

FEASIBILITY STUDY

Secondary Road Improvements
From US 15-501 to I-40
Chatham and Durham County
R-2924

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation

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Date

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I. GENERAL DESCRIPTION

This preliminary study describes proposed improvements to several secondary state roads, which comprise a corridor, between US 15-501 in Chatham County and I-40 in Durham County. The studied corridor begins in Chatham County at the intersection of US 15-501 and SR 1717 (Jack Bennett Road), then follows the alignment of SR 1717, SR 1108, SR 1726, SR 1109, and SR 1110 to the northern project terminal at I-40 in Durham County. The total length is approximately 11.8 miles. This route is partially located in the upper reaches of Jordan Lake which is managed by the Corp of Engineers and traverses lands which are owned by the Corp including flood storage areas, Federal game lands, and the Greentree Waterfowl Refuges. The project location is shown on Figure 1.

The proposed improvements in Chatham county are as follows:

1. Construct a right-turn lane on northbound US 15-501 and mark the westbound approach on SR 1717 to provide a separate left-turn lane and a separate right-turn lane at the US 15-501/SR 1717 intersection. *widened
Need
add. wide
For R&L
WB*
2. Resurface SR 1717 from US 15-501 for a distance of approximately 1.4 miles to the east.
3. At the SR 1717/SR 1721 intersection, widen the eastbound SR 1717 approach to provide separate right-turn and left-turn lanes. Widen the westbound SR 1717 approach to provide a separate left-turn lane.
4. At the SR 1717/SR 1008 intersection construct a right-turn lane on the southbound approach of SR 1008. Mark the eastbound approach on SR 1717 for a left-turn lane and a combination thru-right-turn lane.
5. At the intersection of SR 1008 and SR 1726 relocate both roads slightly to improve the corridor alignment. Relocate the north leg of SR 1008 and put this leg under stop sign control. Some right of way and utility adjustments will be required.

The proposed improvements in Durham county are as follows:

1. At the intersection of SR 1009 and SR 1110 widen the westbound approach on SR 1110 to provide a separate left-turn lane.

2. On SR 1109 repair several pot-holes and resurface approximately 500 feet in the vicinity of ??????.

The total cost for right of way and construction is estimated to be \$ 450,000.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of the study is to describe the existing conditions and recommendations including costs, and identify potential problems that may require consideration in future planning and design phases.

II. NEED FOR PROJECT

The purpose of this project is to reduce the traffic volume and congestion on US 15-501 between Chatham County and Chapel Hill and to improve access between Chatham County and the Research Triangle Park and I-40 in Durham County.

The Chapel Hill - Carrboro Thoroughfare Plan shows an alignment similar to the studied corridor as a proposed minor thoroughfare.

Development along this corridor is generally low density, rural, residential and farming. The route passes through a large wildlife refuge area. The roads in this area are typical rural secondary roads with pavement widths varying from 20 to 22 feet, and grass shoulders approximately 6 to 8 feet wide.

Bridge #64, on SR 1726 is 433 foot long, has a clear deck width of 30 feet, spans a fork of Morgans Creek, and has a sufficiency rating of 87.6 out of a possible 100 points. Bridge #110 on SR 1110 spans Little Creek, is 170 feet long, has a clear deck width of 37 feet, and has a sufficiency rating of 91.7 points.

The estimated 1993 Average Daily Traffic (ADT) on US 15-501 between SR 1717 and the Chapel Hill 15-501 Bypass is estimated to be 15,800 vehicles per day (vpd) and the 2013 ADT is estimated to be 36,000 vpd. The Level Of Service (LOS) on US 15-501 south of the Orange County line is estimated to currently be level E.

The estimated 1993 Average Daily Traffic (ADT) on the routes that comprise this project range from 1400 vehicles per day (vpd) to 3500 vpd.

During the period from March 1, 1990 through February 28, 1993 there were 153 accidents reported on US 15-501 from 0.25 miles south of SR 1717 in Chatham County to SR 1994 (Farrington Road) in Orange County. This resulted in an accident rate of 150.5 accidents per 100 million vehicle miles (Acc/100MVM),

compared to a statewide average of 144.3 Acc/100 MVM for all rural US routes during 1992. There was one fatality reported during the period and 69 of the accidents resulted in injuries. The most prevalent accident type was rear-end (35.3%).

On the routes that comprise this corridor, and during the period from January 1, 1990 through December 31, 1992 there were 77 reported accidents. There was one fatal accident and 26 accidents resulted in non-fatal injuries. This resulted in an accident rate of 238 accidents per 100 million vehicle miles (Acc/100MVM), compared to a statewide average of 324 Acc/100 MVM for all rural secondary routes during 1992. The most prevalent accident type was ran-off-road (47%), animal (18%), left-turn (10%), and angle (10%).

III. RECOMMENDATIONS

It is recommended to make improvements to several secondary state roads, which comprise a corridor, between US 15-501 in Chatham County and I-40 in Durham County. The route locations are shown on Figure 1.

It is recommended that these improvements be constructed by Division personnel and/or through Division procedures. The cost estimates for construction are based on construction by the Divisions.

The proposed improvements in Chatham county are as follows:

1. Construct a right-turn lane on northbound US 15-501 and mark the westbound approach on SR 1717 to provide a separate left-turn lane and a separate right-turn lane at the US 15-501/SR 1717 intersection.
2. Resurface SR 1717 from US 15-501 for a distance of approximately 1.4 miles to the east.
3. At the SR 1717/SR 1721 intersection, widen the eastbound SR 1717 approach to provide separate right-turn and left-turn lanes. Widen the westbound SR 1717 approach to provide a separate left-turn lane.
4. At the SR 1717/SR 1008 intersection construct a right-turn lane on the southbound approach of SR 1008. Mark the eastbound approach on SR 1717 for a left-turn lane and a combination thru-right-turn lane.
5. At the intersection of SR 1008 and SR 1726 relocate both roads slightly to improve the corridor alignment. Relocate the north leg of SR 1008 and put this leg under stop sign control. Some right of way and utility adjustments will be required.

The proposed improvements in Durham county are as follows:

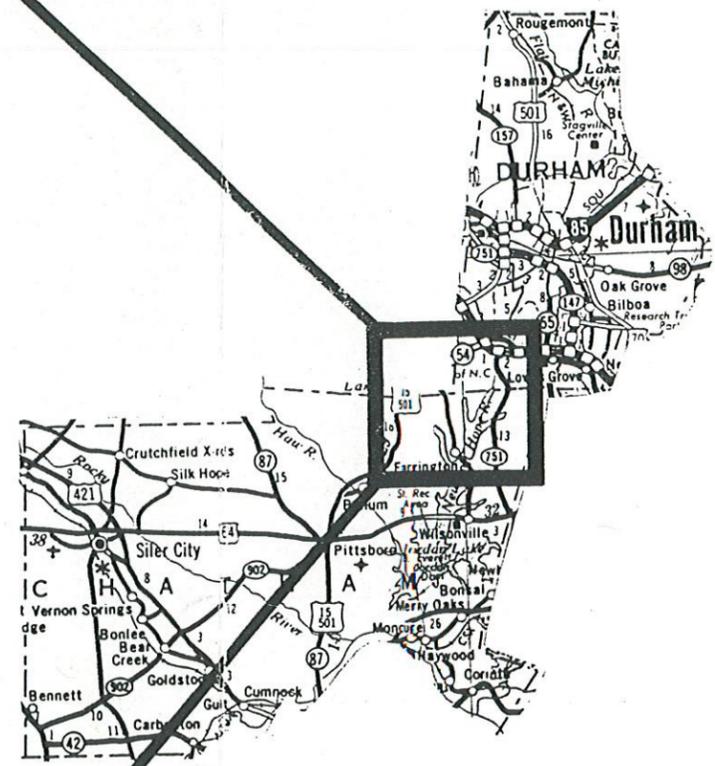
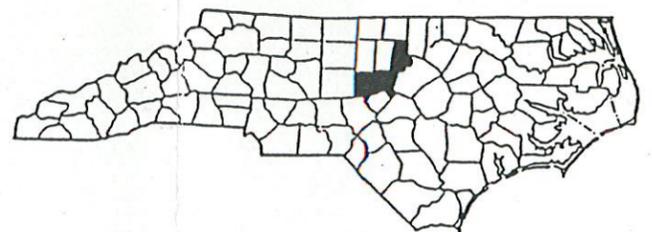
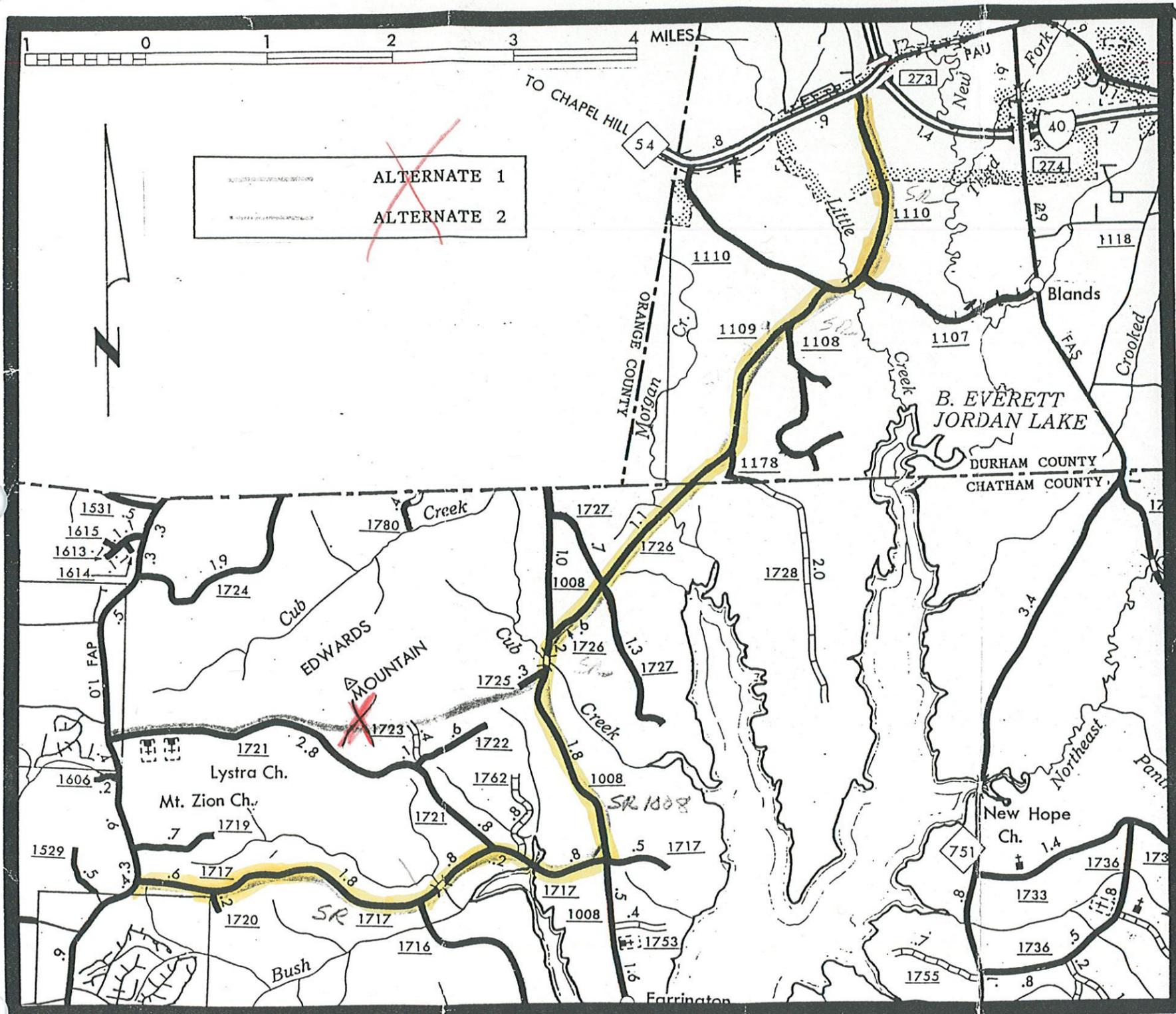
1. At the intersection of SR 1009 and SR 1110 widen the westbound approach on SR 1110 to provide a separate left-turn lane.
2. On SR 1109 repair several pot-holes and resurface approximately 500 feet in the vicinity of ??????.

The total cost for construction, right of way, and utility adjustments is estimated to be \$ 450,000 as follows:

Construction Cost.....	\$ 400,000
Right of Way Cost.....	50,000
Total Cost.....	\$ 450,000

V. OTHER COMMENTS

An environmental screening was not conducted for this project.



*This is being revised!
WJW*

FEASIBILITY STUDIES UNIT		
<i>Secondary Road Improvements</i>		
NEW ROUTE, CHATHAM CONNECTOR		
FROM US 15-501 IN CHATHAM COUNTY		
TO I-40 IN DURHAM COUNTY		
CHATHAM AND DURHAM COUNTIES		
R-2924	DIV. 5 & 8	FIGURE 1