for Catawba County:

1. Catawba County, plan adopted in 1991*
2. Hickory-Newton-Conover MPO, plan adopted in 2001
3. Maiden, plan adopted in 1989

* Thoroughfare plan currently is being updated

Transportation Improvement Program Projects

The Transportation Improvement Program (TIP) is a seven-year project planning document that lists the major transportation improvement projects planned by the North Carolina Department of Transportation (NCDOT). In addition to roadway projects, the TIP includes funding for bridge replacements, highway safety projects, enhancement projects, environmental mitigation, railroad crossings, bicycle facilities, and public transportation. Listed below are projects identified in the 2002 – 2008 TIP for Catawba County.

1. I-40

I-3302: SR 1717 (Exit 138) to west of SR 1512 (Exit 146) in Iredell County. Pavement and bridge rehabilitation.

2. US 321

R-85: NC 27-150 in Lincolnton to NC 127 in Hickory. Four-lane divided facility on new location.

3. NC 16

*R-2206: South of Lucia in Gaston County to SR 1895 in Catawba County. Four-lane divided facility on new location.

4. NC 16

*R-3100: North of SR 1895 to SR 1800 southeast of Newton. Widen roadway to multi-lane.

5. Newton-Conover Loop

U-2404: From NC 16 south of Newton to NC 16 north of Conover. Construct a five-lane curb and gutter facility

6. Lenoir Rhyne Boulevard Extension.

U-2306: From Tate Blvd. NE to 8th Street NE. Widen to multi-lane. Part on new location and realign 8th Street NE to connect with Highland Avenue NE.

7. East Side Thoroughfare

*U-2307: From US 70 to NC 127. Multi-lane facility. Part on new location.

8. Tate Boulevard Extension

U-2414: East of SR 1468 (Sweetwater Road) to I-40. Widen SR 1692 to multi-lane, construct a multi-lane connector from SR 1692 to SR 1007 and widen SR 1007 to multi-lane.

9. Northwest Loop

*U-2528: From 33rd Street at I-40 to Airport Road at US 321. Multi-lane improvements. Connector on new location and a new interchange at SR 1124 and I-40.

10. NC 127 and SR 1213

*U-2530: Widen NC 127 to multi-lanes from SR 1132 to SR 1008 and upgrade and extend SR 1213. Proposed US 321-NC 127 interchange at SR 1184.

11. US 321 to NC 127

**U-3614: Construct a two-lane facility on four-lane right-of-way. Some new locations.

12. I-40

**I-906: From SR 1484 (4th Avenue) in Conover to SR 1717(Exit 138). Concrete pavement and seven bridge deck rehabilitation.

13. I-40

**I-2802: From Burke County line (mile post 120) to SR 1484 (4th Avenue). Pavement rehabilitation, bridge and safety improvements.

14. Newton-Conover West Loop

**U-2529: From SR 1476 (Fairgrove Church Road), NC 10 southwest of Newton to SR 1491 (Section House Road). Widen to multi-lane and construct a multi-lane connector on new location.

15. Hickory North Crosstown Loop

**U-2531: From NC 127 to NC 16 in Conover. Construct a multi-lane facility on new location.

16. Southern Loop

**U-2532: From I-40 at SR 1124 to US 321 in Newton. Construct a multi-lane facility on new location.

17. 13th Avenue SE Extension

**U-2535: From sR 1007 (Lenoir Rhyne Boulevard) to SR 1468 (Sweetwater Road). Construct multi-lane on new location.

18. Newton-Conover South Loop

**U-3450: From NC 10 West to NC 16. Construct a two-lane facility with paved shoulders, part on new location.

19. NC 127

**U-3603: from SR 1400 (Cloninger Mill Road)to SR 1156 (Richie Road) in Alexander County. Upgrade two-lane facility and provide some five-lane curb and gutter.

20. US 321-NC 127 Connector

**U-3614: Two lanes on four lanes Right-Of-Way. Some new locations.

21. Bridge Projects

B-4456: I-40 – Replace bridge #49

B-4061: Hagan Creek. SR 1727 – Replace bridge #90

B-4457: Clark Creek. SR 2012 – Replace bridge #120

B-4458: South Fork Catawba River. SR 2019 – Replace bridge #95

B-2813: Jacobs Fork Creek. SR 1008 – Replace bridge #54.

B-4059: Anthony Creek. SR 1156 – Replace bridge #79.

B-2940: Clark Creek. SR 1165 – Replace bridge #82.

B-4060: Creek. SR 1486 – Replace bridge #17.

B-3822: Creek. SR 1706 – Replace bridge #8.

B-2941: McLin Creek. SR 1722 – Replace bridge #94.

B-4061: Hagan Creek. SR 1727 – Replace bridge #90.

B-4062: Pinch Gut Creek. SR 1880 – Replace bridge #127 with Culvert.

B-3132: NC 127. Main Avenue – Replace deck bridge #75

* Project listed in TIP, but only partially funded

** Project listed in TIP, but no funds have been assigned.

Existing Travel Patterns and Deficiencies

Traffic Demand

For the purposes of a thoroughfare plan study, roads that are functionally classified are principally the ones studied. Appendix A provides an explanation of functional classification. Travel demand on these facilities is measured in the form of average daily traffic counts. Traffic counts are periodically taken by the NCDOT throughout the state, including many locations in Catawba County. The 2000 average daily traffic (ADT) for Catawba County's thoroughfare plan roads is shown in Figure 3-4 and listed in Appendix B, Table B-1.

Width and Alignment Deficiencies

NCDOT's roadway design standards establish criteria for minimum pavement widths, dependent on the type of facility, the design speed, and the current and design year ADT. These criteria call for 12-foot lanes for all highways with design speeds greater than 50 miles per hour (mph) and design year ADT greater than 2,000 vehicles per day (vpd). However, roads with lower speeds and ADT are designed with lane widths as narrow as 10 feet. In addition to criteria for designing new facilities, there are standards for minimum tolerable lane widths on existing roads. These minimum tolerable lane widths are summarized below in Table 4-1.

Table 4-1

Minimum Tolerable Lane Widths			
Average Daily Traffic (vpd)	Principle Arterials (ft)	Minor Arterials (ft)	Collectors (ft)
Over 2000	11	11	11
400 - 2000	-	10	10
100 - 400	-	10	9
Below 100	-	-	9

There are a number of roads in Catawba County that have substandard widths. Due to the substantial cost of upgrading all secondary roads to standard 12-foot lanes, narrower widths may have to be tolerated until sufficient funds are available for improvements. The roads identified as part of the Catawba County's Thoroughfare Plan study that have substandard widths and, based on the volume of traffic on the road, are recommended to be widened to 12-foot lanes are listed below.

- Rhoney Farm Road (SR 1002)
- Buffalo Shoals Road (SR 1003)
- Zion Church Road (SR 1008)
- Old Catawba Road (SR 1722)
- Boggs Road (SR 1727)
- Balls Creek Road (SR 1810)
- Bandys Cross Road (SR 1813)
- Little Mountain Road (SR 1815)

- Sherrills Ford Road (SR 1848)
- East Maiden Road (SR 1855)
- Plateau Road (SR 2036)

Capacity Analysis of the Existing System (Area outside of the Hickory-Newton-Conover and Maiden Planning limit)

The adequacy of the existing roadway system is evaluated by comparison of traffic volumes to the ability of the roads to move traffic freely at a desirable speed. The ability of a facility to move traffic freely, safely, and efficiently with minimum delay is controlled primarily by the type and spacing of traffic control measures. Thus, the ability of a road to move traffic can be increased by restricting parking and turning movements, using proper sign and signal devices, and by applying other traffic engineering strategies.

Capacity is the maximum number of vehicles which have a “reasonable expectation” of passing over a given section of roadway, during a given time period under prevailing roadway and traffic conditions. Roadway capacities and average daily traffic for facilities in Catawba County are shown in Figure 3-4 and listed in Appendix B, Table B-1. Currently, the following facility in Catawba County is nearing capacity:

- NC 150: From SR 1848 (Sherrills Ford Road) to Iredell County

The relationship of traffic volumes to the capacity of the road determines the level of service (LOS) provided. Six levels of service have been defined, with letter designations from A to F. LOS A represents the best operating conditions and LOS F represents the worst.

The definitions of levels of service are general and conceptual in nature. Levels of service for interrupted flow, or signalized facilities, vary widely in terms of both the users perception of service quality and the operational variables used to describe them. The 1995 Highway Capacity Manual contains more detailed descriptions of the levels of service as defined for each facility type. The six levels of service, whose definitions follow, are illustrated in Figure 4-1.

Levels of Service

LOS A

Describes primarily free flow conditions. Motorists experience high levels of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 feet, or 26 car lengths.

LOS B

Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 feet, or 18 car lengths.

LOS C

Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacings are in the range of 220 feet, or 11 car lengths.

LOS D

Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and drivers experience drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 feet, or 9 car lengths.

LOS E

Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This establishes a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver.

LOS F

Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

Figure 4-1
Levels of Service

Back of Figure 4-1

Traffic Crashes

Traffic crash statistics can often be used as an indicator for locating congestion problems. Traffic crash records can also be reviewed to identify problem locations or deficiencies such as substandard design, inadequate signing, ineffective parking, or poor sight distance. Crash patterns identified from analysis of crash data can lead to improvements that will reduce the number of crashes.

The NCDOT Traffic Engineering and Safety Systems Branch periodically reviews crash data statewide to identify areas where crash rates may be reduced as a result of roadway improvements. The Highway Safety Improvement Program identifies the highest crash intersections so that they may be studied further. In order to be included in the program, each location must meet one of several warrants, or minimum criteria. For intersections, the categories of warrants are front impact crash rate (Warrant I-1), previous year crash rate (Warrant I-2), severity index levels (Warrant I-3), night crash rate without streetlights (Warrant I-4), and chronic intersection locations (Warrant I-5).

Intersection Warrants	Types of Crashes
Warrant I-1 (Frontal Impact)	Angle Left / Right Turn Same Road Left / Right Turn Different Road Head On
Warrant I-2 (Last Year Crashes)	Previous year crash rate
Warrant I-3 (Frequency with a Severity Index Minimum)	Severity index levels
Warrant I-4 (Night Crashed Without Streetlights)	Night crashes
Warrant I-5 (Chronic Intersection Locations)	Rear End Crashes Ran Off Road Crashes Crossing Pattern Crashes Right Turn Other Modes (Includes pedestrian, bicycle, moped crashes)

In addition to intersections, roadway sections are also evaluated for high crash frequency. Like intersections, these sections of roadway must meet one of several warrants, or minimum criteria to be included in the Highway Safety Improvement Program. These warrants are given below.

Section Warrants	Types of Crashes
Warrant S-1	Ran off road during wet condition crashes
Warrant S-2	Ran off road crashes
Warrant S-3	Wet condition crashes
Warrant S-4	Non-Intersection night crashes without streetlights

Crash data is given by type in order to identify any trends that may be correctable through roadway or intersection improvements. Table 4-2 gives a summary of the intersections in Catawba County with the highest crash rates (area outside of the Hickory-Newton-Conover and Maiden Planning limit). Figure 4-2 shows the location of those intersections. For each intersection, the total number of crashes is given as well as the crash type. The criterion used to identify these locations includes 10 or more crashes within 150 feet of an intersection over a one-year period, between January 1999 and December 2000.

To request a more detailed crash analysis for any of the following intersections or other intersections of concern, the appropriate Regional Traffic Engineer, which is High Country & Foothills Region for Catawba County, should be contacted.

High Country & Foothills Region (Serves Divisions 11 and 12)
Regional Traffic Engineer
PO Box 47, Shelby, 28151-0047 (Mail)
1710 East Marion Street, Shelby, 28150 (Delivery)
(704) 480-9034

Table 4-2

Catawba County Highest Crash Intersections				
Location Number	Intersection	Type of Reported Crashes		Total
1	NC 16/NC 150	6	Angle	17
		6	Rear End, Slow or Stop	
		2	Left Turn, Same Roadway	
		1	Backing Up	
		1	Left Turn, Different Roadways	
		1	Parked Motor Vehicle	
2	NC 10/NC 127	7	Rear End, Slow or Stop	16
		6	Left Turn, Same Roadway	
		2	Angle	
		1	Fixed Object	
3	NC 150 / SR 1844	5	Left Turn, Same Roadway	15
		3	Angle	
		3	Rear End, Slow Or Stop	
		2	Fixed Object	
		1	Left Turn, Different Roadways	
		1	Right Turn, Same Roadway	
4	NC 16 / SR 1810	4	Left Turn, Same Roadway	13
		4	Rear End, Slow or Stop	
		2	Left Turn, Different Roadways	
		1	Angle	
		1	Animal	
		1	Fixed Object	

Existing Bridge Conditions

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

Congress enacted the National Bridge Inspection Program Standards on April 27, 1971, implementing the Federal Highway Act of 1968. These standards require that “all structures designed as bridges located on any of the Federal-Aid Highway Systems be inspected and the safe load carrying capacity computed at regular intervals, not to exceed two years.” The NCDOT Bridge Maintenance Unit, with assistance from various consultants, inspects all bridges on the State Highway System.

The Transportation Improvement Program (TIP) development process for bridge projects involves consideration of several evaluation methods in order to prioritize needed improvements. A

sufficiency index is used to determine whether a bridge is sufficient to remain in service, or to what extent it is deficient. The index is a percentage in which 100 percent represents an entirely sufficient bridge and zero represents an entirely insufficient or deficient bridge. Factors evaluated in calculating the index are listed below.

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

A bridge is considered deficient if it is either structurally deficient or functionally obsolete. Bridges in the functionally obsolete category have below average ratings in approach roadway alignment, under clearance, deck geometry, waterway adequacy, or structural condition. Structurally deficient bridges have below average ratings in deck superstructure, substructure, overall structural conditions, or waterway adequacy. A bridge must be classified as deficient before it is eligible for Federal Bridge Replacement Funds. The sufficiency rating must be less than 50 to qualify for replacement or less than 80 to qualify for rehabilitation under federal funding.

In addition to the sufficiency index, further analysis is performed using the Level of Service Analysis and Prioritization (LOSAP) program. This program ranks bridges by deficiency points, which are calculated based on maintaining desired levels of service. The levels of service for lane and shoulder width, vertical clearance, and load capacity vary with roadway functional classification and average daily traffic. Another tool for prioritizing bridge improvements is the Optimum Bridge Budget Forecasting and Allocation System (OPBRIDGE). This program determines the optimum improvement action and time for each bridge in a network given certain level of service goals and funding constraints.

The output from each of these evaluation methods, along with input from NCDOT Bridge Maintenance personnel and local communities, is used to prioritize bridge projects. Bridges with the highest priority are replaced as federal and state funds become available.

All bridges in Catawba County have been analyzed, rated, and inventoried. Table 4-3 shows all structurally deficient bridges and Table 4-4 shows all functionally obsolete bridges that are outside the Hickory-Newton-Conover and Maiden planning limit . The locations of those bridges are shown in Figure 4-3.

Table 4-3

Structurally Deficient Bridges in Catawba County			
Bridge No.	Facility Carried	Water Source	Rating
90*	SR 1727 (Boggs Road)	Hagan Creek	19.5
73	SR 1002 (Rhoney Farm Road)	Creek	33.5

Notes: * Denotes the bridge is in the current Transportation Improvement Program.

Table 4-4

Functionally Obsolete Bridges in Catawba County			
Bridge No.	Facility Carried	Water Source	Rating
99	NC 150	Seaboard Coastline RR	71.2
154	SR 1813 (Bandy's Cross Road)	Balls Creek	78.4
160	SR 1832 (Kale Road)	Balls Creek	68.8
276	SR 1833 (Long Island Road)	Southern RR	77.6
278	SR 1848 (Sherill's Ford Road)	P&N Access RR	76.4

Notes: * Denotes the bridge is in the current Transportation Improvement Program.

Forecasted Travel Patterns and Deficiencies

Future Travel Demand

Future travel demand can be forecasted by looking at past traffic trends and calculating the average annual growth rates for specific routes. Using historical traffic trends, along with projected land use and projected population growth, future travel demand can be estimated and future transportation deficiencies can be identified. For this thoroughfare plan study average daily traffic (ADT) counts since 1978 were used in a linear regression analysis to estimate ADT for the planning year 2025. The projected 2025 ADT for Catawba County's Thoroughfare Plan roads are shown in Figure 3-4 and listed in Appendix B, Table B-1.

Capacity Deficient Corridors

Capacity deficient corridors are identified using the volume to capacity ratio (V/C), which is the projected traffic over the practical capacity of the facility for a given level of service (LOS). For this analysis, capacity is based on LOS E. A V/C ratio greater than one indicates the volume of traffic on the road exceeds its capacity and the facility should be considered for improvement. Based on this analysis, the roads in Catawba County listed below are anticipated to be over capacity by the planning year 2025.

- NC 150: From NC 16 to Iredell County.
- NC 16: From Hickory-Newton-Conover MPO planning limit to SR 1003.
- NC 127: From Hickory-Newton-Conover MPO planning limit to NC 10.

NC 150 and NC 16 are scheduled for improvements in the 2002-2008 Transportation Improvement Program (TIP). Refer to Chapter 2 for recommendations. Widening these facilities will increase their traffic carrying ability and alleviate traffic congestion. The existing and recommended capacities, right-of-way, and cross sections for Catawba County's functionally classified roads are given in Appendix B, Table B-1.

Roads Approaching Capacity

Roads in the planning area that are expected to be near capacity within the planning period are listed below:

- US 321B: From Hickory-Newton-Conover MPO planning boundary to Maiden planning boundary.
- NC 16: From SR 1003 to SR 1895.
- NC 10: From Hickory-Newton-Conover MPO planning boundary to SR 1002.
- Startown Road from Hickory-Newton-Conover MPO planning boundary to Maiden planning boundary.

Refer to Chapter 2 for recommendations. Widening these facilities will increase their traffic carrying ability and alleviate traffic congestion. The existing and recommended capacities, right-of-way, and cross sections for Catawba County's Thoroughfare Plan roads are given in Appendix B, Table B-1.

System Deficiencies

System deficiencies result in areas that lack a cohesive, continuous, and complimentary major road network. More simply put, a system deficiency exists when drivers must go out of their way to get to their desired destination, or when the route is not cohesive or continuous. For Catawba County, no system deficiencies were identified that warrant improvements.

Intersection Deficiencies

Ineffective intersection design or control can contribute to poor traffic flow, increased traffic accidents, and driver irritation. Most of the major traffic intersections in Catawba County are located within the municipalities. The intersection of NC 10 and SR 1008 suffers from operational deficiency due to the inadequate left turn storage. The County should cooperatively work with the Department of Transportation, Division 12 to improve safety and efficiency at this location. An analysis of Catawba County's roadway system did not reveal any other intersection deficiencies.

Figure 4-2
High Crash Locations

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Figure 4-3

Structurally Deficient and Functionally Obsolete Bridge Locations

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Consideration of Environmental Factors

In recent years, environmental considerations associated with highway improvements or construction have come to the forefront of the planning process. The legislation that dictates the necessary procedures regarding environmental impacts is the National Environmental Policy Act. Section 102 of this act requires the execution of an environmental impact statement (EIS) for road projects that have a significant impact on the environment. An EIS includes an evaluation of a project's impact on wetlands, water quality, historic properties, wildlife and public lands.

Although the technical report for the thoroughfare plan is not intended to cover environmental concerns in as much detail as an EIS, preliminary research on environmental factors is generally done at the thoroughfare planning stage.

Wetlands

In general terms, wetlands are lands where saturation with water is the dominant factor in determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrata that is at least periodically saturated with or covered by water. Water creates severe physiological problems for all plants and animals except those that are adapted for life in it or in saturated soil.

Wetlands are crucial ecosystems in our environment. They help regulate and maintain the hydrology of our rivers, lakes and streams by slowly storing and releasing floodwaters. They help maintain the quality of our water by storing nutrients, reducing sediment loads and reducing erosion. They are also critical to fish and wildlife populations. Wetlands provide an important habitat for about one third of the plant and animal species that are federally listed as threatened or endangered.

The impacts to wetlands can be evaluated using the National Wetlands Inventory Mapping, available from the U. S. Fish and Wildlife Service. Wetland impacts will be avoided or minimized to the greatest extent possible while preserving the integrity of the thoroughfare plan. Figure 4-4 shows the wetland locations in Catawba County.

Threatened and Endangered Species

A preliminary review of Federally Listed Threatened and Endangered Species within Catawba County was done to determine the effect new corridors could have on wildlife. Threatened or endangered species were identified using mapping from the North Carolina Department of Environment, Health and Natural Resources.

The Threatened and Endangered Species Act of 1973 allows the U. S. Fish and Wildlife Service to impose measures for mitigation of the environmental impacts of a road project on endangered plants and animals and critical wildlife habitats. By locating rare species in the planning stage of road construction, avoidance or minimization of these impacts is possible.

Table 4-5 lists all threatened and endangered species in Catawba County. The locations are depicted on Figure 4-5 as national heritage sites. A detailed field investigation is recommended prior to construction of any highway project or roadway improvement.

Table 4-5

Endangered Species, Threatened Species, Federal Species of Concern, and Candidate Species, Catawba County, North Carolina

Common Name	Scientific name	Federal Status	Record Status
Vertebrate:			
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Current
Southern Appalachian eastern woodrat	<i>Neotoma floridana haematoresia</i>	FSC	Current
Invertebrate:			
Catawba crayfish ostracod	<i>Dactylocythere isabelae</i>	FSC	Current
Vascular Plant:			
Dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>	T	Current
Sweet pinesap	<i>Monotropsis odorata</i>	FSC	Current
Nonvascular plant:			
Lichen:			

Definitions of Federal Status Codes:

E = endangered. A taxon “in danger of extinction throughout all or a significant portion of its range.”

T = threatened. A taxon “likely to become endangered within the foreseeable future throughout all or a significant portion of its range.”

P = proposed. A taxon proposed for official listing as endangered or threatened.

C = candidate. A taxon under consideration for official listing for which there is sufficient information to support listing. (Formerly “C1” candidate species.)

FSC = federal species of concern. A species under consideration for listing, for which there is insufficient information to support listing at this time. These species may or may not be listed in the future, and many of these species were formerly recognized as “C2” candidate species.

T(S/A) = threatened due to similarity of appearance. A species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

EXP = experimental population. A taxon listed as experimental (either essential or nonessential). Experimental, nonessential populations of endangered species (e.g., red wolf) are treated as threatened species on public land, for consultation purposes, and as species proposed for listing on private land.

Definitions of “Record Status” qualifiers:

Current – the species has been observed in the county within the last 50 years.

Historic – the species was last observed in the county more than 50 years ago.

Obscure – the date and/or location of observation is uncertain.

Incidental/migrant – the species was observed outside of its normal range or habitat.

Probable/potential – the species is considered likely to occur in this county based on the proximity of known records (in adjacent counties), the presence of potentially suitable habitat, or both.

Historic Sites

The locations of historic sites in Catawba County were investigated to determine the possible impacts of the various projects studied. The federal government has issued guidelines requiring all state transportation departments to make special efforts to preserve historic sites. In addition, the State of North Carolina has issued its own guidelines for the preservation of historic sites. These two pieces of legislation are described below.

National Historic Preservation Act – Section 106 of this act requires state departments of transportation to identify historic properties listed in the National Register of Historic Places and properties eligible to be listed. State departments of transportation must consider the impacts of

Figure 4-4
Wetlands Locations

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its road projects on these properties and consult with the Federal Advisory Council on Historic Preservation.

NC General Statute 121-12(a) – This statute requires the NCDOT to identify historic properties listed on the National Register, but not necessarily those eligible to be listed. NCDOT must consider impacts and consult with the North Carolina Historical Commission, but is not bound by their recommendations.

Table 4-6 lists all Historic Sites in Catawba County. The location of these Sites is depicted in Figure 4-6. All reasonable efforts will be made to minimize the impact to identified historic sites and natural settings when widening existing roadways or constructing new facilities. Care should be taken to make certain that all historic sites and natural settings are preserved. Therefore, a more detailed study should be done in regard to local historic sites prior to construction of any project.

Table 4-6
Historic Sites in Catawba County *

Name	Location
Anthony, Abraham, Farm (added 1990 – District - #90000738)	W side of SR 1008, 0.5 mi. S of jct. With SR 2021, Blackburn
Baker Farm (added 1990 – District - #90000857)	NC 127 N of jct. With SR 1132, Baker Mountain
Balls Creek Campground (added 1990 – District - #90000662)	W side of SR 1003, 0.1 mi. S of SR 1943, Bandy’s Crossroads
Bandy Farms Historic District (added 1990 – District - #90000663)	E side of SR 1003, 0.5-0.85 mi. S of SR 1813 jct., Bandy’s Crossroads
Bolick Historic District (added 1990 – District - #90001032)	First Ave. S. between US 64/70 and 12 th St., Conover
Bost—Burris House (added 1990 – Building - #90001033)	Jct. Of SR 1149 and SR 1154, Newton
Bunker Hill Covered Bridge ** (added 1970 – Structure - #70000446)	2 mi. E of Claremont on U.S. 70, Claremont
Catawba County Courthouse ** (added 1979 – Building - #79001690)	S. Main, W.A, S. College, and W. 1 st Sts., Newton
Catawba Historic District (added 1986 – District - #86000893)	Roughly bounded by Second Ave. NE, Third and Second Sts. SE, Second Ave. SW and NC 10, and Second St. SW, Catawba
Claremont High School Historic District (added 1986 – District - #86003357)	Roughly bounded by Fifth and Third Aves., Third St., Second Ave. and N. Center St., Hickory

Elliott-Carnegie Library (added 1985 – Building - #85000584)	415 – 1 st Ave. NW, Hickory
First Presbyterian Church (added 1985 – Building - #85000585)	2 nd St. and 3 rd Ave. NW, Hickory
Foil—Cline House (added 1990 – Building - #90001034)	406 S. Main Ave., Newton
Geitner, Clement, House (added 1985 – Building - #85000703)	436 Main Ave. NW, Hickory
Grace Reformed Church (added 1990 – Building - #90001035)	201—211 S. Main Ave., Newton
Grace Union Church and Cemetery District (added 1990 – District - #90000739)	Jct. Of SR 1008 and SR 2030, Blackburn
Hickory Municipal Building (added 2000 – Building - #00000119)	30 Third St., SW, Hickory
Highland School (added 1990 – Building - #90000824)	1017 10 th Ave. NE., Hickory
Houck’s Chapel (added 1985 – Building - #85000587)	9 th Ave. and 17 th St. NW, Hickory
Huffman, George, Farm (added 1990 – District - #90000861)	SR 1479, SE of jct. With Tate Blvd., Conover
Keever—Cansler Farm (added 1990 – District - #90000740)	E side of SR 2024, 0.05 mi. N of jct. With SR 2026, Blackburn
Kenworth Historic District (added 1985 – District - #85001054)	Roughly bounded by 2 nd Ave., 5 th St. and 3 rd Ave. Dr. SE, Hickory
Lentz, John A., House (added 1985 – Building - #85000588)	321 9 th St. NW, Hickory
Long, McCorkle and Murray Houses (added 1990 – District - #90001371)	1310—1326 N. Main Ave., Newton
Memorial Reformed Church (added 1990 – Building - #90000865)	201 E. Main St., Maiden
Miller—Cansler House (added 1990 – Building - #90000741)	N side of SR 2007, 0.5 mi. E of jct. With SR 1005, Maiden
Moore, Alexander, Farm (added 1990 – District - #90000664)	SR 2646 0.5 mi. NW of SR 1004 jct., Catawba
Moretz, John Alfred, House (added 1985 – Building - #85000589)	1437 – 6 th St. Circle NW, Hickory

Munday House ** (added 1975 – Building - #75001246)	Address Restricted, Denver
Murray’s Mill Historic District (added 1979 – District - #79001689)	SE of Catawba, Catawba
Neill—Turner—Lester House (added 1990 – Building - #90000742)	N side of SR 1836, 0.25 mi. NE of jct. With SR 1837, Sherrills Ford
North Main Avenue Historic District (added 1986 – District - #86001147)	Roughly bounded by W. Ninth St., N. Main Ave., W. Fourth and W. Sixth Sts., N. Deal Ave., and W. Eighth St., Newton
Oakwood Historic District (added 1986 – District - #86000687)	Roughly bounded by Oakwood Cemetery and Fourth Ave. NW, Fourth St. NW, Second Ave. NW, and Sixth St. NW, Hickory
Perkins House (added 1974 – Building - #74001336)	N of Catawba off I-40, Newton
Piedmont Wagon Company (added 1985 – Building - #85000592)	Main Ave. NW, Hickory
Powell-Trollinger Lime Kilns ** (added 1974 – Structure - #74001337)	S of Catawba, Catawba
Propst House (added 1973 – Building - #73001312)	Shuford Memorial Garden, Hickory
Propst, David F., House (added 1990 – Building - #90000864)	Jct. Of SR 1810 and SR 1878, Maiden
Reinhardt, Franklin D., and Harren-Hood Farms (added 1990 – District - #90000863)	SR 2013 NW of jct. With SR 2012, Maiden
Reinhardt, William Pinckney, House (added 1990 – Building - #90001111)	Jct. Of SR 2012 and SR 2013, Maiden
Rock Barn Farm (added 1990 – Building - #90001036) Also known as Hoke—Roseman Farm	W side of SR 1709, .4 mi. N of jct. With SR 1715, Claremont
Rudisill-Wilson House (added 1973 – Building - #73001315)	
Second Street Place Southwest Historic District (added 1986 – District - #85001790)	Roughly bounded by Main Ave. Pl., Second Ave. Pl. and First Ave. SW, Hickory
Self—Trott—Bickett House (added 1990 – Building - #90001037)	331 S. College Ave., Newton
Sharpe—Gentry Farm (added 1990 – District - #90000859) Also known as Sharpe,John O.,Farm	Jct. Of NC 10 and SR 1137, Propst Crossroads

Sherrill, Miles Alexander, House (added 1990 – Building - #90000665)	W side of SR 1849, 0.1 mi. S of SR 1848 jct., Sherrills Ford
Shuford House (added 1973 – Building - #73001313)	542 2 nd St. NE., Hickory
Shuford—Hoover House (added 1990 – Building - #90000743)	E side of SR 1008, 0.05 mi. S of jct. With SR 10, Blackburn
St. Paul’s Church and Cemetery ** (added 1971 – Building - #71000573)	Jct. Of SR 1149 and SR 1164, Newton
St. Paul’s Reformed Church (added 1990 – Building - #90000860)	Jct. Of SR 1151 and SR 1005, Startown
Terrell Historic District (added 1986 – District - #86001685)	NC 150 and SR 1848, Terrell
Warlick—Huffman Farm (added 1990 – District - #90000862)	SR 1116 NW of jct. With NC 10, Propst Crossroads
Weidner Rock House (added 1973 – Building - #73001314)	S of Hickory on SR 1142, Hickory
Wesley’s Chapel Arbor and Cemetery (added 1990 – District - #90000744)	W side of SR 2033, 0.4 mi. S of jct. With SR 10, Blackburn
Wilfong—Wilson Farm (added 1990 – District - #90000858)	SR 1145, SW of jct. With SR 1146, Startown
Yoder’s Mills Historic District ** (added 1980 – District - #80002806)	Address Restricted, Hickory

* From National Register of Historic Place