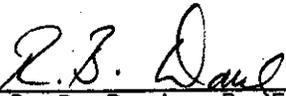


FEASIBILITY STUDY

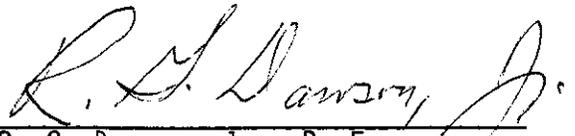
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NC 208  
From US 25-70  
To Tennessee State Line  
Madison County  
R-2426

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

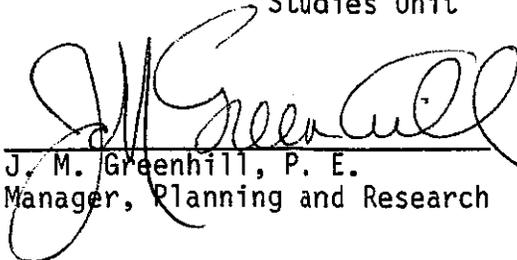


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## I. GENERAL DESCRIPTION

This report covers the widening of NC 208 to an improved two-lane highway. The project runs from US 25-70 to the Tennessee State Line, a distance of 9.0 miles (see 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 208 serves as a collector route in the primarily rural area of northern Madison County. It also serves as a connector road between Madison County and Greenville, Tennessee via Tennessee Route 70. NC 208 is classified as a Minor Arterial in the North Carolina Functional Classification System and is a Federal Aid Primary route.

The existing cross section on NC 208 consists of an 18-foot paved roadway with 2-foot unpaved shoulders. The roadway is located in the center of a 36-foot claimed right-of-way. The vertical alignment on NC 208 is good, but the horizontal alignment is poor with 50 curves of 6° or greater along the project, including 12 curves of 25° or greater. The speed limit on NC 208 is 55 mph. All intersections along the project are at grade and are stop sign controlled, with the exception of the US 25-70 intersection which has a yield sign for NC 208.

There are two bridges on NC 208. The first is where NC 208 crosses Big Laurel Creek with a 96-foot long bridge. This bridge has a 26-foot clear roadway width and is posted at 24 tons for single vehicles and 31 tons for truck tractors with semi-trailers. This bridge was built in 1949 and has a sufficiency rating of 32.9 out of a total possible 100 points. The second bridge is located where NC 208 crosses Shelton Laurel Creek, just south of the intersection with NC 212. This bridge is 120 feet long with a clear roadway width of 28 feet. This bridge was built in 1961 and is not posted. It has a sufficiency rating of 87.8.

Roadside development is light along NC 208 with much of the alignment being bounded by a stream on one side and steep mountains on the other (see Figure 2). The primary type of development is residential with a few businesses interspersed along the route. Overhead power and telephone lines were observed along portions of the route.

At the US 25-70 intersection, NC 208 has been widened to a 24-foot roadway with 6-foot unpaved shoulders. This 24-foot pavement tapers to 18 feet approximately 1000 feet north of the US 25-70 intersection. At the northern end of the project, NC 208 ties into Tennessee Route 70 which widens to a 20-foot pavement on the Tennessee side of the state line. Both of the project terminals are shown on Figure 2.

## Traffic Volumes, Capacity and Accident Record

The current traffic volume on NC 208 ranges from a high of 900 vehicles per day (vpd) at the US 25-70 intersection to a low of 500 vpd near the center of the project. These volumes are projected to increase to approximately 1200 vpd and 700 vpd, respectively, by the year 2010. With these traffic volumes, the existing highway will operate at Level of Service C or better throughout the planning period.

During the period from January 1, 1986 through January 31, 1989 a total of 42 accidents were reported on the studied portion of NC 208. This resulted in an accident rate of 613.14 accidents per 100 million vehicle miles (ACC/100 MVM) compared to a statewide average of 214.2 ACC/100 MVM for all two-lane, rural NC routes over the same period. There was 1 fatality during the period, and 18 of the accidents resulted in injuries. The primary accident type involved vehicles running off the road. This type of accident accounted for over 75% of the recorded accidents. The wider roadway and shoulders provided by the proposed project would reduce the potential for this type of accident.

### Need for Project

The widening of NC 208 along with the provision of wider shoulders will enhance the safety and driving comfort along the highway. The existing roadway has many blind curves and the shoulders are too narrow for disabled vehicles to pull onto in case of an emergency.

### III. OTHER PROGRAMMED PROJECTS AFFECTING NC 208

The portion of US 25-70 from NC 208 to Hot Springs is included in the North Carolina Department of Transportation's 1988-1996 Transportation Improvement Program for upgrading to an improved two lane highway. This project will improve US 25-70 to a 24-foot pavement with 6-foot minimum usable shoulders. This project (R-1011) is scheduled for construction to begin in fiscal year 1989. The portion of US 25-70 from NC 208 eastward has previously been upgraded.

### IV. RECOMMENDATIONS AND COSTS

It would be desirable to widen NC 208 to an improved two-lane roadway with adequate shoulders. The recommended cross section is a 22-foot roadway with 6-foot usable shoulders. The widening should be accomplished on the inside of the curves, where practical, to improve the curvature of the highway. In areas where the highway is bordered by a stream, the widening should be primarily along the opposite side to avoid any construction in the stream or relocation of the stream. This improvement should greatly improve safety and driver comfort along NC 208.

The estimated costs of this project are as follows:

|              |                     |
|--------------|---------------------|
| Construction | \$ 11,700,000       |
| Right-of-Way | \$ <u>1,500,000</u> |
| TOTAL        | \$ 13,200,000       |

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

#### V. ALTERNATIVES

Since the project involves the improvement of an existing roadway through an area where the location is restricted by the terrain, no alternative alignments were considered.

A wider cross section, with 12-foot travel lanes, was considered for the improvement of NC 208. This cross-section would require even more cutting into the mountain side, increasing both the construction and right-of-way costs. Since the recommended cross section will provide adequate capacity at a lower cost, the wider roadway width was not chosen.

A reduced cross section utilizing 10-foot travel lanes and/or 4-foot shoulders was also considered. The reduced pavement width was not chosen, because it is not adequate for the expected traffic especially for larger trucks negotiating the many curves along NC 208. A 4-foot shoulder width was not chosen because it would be too narrow for vehicles to use in emergency situations. The recommended 6-foot shoulder width is minimal. If a reduced facility had to be chosen to meet cost constraints, it would be preferable to reduce the shoulder width in lieu of reducing the roadway width.

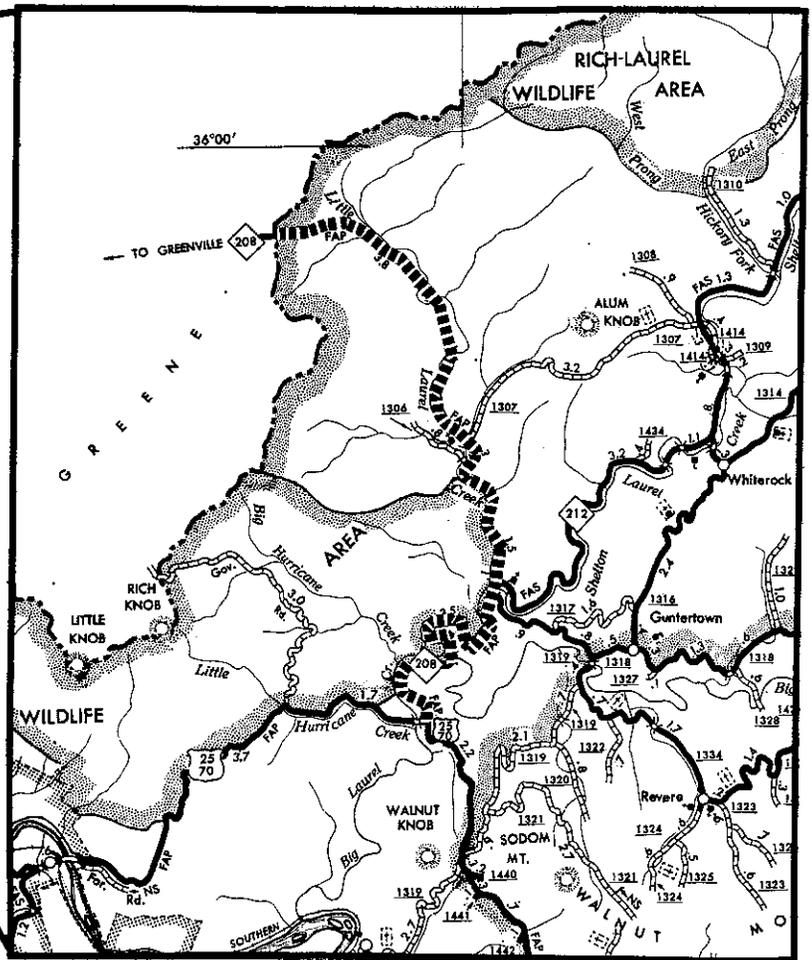
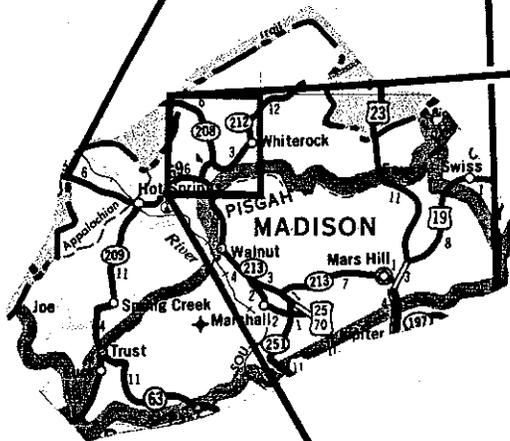
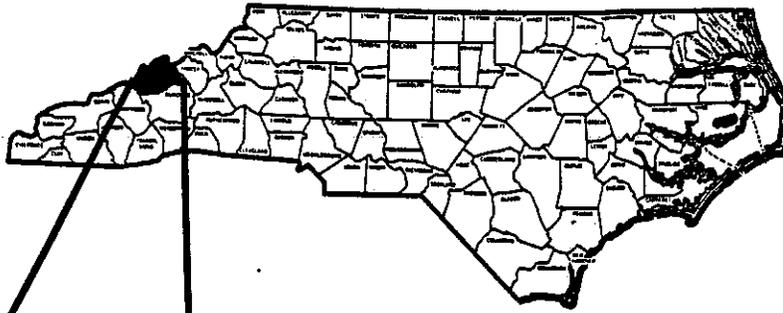
#### VI. ENVIRONMENTAL EFFECTS

The implementation of the proposed project is not expected to result in any significant impact on the environment. The construction of the project will require the relocation of an estimated nine residences and one business. The project will also result in increased noise levels for remaining development adjacent to the roadway. Throughout most of the project length, NC 208 is bordered by streams. The streams running alongside the highway include Big Laurel Creek, Shelton Laurel Creek, Little Laurel Creek, and Allen Creek. These streams are classified as trout streams and will be impacted by the widening of NC 208. Measures to minimize the impacts on these streams, such as widening the roadway away from the stream and the use of stringent erosion control measures, should be implemented during the design and construction of the project. The Appalachian Trail crosses NC 208 at the state line but should not be impacted by the project. Other impacts will be primarily related to the actual construction of project and will cease upon completion of the project. These include increased noise levels from construction machinery and delay and inconvenience to motorists using NC 208.

## VII. FUTURE ACTIVITIES

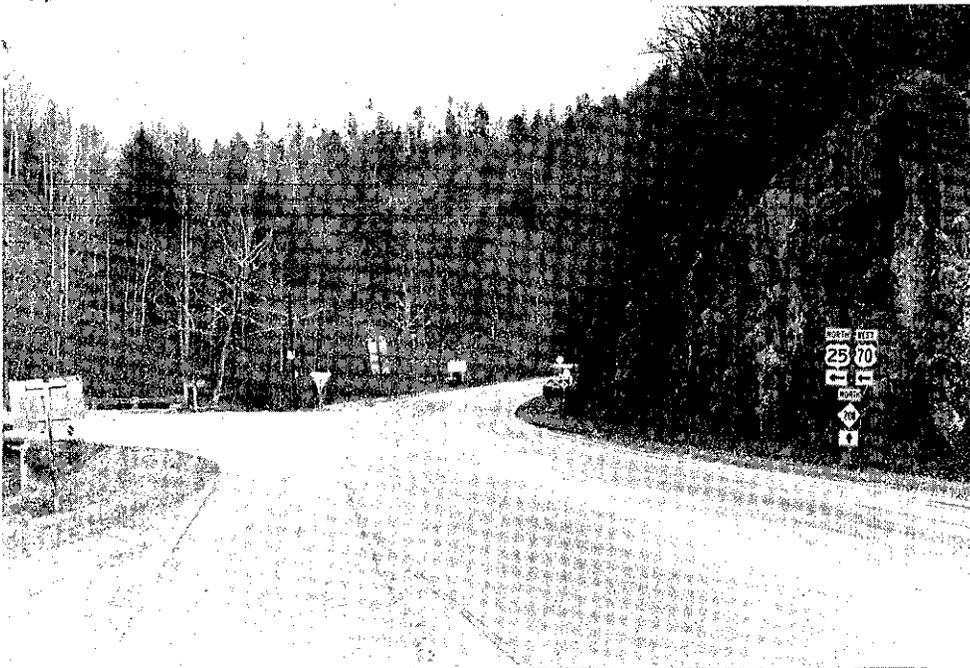
If the project is to be implemented at a future date, all feasible alternatives and their associated impacts will need to be evaluated in a planning/environmental document prior to that time, and a final decision made as to the most appropriate improvement.

RBD/sdt




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

**NC 208  
FROM US 25-70  
TO TENNESSEE STATE LINE  
MADISON CO., R-2426**



LOOKING NORTH AT  
THE US 25-70  
INTERSECTION



A VIEW SHOWING THE  
CONSTRAINTS OF A STREAM  
ON ONE SIDE AND A  
MOUNTAIN ON THE OTHER



LOOKING SOUTH AT  
THE TENNESSEE STATE  
LINE