

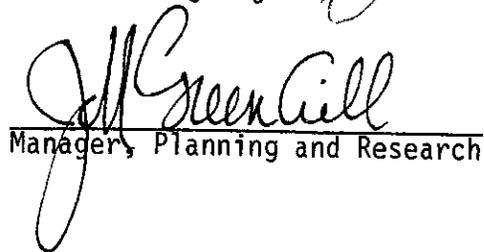
FEASIBILITY STUDY

NC 150, From Lincolnton to I-77
Lincolnton-Catawba-Iredell Counties


Prepared by
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5-17-88
Date


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NC 150, From Lincolnton to I-77
Lincolnton-Catawba-Iredell Counties
R-2307

I. DESCRIPTION

This report covers a preliminary study of the proposed widening of the subject road to a multi-lane facility. This project is included in the 1988-1996 Transportation Improvement Program for feasibility study and/or right of way protection. It is not currently funded. Location of the project is shown on the attached map. Specifically, the project extends from the intersection of NC 150 and NC 24 just east of Lincolnton eastward to the interchange of NC 150 and I-77, a distance of approximately 22.6 miles.

II. PURPOSE OF PROJECT

Existing Road Characteristics

The entire studied section of road is designated as a major collector in the Functional Classification Plans for Lincoln, Catawba, and Iredell Counties. It provides an important connection to the Interstate system from the Lincolnton area and access to recreational areas of Lake Norman.

The existing roadway along NC 150 generally has a 24-foot pavement with varying shoulder widths of 4 to 10 feet. To the east, it adjoins a four-lane divided section through the I-77 interchange area. To the west, it tees into a 5-lane curb and gutter roadway of NC 27-NC 150. Since few recorded right of way agreements are available throughout the project length, the existing right of way width for cost estimate proposes is estimated to be 40 feet, which is the ditch to ditch width maintained by NCDOT.

Constructed through rolling terrain, the existing alignment is generally good. Only one curve (10 degrees) exceed the desirable design speed criterion. Maximum grade is 7 percent. Safe passing distance is restricted to approximately 30 percent of the total project length.

Bridges in place along the subject facility are listed as follows:

<u>Bridge No.</u>	<u>Location</u>	<u>Date Built</u>	<u>Type</u>	<u>Length</u>	<u>Width</u>	<u>Sufficiency Rating</u>
12	Reed Creek	1961	Concrete	241'	28'	79.4
44	Mountain Creek	1961	Concrete	300'	28'	77.0
99	Seaboard R.R.	1965	Concrete	155'	28'	69.5
117	Discharge Canal	1963	Concrete	455'	28'	54.8
138	Catawba River	1961	Concrete	1162'	28'	66.1

Bridge numbers 12, 44, and 138 cross waters of the Lake Norman complex. At these locations, a total of approximately 1.0 mile of causeway construction adjoins the bridges.

Roadside development is typically rural residential of light to medium density. Development increases as NC 150 passes through unincorporated communities of Pumpkin Center, Chronicle, Terrell, and Doolie. From NC 27 eastward for approximately 2.4 miles, high quality, medium density residential development front both sides of NC 150. Speed limit in this area is 45 MPH. Elsewhere, the speed limit is 55 MPH.

A total of three traffic signals exist along this section of road. They are located at NC 27, NC 16, and SR 1848 (Terrell community).

Traffic Volumes, Capacity, and Accident History

Except in the area near NC 27, current traffic volumes along NC 150 are fairly constant, ranging from 5400 to 6000 vehicles per day. At NC 27, the volume increases to 8000 vpd. Estimated traffic volumes for year 2008 are 8500 to 10,000 vpd and 14,000 vpd, respectively. Truck composition is 2 percent TTST and 3 percent dual tired trucks.

At desirable level of service C in rural areas, capacity of a two-lane facility is approximately 5000 vpd. In suburban areas near NC 27 where lower speeds are prevalent, capacity increases to 8000 vpd. Thus, comparing capacity with actual traffic demands shows that the entire facility has already reached the stage of over-capacity conditions.

A total of 367 accidents were reported on the studied section of NC 150 during a recent 4-year period. The resulting accident rate is approximately 1.88 accidents per million vehicle mile. This is slightly less than the 1986 statewide average rate of 1.98 acc/mvm for two-lane NC routes in rural areas. Major accident types are ran-off-road, rear-end, and angle.

Need for Project

The purpose of this project is to provide additional lanes that would eliminate the present and future capacity deficiency and improve the level of traffic service.

III. RECOMMENDATIONS AND COSTS

On the basis of inadequate capacity to maintain the desirable level of service, immediate provision of a multi-lane facility along the NC 150 corridor is warranted. After evaluating possible alternatives for improvements, it is recommended NC 150 be widened along the existing alignment with realignment of only one substandard curve. In consideration of existing roadside development, recommended cross section is a five-lane, 60-foot pavement with adequate shoulders for the most part. On a 2.4-mile portion of NC 150 east of NC 27, curb and gutter should be used in lieu of shoulders to minimize right of way costs. This is appropriate for the section of road where a lower speed limit is in

effect and denser adjacent development occurs. Use of curb and gutter may also be required at other isolated locations to reduce adverse impacts of right of way acquisition.

Without the benefit of detailed structural investigation, all bridges are anticipated to be retained and widened to provide a five-lane section.

The total estimated cost of the recommended improvements is \$47,300,000, including \$24,400,000 for roadway, \$8,800,000 for bridges, and \$14,100,000 for right of way. (The estimated right of way width used in the estimate is 150 feet for a shoulder section and 80 feet plus easements for a curbed section.) A breakdown of the cost estimate by sections is given below:

From NC 27 to SR 1339 (2.4 miles)

Roadway	\$ 2,900,000
Right of Way	<u>1,050,000</u>
Total	\$ 3,950,000

From SR 1339 to Catawba County Line (6.6 miles)

Roadway	\$ 6,900,000
Right of Way	<u>4,050,000</u>
Total	\$10,950,000

From Catawba County Line to Iredell County Line (8.7 miles)

Roadway	\$ 9,300,000
Bridges (5)	8,800,000
Right of Way	<u>5,400,000</u>
Total	\$23,500,000

From Iredell County Line to I-77 (4.9 miles)

Roadway	\$ 5,300,000
Right of Way	<u>3,600,000</u>
Total	\$ 8,900,000

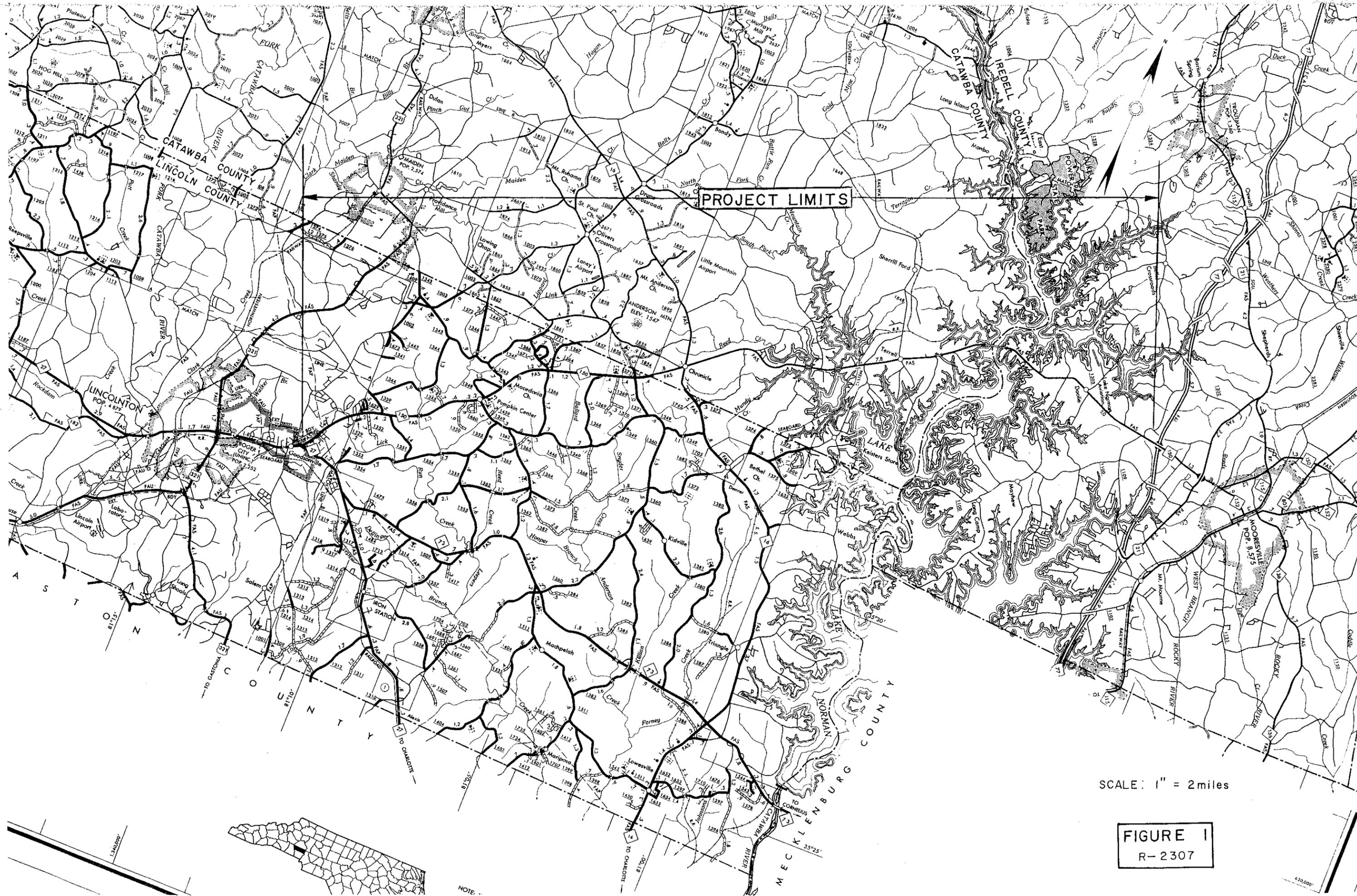
IV. OTHER COMMENTS

Widening of NC 150 to a multi-lane undivided roadway is the logical and economical method of satisfying the traffic needs of the route. No other alternative improvements were found to be more feasible or prudent. Full relocation of NC 150 is precluded by the widespread location of Lake Norman and associated development and the higher costs to construct a four-lane divided facility. Also, possible expansion of the existing road to a four-lane divided type section appears to be too disruptive to existing development and the waters of Lake Norman.

No significant environmental impacts are apparent for the project based on recommendations outlined in this study. Noticeable negative impacts are: (1) loss of land required for the additional right of way; (2) displacement of approximately 24 residences and 15 businesses; (3) possible siltation of the waters of Lake Norman; and (4) increased noise levels for remaining development adjacent to the highway.

Local government should be encouraged to ensure that any new development planned along this section of road be adequately set back from the road to allow the widening as recommended.

RGD/rm



SCALE: 1" = 2 miles

FIGURE 1
R-2307

NOTE:



SCALE: 1" = 2 miles

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