

FEASIBILITY STUDY

NC 48  
From Roanoke Avenue  
In Roanoke Rapids  
To School Street in Gaston  
Halifax and Northampton Counties  
U-2419

Prepared by  
Planning and Research Branch  
Division of Highways  
N. C. Department of Transportation



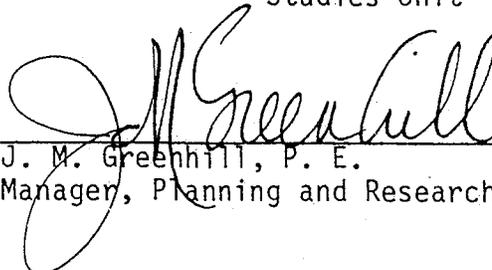
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## I. GENERAL DESCRIPTION

This report covers the widening of NC 48 from Roanoke Avenue in Roanoke Rapids to School Street in Gaston. The project is 1.7 miles long and is shown on Figure 1. This project is included in the 1988-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection.

## II. PURPOSE OF PROJECT

### Existing Route Characteristics

NC 48 is an important north-south route linking the towns of Roanoke Rapids and Gaston. It also provides direct access to the large Champion Paper Mill located on the east side of NC 48 at the Roanoke River. NC 48 is a Major Thoroughfare in the Roanoke Rapids, Weldon and Gaston Thoroughfare Plan. It is classified as an Other Urban Principal Arterial in the North Carolina Functional Classification System and is a Federal Aid Primary Route.

The existing cross section on the south side of the Roanoke River consists of a 22-foot paved roadway with 8 to 10-foot unpaved shoulders. North of the river, the cross section changes to a 20-foot paved roadway with 2-foot paved shoulders and a total shoulder width of 4 to 6 feet. Both the horizontal and vertical alignments are good. The right-of-way width throughout most of the project length is 100 feet. There are some short sections and specific parcels south of the river where less than 100 feet of right-of-way exists. There is also an irregular right-of-way greater than 100 feet in the vicinity of the Roanoke River overflow structure.

There is one bridge located on the project, where NC 48 crosses the Roanoke River. This bridge is 1122 feet long with a clear roadway width of 28 feet. It was built in 1957 and has a sufficiency rating of 9 out of a possible 100 points.

There is a traffic signal at the intersection of NC 48 with Roanoke Avenue at the south end of the project. All of the other intersections on the project are stop sign controlled. At both project terminals, NC 48 has been widened to a 52-foot curb and gutter cross section.

Roadside development varies from open land in the Roanoke River's floodplain to moderate residential and commercial development on the northern portion of the project and heavy industrial development near the southern project terminal. The Gaston First Baptist Church is located on the west side of the project at Benton Drive, and Gaston High School is located off the project on School Street. Champion Paper Company has a large mill located on the east side of NC 48 at the Roanoke River, and North Carolina Power (a generating plant operated by Virginia Electric and Power Company) is located on the west side of NC 48 at the river (see Figure 2).

## Traffic Volumes, Capacity and Accident Record

The current traffic volumes range from a high of 10,800 vehicles per day (vpd) just north of Vepeco Street to a low of 9,900 vpd at Benton Drive. These volumes are projected to increase to a high of 19,400 and a low of 17,800 respectively by the year 2010 (see Figure 3). With the current traffic volumes, NC 48 is operating at Level of Service E during peak periods. This level of service is characterized by congestion and traffic back-ups at intersections. Without improvements to the highway, the level of traffic service will deteriorate in the future as traffic volumes continue to grow. With the proposed improvements, the highway should operate at Level of Service C or better throughout the planning period.

During the three-year period from January 1, 1985 through December 31, 1987, a total of 26 accidents were reported on the studied portion of NC 48. This resulted in an accident rate of 184.7 accidents per 100 million vehicle miles (ACC/100 MVM) which compares favorably with a statewide average of 328.6 ACC/100 MVM over the same period. There were no fatalities during the period, but 7 of the accidents resulted in injuries. The most common accident type was the rear-end collision. The proposed improvements to NC 48 should reduce the potential for this type of accident.

### Need for Project

The widening of NC 48 is needed to alleviate the present capacity deficiency. The project will also provide smoother and safer traffic operations.

## III. RECOMMENDATIONS AND COSTS

The widening of NC 48 to four lanes is immediately warranted. The recommended cross section is a 52-foot curb and gutter roadway. This cross section will match the existing cross section on NC 48 on both ends of the project. The proposed widening should be symmetrical about the existing centerline for most of the project length. At the Roanoke River crossing, it is recommended the existing bridge be replaced due to its low sufficiency rating (9). The alignment may need to be shifted slightly to allow for the new bridge construction next to the existing bridge and to avoid conflict with either the power company or the paper mill. It is further recommended NC 48 be widened to five lanes at the Vepeco Street intersection to provide a separate left-turn lane for the heavy turning volumes.

The estimated costs of the project are as follows:

Roadway Construction	\$ 3,600,000
Bridge Construction	\$ 4,500,000
Right-of-Way	\$ <u>300,000</u>
TOTAL	\$ 8,400,000

The construction cost includes engineering and contingencies and the right-of-way cost includes relocation, acquisition and utility costs.

#### IV. ALTERNATIVES

The alternative of providing a fifth lane for left turning traffic in the developed portions of the project was considered as an alternative to the proposed four-lane improvement. There would be no need for a fifth lane on the bridge or through the area of the Roanoke River floodplain. The provision of a fifth lane would be desirable from a standpoint of capacity and traffic operations, since it would allow left-turning traffic to pull out of the through travel lanes. However, there are no intersections with high left-turning volumes on the project other than the Vepco Street intersection where a left turn lane is recommended. Other sections of NC 48, beyond the project limits, have heavier turning volumes but existing development will make it difficult to widen the roadway beyond the present four-lane cross section in these areas. A five-lane cross section is not recommended due to the higher cost, the desirability of having a continuous cross section, and the lack of high left-turn volumes.

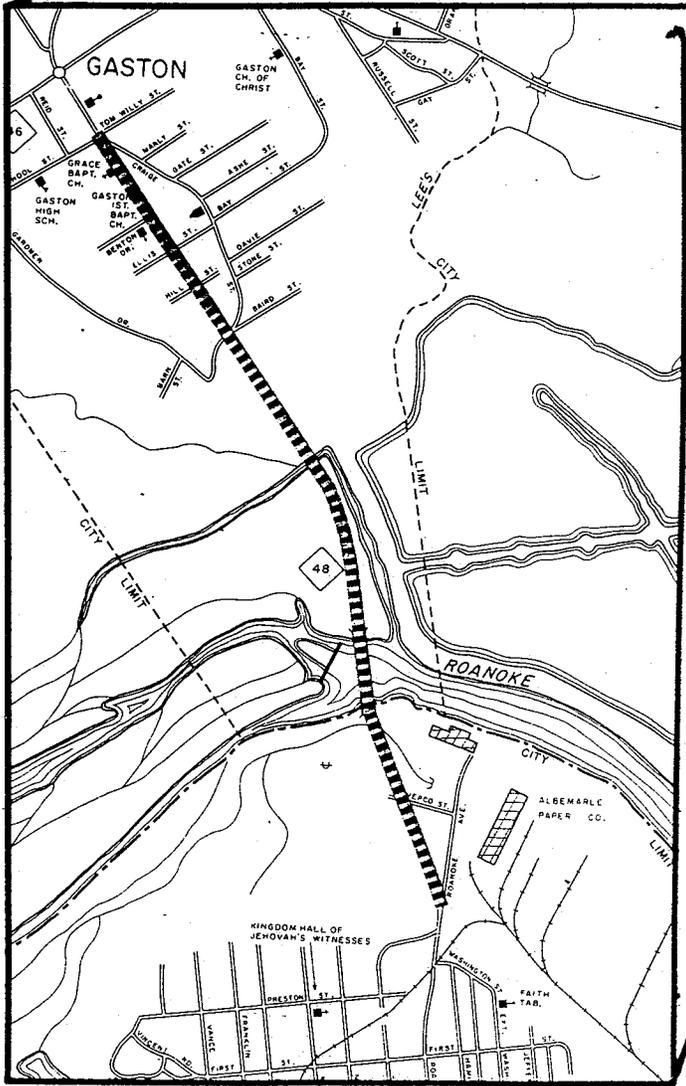
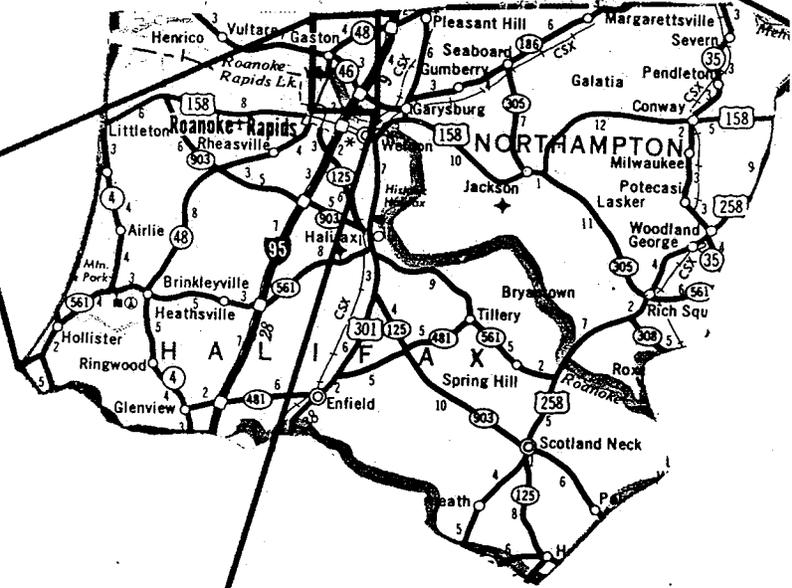
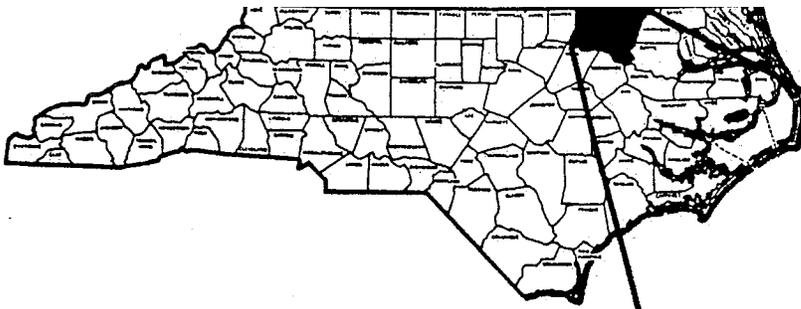
#### V. ENVIRONMENTAL EFFECTS

The implementation of the proposed project is not expected to result in any significant impact on the environment. The construction of the project will not require the relocation of any residences or businesses. The project will result in increased noise levels for development adjacent to the roadway. Other impacts will be primarily related to the actual construction of project and will cease upon completion of the project. These include minor erosion and siltation, increased noise levels from construction machinery, and delay and inconvenience to motorists using NC 48.

#### VI. FUTURE ACTIVITIES

If the project is to be implemented at a future date, all feasible alternatives and their associated impacts will need to be evaluated in a planning/environmental document prior to that time, and a final decision made as to the most appropriate improvement.

RBD/sdt




 NORTH CAROLINA DEPARTMENT OF  
 TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PLANNING AND RESEARCH BRANCH

NC 48  
 FROM ROANOKE AVENUE  
 IN ROANOKE RAPIDS  
 TO SCHOOL STREET IN GASTON  
 HALIFAX/NORTHAMPTON COUNTIES  
 U-2419

FIG.



LOOKING SOUTH ON NC 4  
FROM THE BENTON DRIVE  
INTERSECTION



LOOKING NORTH AT THE  
VEPCO STREET  
INTERSECTION.



LOOKING NORTH AT THE  
INTERSECTION OF NC 48  
WITH ROANOKE AVENUE

