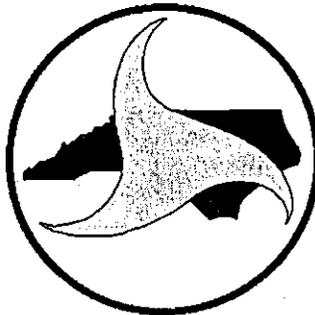


FEASIBILITY STUDY

**NC 127
from south of the Catawba River
to US 64 / NC 90
Catawba & Alexander Counties**

Division 12

R-3603



Prepared by the
Program Development Branch
Division of Highways
N. C. Department of Transportation

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Eric J. Lamb
Feasibility Studies Engineer

A handwritten signature in black ink, appearing to read "David G. Modlin, Jr.". The signature is written in a cursive style and is positioned above a horizontal line.

David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

3/7/97
Date

NC 127
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I. General Description

This feasibility study describes widening and other improvements on NC 127 from south of the Catawba River to US 64 / NC 90, a distance of 10.3 miles (16.6 km). The project location is shown on Figure 1. From SR 1400 (Cloninger Mill Rd. NE) / SR 1351 (1st St. NW) in Catawba County to SR 1156 (Richey Rd.) in Alexander County, the recommended cross-section is a five-lane curb and gutter section, and from SR 1150 to US 64 / NC 90, two-lane improvements and additional left-turn lanes are recommended. The recommended right-of-way for this project is 100 feet (30.5 m) wide with no access control. It is anticipated that there will be eleven residences and two businesses relocated due to this project. The total cost of the project, including construction and right-of-way, is estimated to be \$30,700,000.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including costs, and to identify potential problems that may require consideration in the planning and design phases.

II. Need for Project

The purpose of this project is to reduce congestion during peak hours and to accommodate development trends in the area. This project is supported by Alexander County.

NC 127 is designated as a major rural collector and a major urban thoroughfare in the Alexander County Thoroughfare Plan and as a major rural collector in the North Carolina Statewide Functional Classification System.

On the north side of the Catawba River, there are several marinas with boat slips serving the Lake Hickory recreational area. From the Catawba River to north of the northern intersection of SR 1208 (Shiloh Church Rd.), there is mostly commercial development. The rest of NC 127 within the project limits is light-density rural residential development. Bethlehem Elementary School is located south of SR 1146 (Bethlehem School Rd.), and West Junior High School has access from SR 1144 (Icard Ridge Rd.).

NC 127 is currently a two-lane, two-way roadway with a pavement width of 22 feet (6.7 m) with soil shoulders. South of SR 1400 (Cloninger Mill Rd. NE) / SR 1351 (1st St. NW), NC 127 is a five-lane curb and gutter section, 64 feet (19.5 m) wide from face-to-face of curbs. At the northern end of the project, NC 127 ends in a T-intersection with US 64 / NC 90.

There is a large structure that carries NC 127 over the Catawba River. Bridge No. 91 in Catawba County is a reinforced concrete deck with steel girders that is 941 feet (286.9 m) long and has a clear deck width of 36.5 feet (11.1 m). Built in 1968, this bridge has a current sufficiency rating of 75.8.

There are two other bridges within the project limits. Bridge No. 1 carries NC 127 over the Middle Little River and is located 0.5 miles (0.8 km) south of SR 1002 (Antioch Church Rd.). It is a reinforced concrete deck on steel pilings that is 160 feet (48.8 m) long and has a deck width of 29.4 feet (9.0 m). Built in 1948, this bridge has a current sufficiency rating of 40.7. Bridge No. 5 intersects Duck Creek 0.3 miles (0.5 km) north of SR 1002. This bridge is 72 feet (22.0 m) long and is of the same construction as Bridge No. 1. It currently has a sufficiency rating of 62.4.

There are existing signals at the intersections with SR 1400 (Cloninger Mill Rd. NE) / SR 1351 (1st St. NW), SR 1137 (Rink Dam Rd.) / SR 1143 (Hubbard Rd.) and SR 1150 (Teague Town Rd.).

TIP Project R-2918 will construct an east-west connector from Caldwell County into Alexander County. This will be a two-lane facility utilizing existing roads and will tie into this project via SR 1143 (Hubbard Rd.). This project is scheduled for post-year construction.

The 1996 Average Daily Traffic (ADT) along NC 127 varies from 2,800 to 18,300 vehicles per day (vpd). For the design year 2025, the estimated traffic volume on NC 127 will range between 4,500 and 28,900 vpd. Truck traffic is estimated to make up between 5% and 8% of daily traffic.

Due to the wide range of traffic volumes within the project limits, the Level of Service (LOS) for each section varies greatly. North of SR 1150 (Teague Town Rd.), NC 127 is currently operating at LOS D or better. Between SR 1150 and the southern project terminus, NC 127 is currently operating at LOS E and F. If no widening improvements are made, it is projected that LOS E operation will occur as far north as SR 1002 (Antioch Church Rd.) in the design year 2025. If NC 127 is widened to a five-lane curb and gutter section throughout the project limits, the facility will operate at LOS A in the current year. The LOS in the design year will be A north of SR 1156 (Richey Rd.), B from SR 1156 to SR 1143 (Hubbard Rd.), and LOS C and D from SR 1143 to the southern project terminus.

During the three-year period from April 1993 to March 1996, there were 169 accidents reported on NC 127 within the project limits. There were 97 injuries reported as a result of these accidents; no fatalities were reported. The accident rate along NC 127 within the project limits is 437.03 accidents per 100 million vehicle miles (acc/100mvm). This compares with the 1994 statewide rate of 211.50 acc/100mvm for two-lane rural North Carolina routes.

III. Recommendations

It is recommended to widen and improve NC 127 from south of the Catawba River to US 64 / NC 90, a distance of 10.3 miles (16.6 km). The project location is shown on Figure 1. Descriptions of the individual segments are shown below. The recommended right-of-way for this project is 100 feet (30.5 m) wide with no access control.

Segment 1 - from SR 1400 (Cloninger Mill Rd. NE) / SR 1351 (1st St. NW) in Catawba County to SR 1156 (Richey Rd.) in Alexander County (3.4 miles)

It is recommended to widen this segment of NC 127 to a five-lane curb and gutter section, 64 feet (19.5 m) wide from face-to-face with 10-foot (3.0 m) berms. From SR 1400/SR 1351 to the northern intersection of SR 1208 (Shiloh Church Rd.), asymmetrical widening to the west side of the roadway is recommended in order to minimize right-of-way impacts. This would include the construction of a new two-lane structure over the Catawba River parallel to the existing two-lane structure. This new bridge would be approximately 1000 feet (305 m) long and have a clear deck width of 38 feet (11.6 m). From SR 1208 to SR 1156 (Richey Rd.), asymmetrical widening to the east side of the roadway is recommended.

The following intersections have existing signals that will require upgrading:

- SR 1400 (Cloninger Mill Rd. NE) / SR 1351 (1st St. NW)
- SR 1137 (Rink Dam Rd.) / SR 1143 (Hubbard Rd.)
- SR 1150 (Teague Town Rd.)

It is anticipated that eight residences and two businesses in this segment will be relocated due to the project. The cost of widening Segment 1 to a five-lane section is as follows:

Construction.....	\$ 14,400,000
Right-of-way.....	\$ 3,400,000
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Total Cost	\$ 17,800,000

Segment 2 - from SR 1156 to US 64 / NC 90 (6.7 miles)

It is recommended to implement two-lane improvements and construct additional left-turn lanes on this segment of NC 127. The proposed cross-section on this segment of the project is a two-lane section, 24 feet (7.3 m) wide with 4-foot (1.2-m) paved shoulders. There are several curves in this segment of the project that will require realignment in order to meet current design criteria. There is one segment north of SR 1240 (Butler Johnson Ct.) with severe horizontal and vertical alignment problems. In order to correct these problems, it is recommended to realign this portion of the roadway on new location for approximately 2700 feet (825 m).

It is recommended to replace Bridge No 1 over the Middle Little River and Bridge No. 5 over Duck Creek with new structures. These new bridges should have clear deck widths of 40 feet (12.2 m).

It is recommended that left-turn lanes be installed at the following intersections:

- SR 1161 (Fellowship Church Rd.)
- SR 1002 (Antioch Church Rd.)
- US 64 / NC 90.

It is anticipated that three residences and no businesses in this segment will be relocated due to the project. The cost of these two-lane improvements along Segment 2 is as follows:

Construction.....	\$ 11,100,000
Right-of-way.....	\$ 1,800,000
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Total Cost	\$ 12,900,000

The total cost of this project is as follows:

Construction.....	\$ 25,500,000
Right-of-way.....	\$ 5,200,000
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Total Cost	\$ 30,700,000

IV. Other Comments

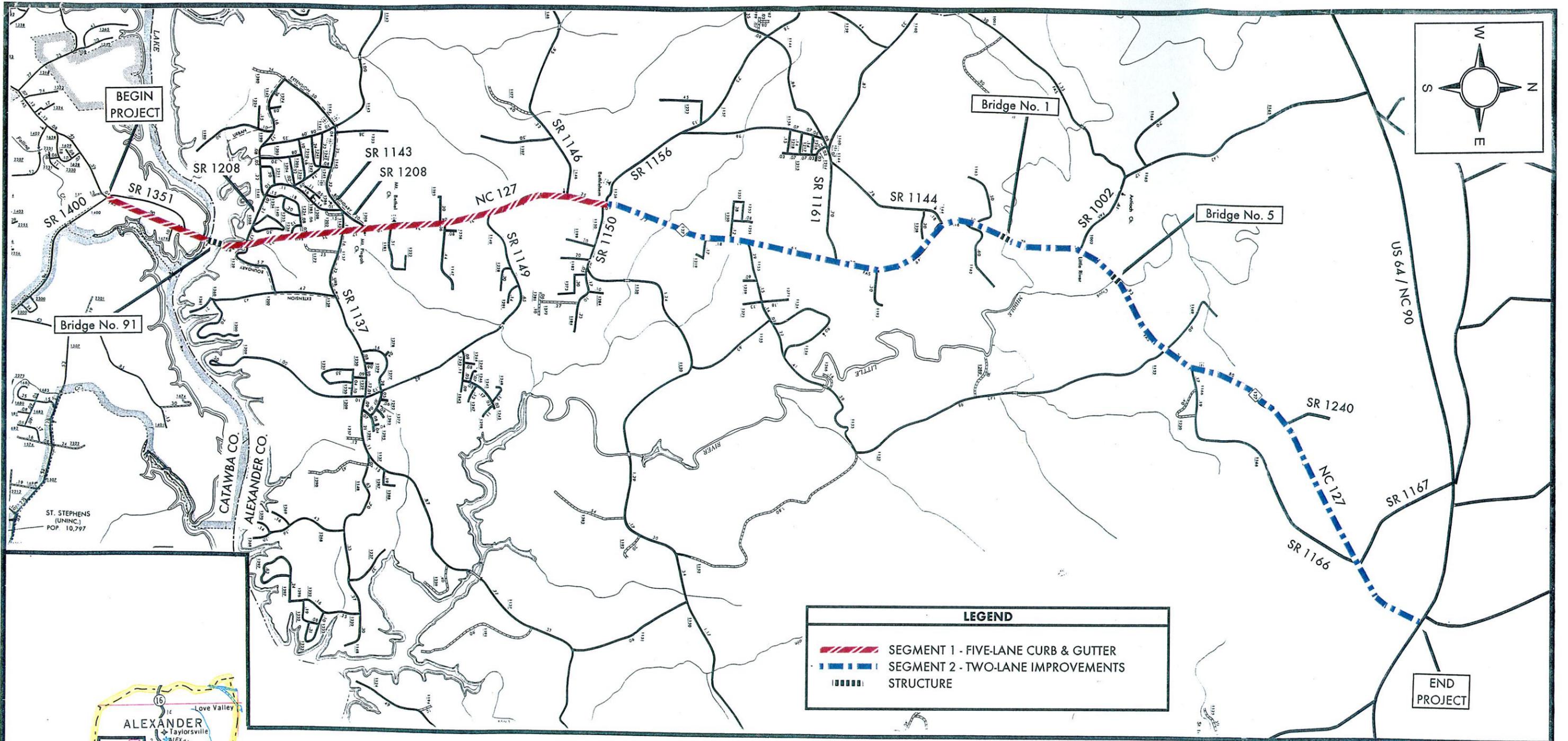
An environmental screening was not conducted for this study. However, no impacts to historic properties or wetlands are anticipated.

Based on maps at the Department of Environment, Health & Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.

According to GIS surveys, the portion of this project on the west side of NC 127 and between SR 1149 (Heritage Farm Rd.) and SR 1143 (Hubbard Rd.) is classified as a Protected Water Supply Watershed. South of SR 1143, the west side of the roadway is part of a Critical Water Supply Watershed area.

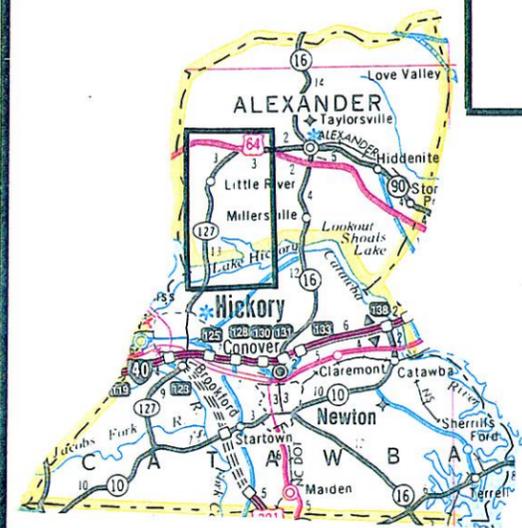
The section of Duck Creek within the project corridor is classified C and is part of the Catawba River Basin. The Catawba River in the vicinity of the project is classified WS-IV CA.

No special accommodation for bicycles is recommended on this project.



LEGEND

- SEGMENT 1 - FIVE-LANE CURB & GUTTER
- SEGMENT 2 - TWO-LANE IMPROVEMENTS
- STRUCTURE



NC DEPARTMENT OF TRANSPORTATION
FEASIBILITY STUDIES UNIT

**R-3603
NC 127**
**FROM THE INTERSECTION OF SR 1400
(CLONINGER MILL RD. NE) AND SR 1351 (1st St. NW)
TO US 64 / NC 90**

DIVISION 12	CATAWBA & ALEXANDER COUNTIES	FIGURE 1
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