

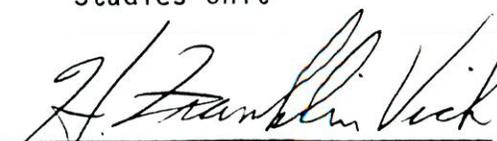
FEASIBILITY STUDY

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US 70
From Haw River Bypass to Mebane City Limits
Alamance County
U-2546

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


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I. DESCRIPTION

This report covers a preliminary study of a 4.6-mile segment of US 70 extending from the end of the proposed Haw River Bypass (R-611) at NC 49 eastward to the west city limits of Mebane. 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 Alamance County Functional Classification Plan. It provides important radial access to the Mebane, Haw River, and Burlington areas which are bypassed by a parallel interstate route.

The studied section of road generally has a 22-foot pavement with variable 5 to 10-foot shoulders constructed on fair alignment. To the west at NC 49, the facility will adjoin the proposed Haw River Bypass scheduled for construction as a 4-lane undivided shoulder section in mid 1991. To the east at Mebane, it adjoins a 40-foot curbed section which operates as 2 lanes with parallel parking on both sides, except at major intersections where left turn lanes are provided.

Claimed existing right-of-way width is 100 feet. However, no recorded right-of-way agreements are available to support this claim. For cost estimate purposes, the existing right-of-way is assumed to be approximately 40 feet, which is the width maintained by the Division of Highways.

There is only one bridge located along the entire subject section of road. This concrete structure, constructed in 1938, spans Back Creek on a length of 133 feet and a clear roadway width of 28 feet. The sufficiency rating for the bridge is 60 out of a possible 100 for a new bridge.

The existing road traverses rolling terrain. It is abutted for the most part by mixed land uses consisting of residential, commercial, industrial, and agricultural. Light to moderate density development is found along this section of US 70. Development increases as US 70 approaches Haw River and Mebane. At the Mebane end of the project, approximately 1.3 miles of US 70 is fronted by the Southern Railroad at a distance of generally 80 feet between centerlines.

Traffic Volumes, Capacity, and Accident Record

Current traffic volumes on US 70 range from approximately 7000 to 10,000 vehicles per day (vpd), with the highest volumes occurring at Haw River and Mebane. Estimated year 2010 traffic volumes are 13,000 to 18,000 vpd, respectively. The volumes include 1 % truck tractor semi-trailers and 3 % dual tired trucks.

Capacity of the existing road is approximately 6000 vpd at desirable level of service C (operating speeds of 40 MPH or greater). Since this capacity is exceeded by the present volumes, level C cannot be maintained anywhere along this section of US 70. Traffic flow is regulated by variable speed limits of 35, 45 MPH , and 55 MPH.

Accident data for a recent 4-year period revealed a total of 124 accidents on this section of road. This record yields an accident rate of 1.1 accidents per million vehicle miles (acc/mvm). The rate is less than the statewide rate of 2.2 acc/mvm and 2.9 acc/mvm in 1988 for 2-lane US routes in rural and urban areas, respectively. Major patterns of accidents were rear-end and angle collisions.

Need for Project

The existing 2-lane studied section of US 70 is carrying more traffic than its capacity to accommodate at the desirable level of service. The capacity deficiency can only be corrected by immediate provision of additional lanes.

III. RECOMMENDATIONS AND COST

Widening of the subject facility to a multi-lane width is warranted on the basis of inadequate capacity. The recommended cross section is five lanes with curb and gutter (64 feet face to face of curbs). Estimated right-of-way width is 100 feet plus construction easements where necessary.

Generally, widening should be symmetrical. The major exception to this is at the Mebane end of the project where US 70 parallels close to the railroad. In this area, widening should shift to the north side to avoid encroachment on the railroad right-of-way.

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, in this case, use of curbs rather than shoulders on a 2-mile portion of US 70 where a 55 MPH speed limit is currently posted is appropriate, because it is anticipated this area will experience increased development which would likely cause a reduction in the speed limit in the near future.

Replacement of the existing bridge across Back Creek is recommended. Although the sufficiency rating for the bridge is not low, the age and condition of the structure do not lend itself to widening.

The western project terminal would tie into the proposed 5-lane treatment at NC 49 under the planned construction of the US 70 Haw River Bypass. At the eastern project terminal, the recommended 5-lane improvement would have to be transitioned into the existing 40-foot curbed width which extends through the Mebane downtown area. Widening of US 70 through Mebane to a greater width is not feasible because of the proximity of dense development on the north side and the railroad on the south side of the highway. The most logical alternative is to develop a one-way system through Mebane, utilizing US 70 as one-way westbound and existing parallel local and State roads on the south side of the railroad as one-way eastbound. The possible one-way pair would connect together at points on US 70 west and east of the Mebane urban area. The logical western connection of the one-way pair is located in the vicinity of the transition of the proposed project to the existing roadway.

The estimated costs of the project are as follows:

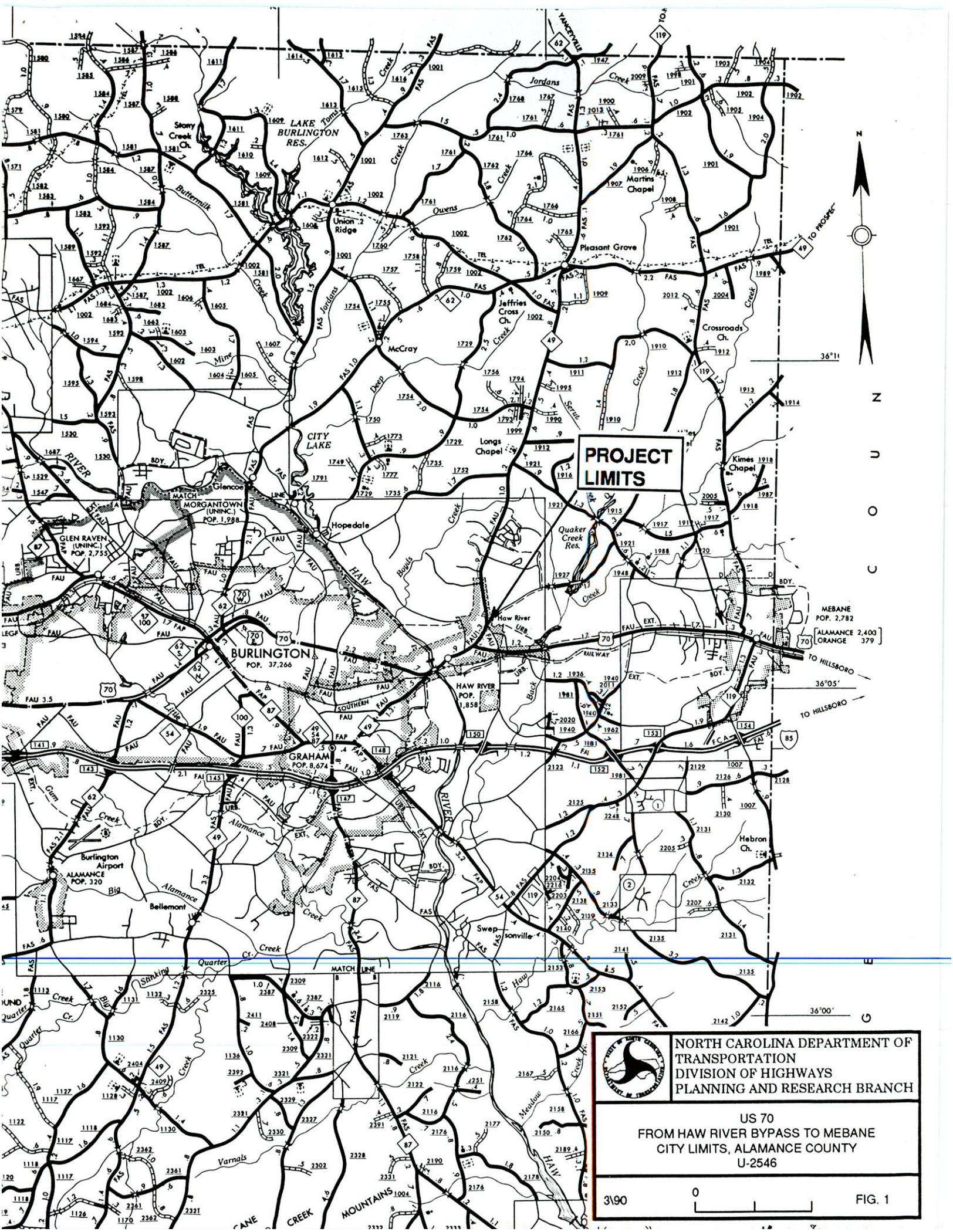
Construction	\$ 6,700,000
Right-of-Way	<u>7,400,000</u>
TOTAL	\$14,100,000

The construction cost includes engineering and contingencies, and the right-of-way cost includes relocation, acquisition, and utility costs. 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 highway, no alternative locations were considered.

No unusual environmental problems are anticipated with construction of the recommended plan. Negative impacts are: (1) loss of land required for additional right-of-way; (2) displacement of approximately 6 residences and 8 businesses; (3) possible erosion and siltation during construction, and (4) increased noise levels for remaining roadside development.



**PROJECT
LIMITS**



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

**US 70
FROM HAW RIVER BYPASS TO MEBANE
CITY LIMITS, ALAMEDA COUNTY
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3/90



FIG. 1

