

FEASIBILITY STUDY

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US 15-401  
From S. C. State Line to South of SR 1105  
Scotland County  
R-2508

Prepared by  
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I. DESCRIPTION

This report covers a preliminary study of the proposed widening of US 15-501 to a multi-lane facility from the South Carolina State Line to south of SR 1105 (Turnpike Road) south of Laurinburg (see Figure 1). This project is included in the 1990-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection, and is not currently funded. Although this project was originally to extend farther north to SR 1117, the US 401 Laurinburg Bypass (T.I.P. R-613) improvement includes multi-lane widening of US 15-401 southward to SR 1105 where SR 1105 will be realigned to eliminate the angled intersection with US 15-401 (see Figure 2). The studied project length is approximately 3.5 miles.

II. PURPOSE OF PROJECT

Existing Route Characteristics

US 15-401 is classified as a major connector on the Laurinburg Thoroughfare Plan adopted in 1983, and as a Rural Minor Arterial on the County Functional Classification Plan. It is basically a 2-lane, 22-foot paved facility with 8-foot shoulders (1 foot of which is paved). The existing right-of-way is 154 feet throughout the project length and is asymmetrical about the centerline of the road, 104 feet to the west of the centerline and 50 feet to the east. Right-of-way was acquired to accommodate a future 4-lane divided section with no control of access. The posted speed limit is 55 mph. Development along US 15-401 is scattered commercial and residential. There is a significant amount of new residential development surrounding the project area.

There is one bridge located on the project:

<u>Bridge No.</u>	<u>Location</u>	<u>Length (Ft.)</u>	<u>Width (Ft.)</u>	<u>Age (Yrs.)</u>	<u>Rating (New=100)</u>
17	Gum Swamp Creek	162	34.2	52	55.4

Traffic Volumes, Capacity, and Accident Record

The volume of traffic that utilizes this route ranges from approximately 4,000 vehicles per day (vpd) near the state line to 9,000 vpd at SR 1105, increasing to an estimated 8,000 to 17,000 vpd by the year 2010.

The capacity of the existing road at level of service C is approximately 7,000 vpd. The actual volumes presently using the facility (up to 9,000 vpd) indicate that the capacity is exceeded along parts of the studied length.

Accident data for a recent 3-year period shows a total of 106 accidents on the studied section of US 15-401. This yields an accident rate of 215 accidents per hundred million vehicle miles, which is greater than the state wide average of 188 accidents per hundred million vehicle miles for comparable 2-lane rural U. S. routes. Rear-end (37%) and angle (18%) collisions were predominant accident types.

#### Need for Project

The improvement of US 15-401 to a multi-lane facility is needed to provide increased capacity and safety for existing and future traffic volumes.

### III. RECOMMENDATIONS AND COSTS

The recommended cross section for US 15-401 is a 5-lane, 60-foot shoulder section (12-foot shoulder, 2-foot of which is paved) contained within the existing 154 feet of right-of-way. Construction of additional lanes can be accomplished without required additional right-of-way by widening to the western side of the existing pavement. This would match the planned cross section in the R-613 project and is consistent with the anticipated traffic volumes and the concentration of development along the project area. This cross section would also minimize impacts to wetlands at Gum Swamp Creek.

The 5-lane section is recommended in lieu of the originally planned 4-lane divided section primarily because of the potential for numerous left turn movements associated with roadside development and street intersections. The existing highway passes through a growing area that is creating a number of street and driveway connections with the road. With numerous street and driveway connections, it would be impractical to limit left turns to adequately spaced intersections that would be required with a divided section. The preferred undivided section would permit direct left turns than require vehicles to make U-turns at intersections. Frequent driveway and street intersections could create U-turn problems and other hazards if a divided roadway were in place. Because all left turns would be protected in the 5-lane section, the interference to through traffic would be minimized. In addition, use of a 5-lane section for the studied facility becomes more valid when improvement of the existing road would likely invite more commercial and residential development accompanied by additional connections to the road and, as previously mentioned, would correspond with the planned improvement of US 15-501 that adjoins this project.

It is anticipated that the bridge over Gum Swamp Creek will have to be replaced to accommodate the recommended cross section.

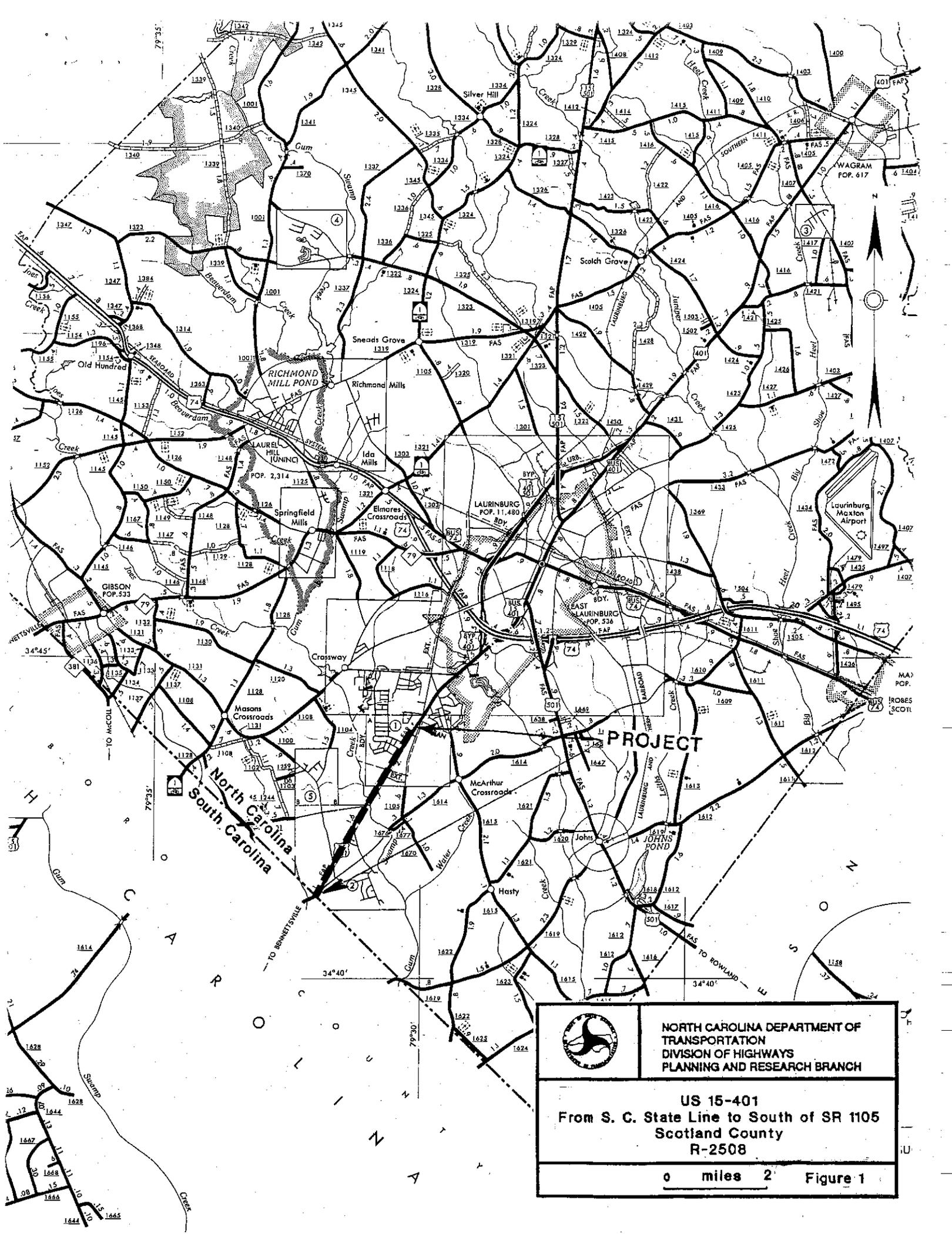
Since it is anticipated the recommended cross section will be fully contained within the unobstructed existing right-of-way, no right-of-way costs would be involved. The estimated cost of construction, with a new structure at Gum Swamp Creek, is \$ 5,300,000.

#### IV. OTHER COMMENTS

Possible noticeable negative environmental impacts of the proposed widening of US 15-401 include minor loss of wetlands at Gum Swamp Creek and increased noise levels for businesses and residences adjacent to the project.

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

AS/plr



**PROJECT**



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

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0 miles 2 Figure 1

