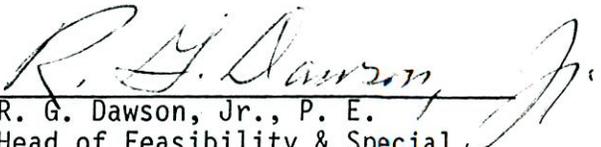


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FEASIBILITY STUDY

US 70
From SR 2851 to SR 3056
Guilford County
U-2581

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


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4/24/90
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US 70
From SR 2851 to SR 3056
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I. DESCRIPTION

This report covers a preliminary study of a 7.5-mile segment of US 70 extending from the end of the existing 4-lane divided section on Wendover Avenue near SR 2851 east of Greensboro eastward to the intersection with SR 3056. Project location is shown on the attached maps. This project is listed in the 1990-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection.

II. PURPOSE OF PROJECT

Existing Route

US 70 is designated as an urban principal arterial in the Guilford County Functional Classification Plan. It provides important radial access to Greensboro from the outlying eastern portion of Guilford County.

The studied section of road generally has a 30-foot pavement with variable 4 to 6-foot grassed shoulders. The road was constructed in the 1920's on fair alignment. The horizontal alignment has 11 curves over 4 degrees (60 mph design speed) ranging up to 14 degrees (35-40 mph safe speed). The vertical alignment is undulating at several locations, with grades ranging up to 5.5 per cent. The existing right-of-way is approximately 50 feet, which is the width maintained by the Division of Highways.

To the west, the studied facility adjoins a 4-lane median divided curbed expressway which passes through the northern sector of Greensboro. East of SR 3056, US 70 carries the same cross section to NC 100 at Whitsett. Just south of US 70, SR 3056 interchanges with I-40/85. Current plans for the improvement of I-40/85 (I-303) call for upgrading the existing interchange and widening SR 3056 to 3 lanes through the I-40/85 area to the intersection with US 70.

The existing pavement is basically marked for 2-lane operation with left-turn lanes provided at major intersections. However, there are some locations where the pavement is marked for continuous 3-lane operation to provide a passing lane in one direction of travel. These passing zones are generally located in areas where safe passing sight distance is limited and the speed limit is 55 mph. Approximately one-third of the studied project length is posted for 55 mph, and the remainder is posted for 45 mph.

There are two bridges located along the subject section of road. One is a concrete structure crossing South Buffalo Creek with a clear roadway width of 36 feet and a length of 111 feet. It was constructed in 1930 and has a current sufficiency rating of 60 out of a possible 100 (new bridges). The other is a concrete underpass of Southern Railway. This structure has a horizontal clearance of 24 feet and a vertical clearance of 15.5 feet. It was constructed in 1950 and supports a single track currently carrying 6 trains per day. The alignment of US 70 approaching the underpass from each direction is winding, requiring advisory safe speed signs of 35 mph.

The existing road traverses rolling terrain. It is fronted for the most part by moderate density residences and woodlands with some agricultural and commercial uses. Roadside development increases as US 70 approaches Greensboro. Other development found along US 70 includes several churches, a school, a golf course, and the Charlotte Hawkins Brown Memorial Historic Site at Sedalia, the location of a former preparatory school founded in 1902 for black students.

Traffic Volumes, Capacity, and Accident Record

Current traffic volumes on US 70 range from highs of 13,000 to 17,000 vehicles per day between SR 2851 and SR 3045 to lows of approximately 8000-9000 vehicles per day between SR 3045 and SR 3056. Estimated 2010 traffic volumes are 30,000-37,000 to 20,000-22,000 vpd, respectively. With the anticipated growth of the area and construction of the Greensboro Urban Loop which would cross the western end of this project, substantial traffic increases would be expected.

Capacity of the existing road is approximately 6000 vpd at desirable Level of Service C. Since the capacity is exceeded by the present volumes, LOS C cannot be maintained anywhere along this section of US 70. In fact, the western third of the studied length is operating at LOS F, indicating intolerable traffic flow conditions.

Accident data for a recent 4-year period revealed a total of 227 accidents on this section of road. This record yields an accident rate of 2.2 accidents per million vehicle miles (acc/mvm). The rate is higher than the statewide average rate of 1.7 acc/mvm in 1988 for similar US routes. Major patterns of accidents were run off road (34%), rear-end (21%), and angle (15%) accidents.

Need for Project

The existing road is carrying more traffic than it can handle at the desirable level of service. In addition, it is experiencing higher than the normal number of accidents. The capacity and safety deficiencies can only be corrected by immediate provision of additional lanes and adjustment to isolated locations of adverse alignment.

III. RECOMMENDATIONS AND COST

Widening of the subject facility to a multi-lane width is warranted on the basis of inadequate capacity and poor safety record. The recommended cross section is 5 lanes with curb and gutter (64 feet face to face of curbs).

Generally, widening should be symmetrical. However, widening should shift to the side of the road opposite environmentally sensitive areas, including a cemetery, a golf course, and a State Historic Site previously mentioned.

Replacement of the existing bridges at South Buffalo Creek and Southern Railway is recommended due to their age and condition. These bridges can be replaced along an approximate 0.9-mile relocation extending between SR 2828 and SR 2950 (see Figure 2). The short relocation would allow retention of the existing bridges for maintaining traffic during construction, and eliminate the adverse alignment on existing US 70. Because of terrain conditions, the new location for US 70 should pass under the Southern Railway track. Approximately 1/2 mile of rail-road relocation would be required to permit construction of the underpass.

Other than the recommended relocation discussed above, minor adjustments to the horizontal and vertical alignments are anticipated. These adjustments would involve improvement of critical horizontal and vertical curves.

Provision of a curbed roadway along a 55 mph speed limit highway is not normally recommended due to potential safety problems associated with high speed traffic running into the curb. However, the 3-mile portion of US 70 currently posted for 55 mph is anticipated to experience increased development which would likely cause a reduction in the speed limit to 45 mph in the near future. In this case, use of curbs rather than shoulders would be appropriate.

The estimated costs of the recommended improvements for the entire 7.5-mile project are as follows:

Construction	\$13,300,000
Right-of-Way	<u>3,800,000</u>
TOTAL	\$17,100,000

Due to wide variation in traffic usage along the studied length, construction of the project could be staged by sections if desired for funding reasons. There are two sections of the project length with significant difference in traffic volumes: Section A, which extends from the western terminal at SR 2581 to SR 3045 and Section B, which extends from SR 3045 to the eastern terminal at SR 3056. Section A is carrying an overall average traffic volume of 15,000 vpd, while Section B is carrying an overall average traffic volume of 8500 vpd. Cost estimates for each section are given below.

Section A (2.2 miles)

Construction	\$ 5,900,000
Right-of-Way	<u>2,000,000</u>
TOTAL	\$ 7,900,000

Section B (5.3 miles)

Construction	\$ 7,400,000
Right-of-Way	<u>1,800,000</u>
TOTAL	\$9,200,000

Obviously, Section A should be given top priority, because it serves considerably higher volumes of traffic and would provide continuity of an existing multi-lane width.

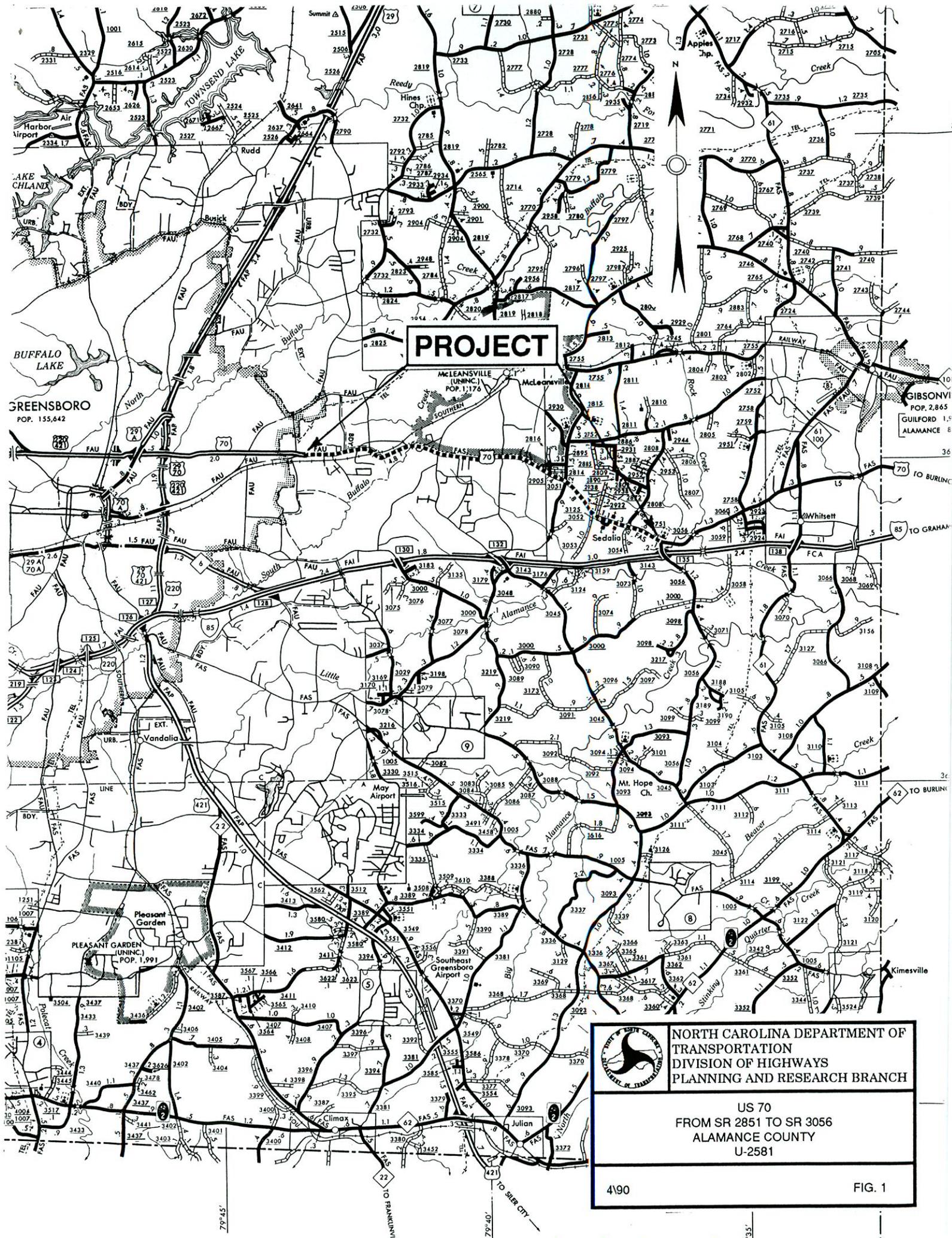
The construction cost includes engineering and contingencies, and the right-of-way cost includes relocation, acquisition, and utility adjustment costs. Right-of-way cost estimates are based on 100 feet of right-of-way for the widening and 150 feet of right-of-way for the relocation. The cost estimates were prepared by the Preliminary Construction Cost Engineer and the Right-of-Way Branch.

IV. OTHER COMMENTS

Since the proposed project involves improvement along an existing major thoroughfare, no alternative locations were considered.

No unusual environmental problems are anticipated with the construction of the recommended plan. Several areas of environmental concerns are located along this project; however, these areas can be protected by alignment shifts as previously discussed. Negative impacts would be the loss of land required for additional right-of-way, displacement of approximately 2 residences and 4 businesses, possible erosion and siltation during construction, and increased noise levels for the remaining roadside development.

RGD/plr



PROJECT

MCLEANSVILLE (UNINC.)
POP. 1,176

GREENSBORO
POP. 155,642

GIBSONVILLE
POP. 2,865
GUILFORD 1.5
ALAMANCE 8



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

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