Bill Watson

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT, JR.
GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

R. SAMUEL HUNT III
SECRETARY

March 21, 1995

MEMORANDUM TO: Mr. Clark Jenkins, Member, Board of Transportation
Mr. D. R. Dupree, Division Engineer, Division 4
Mr. C. W. Leggett, P.E.
Mr. W. H. Webb, P.E.
Mr. J. M. Lynch, P.E.
Mr. J. B. Williamson
Mr. H. F. Vick, P.E. (2)
Mr. D. R. Morton, P.E.
Mr. G. T. Shearin, P.E.
Mr. M. R. Poole, P.E.
Mr. A. L. Avant (2)
Mr. J. D. Lane
Mr. T. A. Peoples, P.E.
Mr. L. K. Barger, P.E.

FROM: David G. Modlin, Ph.D., P.E. David Modlin
Head of Feasibility Studies

SUBJECT: Feasibility Study # R-3316, Rocky Mount, SR 1544 (Old Halifax Road) From SR 1714 to SR 1770, Nash County.

Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded. A copy of our report is attached for your information.

DGM/joa

Attachment

cc: Dr. L. R. Goode, P.E.
Mr. B. G. Jenkins, P.E.
Mr. Bill Watson, P.E.

FEASIBILITY STUDY

Rocky Mount
SR 1544 (Old Halifax Road)
From SR 1714 to SR 1770
Nash County
R-3316

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

Lynnise M. Hawes
Co-op Engineer

William J. Watson, P.E.
Highway Planning Engineer

3/14/95
Date

David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

FEASIBILITY STUDY

Rocky Mount
SR 1544 (Old Halifax Road)
From SR 1714 to SR 1770
Nash County
R-3316

I. GENERAL INFORMATION

This preliminary study describes four alternatives for widening SR 1544 (Old Halifax Road) in Rocky Mount. The recommended alternative (Alternative #3) proposes the widening of SR 1544 from SR 1714 to SR 1770, a distance of approximately 1.5 miles (2.4 km), and the relocation of SR 1700, for a distance of approximately 0.7 mile (1.1 km). The recommended typical cross-section for SR 1544 is a five-lane, 64-foot (19.5-m) curb and gutter section, on a 100-foot (30.5-m) wide right-of-way. The recommended typical cross-section for the SR 1700 relocation is a two-lane, 24-foot (7.2-m) wide pavement with 8-foot (2.4-m) wide unpaved shoulders, on a 100-foot (30.5-m) wide right-of-way. Seventeen residential relocatees and 1 business relocatee will be required. The estimated cost, including construction and right of way, is $5,900,000. The study location is shown on Figure 1.

The four studied alternatives are discussed further on page 3 and are illustrated on Figure 2.

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 this study is to describe project alternatives including costs, and identify potential problems that may require consideration in the planning and design phases.

II. NEED FOR THE PROJECT

This project was requested by the Rocky Mount Transportation Advisory Committee. The purpose of this project is to reduce current and anticipated future congestion on this route. SR 1544, SR 1770, and SR 1714 are classified as urban minor arterials in the Statewide Functional Classification System. SR 1700 is classified as a rural minor collector in the Statewide Functional Classification System.

Existing SR 1544, from SR 1700 to SR 1770, is a two-lane, 24-foot (7.2-m) pavement with 8-foot (2.4-m) grass shoulders.

The CSX railroad crosses the project approximately 0.5 mile (0.8 km) south of SR 1770. One train crosses SR 1544 per day. The Exposure Index is 19,700. Currently, the one track of the CSX railroad is protected by flashing lights and warning beacons.

Development along the project is a mixture of residential and light industrial development with a significant amount of undeveloped land.

Kingswood, a large trailer park, is located on the east side of SR 1544 approximately 0.7 miles (1.1 km) north of the intersection of SR 1544 and SR 1714. A housing development is located on the east side of SR 1544 approximately 0.4 miles (0.6 km) north of the intersection of SR 1544 and SR 1714. Rocky Mount Recyclers, Inc. is located on the west side of SR 1544 approximately 0.8 miles (1.3 km) north of the intersection of SR 1544 and SR 1714. Bethlehem Church is located on the east side of SR 1544 approximately 1.4 miles (2.2 km) north of the intersection of SR 1544 and SR 1714. A store is located in the southeast quadrant of the SR 1544 - SR 1770 intersection. The remaining three quadrants at this intersection are occupied by gas stations.

The south terminal of the widening on SR 1544 is located at the SR 1714 intersection and the relocation of SR 1700 begins approximately 0.7 mile (1.1 km) west of SR 1544. Land use in this area is residential, agricultural, and wooded.

The north terminal of the project is located at the intersection of SR 1544 and SR 1770. Land use in this area is commercial.

The estimated Average Daily Traffic (ADT), on SR 1544, for the years 1994 and 2020 are 8,800 and 19,700 vehicles per day, respectively. Based on 1994 traffic, the Level Of Service (LOS) is level D. The LOS in the design year (2020), without the improvements, is expected to be level E. With the proposed improvements the LOS is estimated to be level B through the design year.

During the period beginning March 1, 1991, and ending February 28, 1994, 13 accidents, including one fatal accident, were reported for the studied section. This resulted in an accident rate of 83.2 accidents per 100 million vehicle miles (acc/100mvm), compared to a statewide average of 345 acc/100mvm for this type of facility. The most prevalent types of accidents along SR 1544 involved vehicles running off of the road (39%) and vehicles making

left turns (31%). The wider cross-section, and center turn lane proposed will reduce the potential for these type accidents.

III. RECOMMENDATIONS

It is recommended that SR 1544 be widened from SR 1714 to SR 1770, a distance of approximately 1.5 miles (2.4 km), and that SR 1700 be relocated for a distance of approximately 0.7 mile (1.1 km). The recommended typical cross-section for SR 1544 is a five-lane, 64-foot (19.2-m) wide curb and gutter section, on a 100-foot (30.5-m) wide right-of-way, and for SR 1700 is a two-lane, 24-foot (7.2-m) wide pavement with 8-foot (2.4-m) wide soil shoulders, on a 100-foot (30.5-m) wide right-of-way. It is also recommended that the CSX railroad be protected by automatic gates and warning signals.

This alternative is recommended because it eliminates the offset between SR 1700 and SR 1714, near the south project terminal. The SR 1700 - SR 1714 corridor is in an area that is experiencing rapid growth in residential development. Traffic operation will be enhanced by elimination of the offset, and growth can take place in a more orderly fashion, if this important corridor's location is determined. Alternative 4 also eliminates the offset. However, Alternative 4 is estimated to be $200,000 more expensive, and involves more wetlands, than the recommended alternative.

Seventeen residential relocatees and 1 business relocatee are anticipated. The estimated total cost is $5,900,000 as follows:

Construction.....	$3,400,000
Right of Way.....	2,500,000
Total Cost	$5,900,000

IV. SUMMARY OF PROJECT ALTERNATIVES

The project alternatives are shown on Figure 2.

Alternative 1 conforms strictly to the project limits described in the Transportation Improvement Program (TIP). Under this alternative it is proposed to widen SR 1544 to a five-lane curb-and-gutter section from SR 1714 to SR 1770, a distance of approximately 1.5 miles (2.4 km). Seventeen residential relocatees and 1 business relocatee are anticipated. The estimated total cost is $4,900,000 as follows:

Construction.....	$2,500,000
Right of Way.....	2,400,000
Total Cost	$4,900,000

Alternative 2 includes the improvements under Alternative 1, and extends the widening on SR 1544 south to SR 1770 for a total project length of 1.8 miles (2.9 km). Seventeen residential relocatees and 1 business relocatee are anticipated. The estimated total cost is $5,400,000 as follows:

Construction	$3,000,000
Right of Way	2,400,000
Total Cost	$5,400,000

Alternative 3 (recommended) includes the improvements under Alternative 1, plus the relocation of SR 1700 to a point opposite SR 1714, as shown on Figure 2. The length of new construction for the SR 1700 relocation is approximately 0.7 mile (1.1 km). The proposed cross section for SR 1700 is a two-lane, 24-foot (7.2-m) wide pavement with 8-foot (2.4-m) wide soil shoulders, on a 100-foot (30.5-m) wide right-of-way.

This alternative is recommended because it eliminates the offset between SR 1700 and SR 1714, near the south project terminal. The SR 1700 - SR 1714 corridor is in an area that is experiencing rapid growth in residential development. Traffic operation will be enhanced by elimination of the offset, and growth can take place in a more orderly fashion, if this important corridor's location is determined. Alternative 4 also eliminates the offset. However, Alternative 4 is estimated to be $200,000 more expensive, and involves more wetlands, than the recommended alternative.

Seventeen residential relocatees and 1 business relocatee are anticipated. The estimated total cost is $5,900,000 as follows:

Construction	$3,400,000
Right of Way	2,500,000
Total Cost	$5,900,000

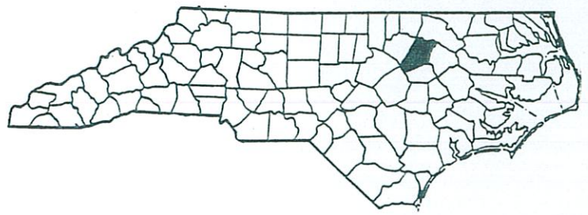
Alternative 4 includes the improvements under Alternative 2, plus the relocation of SR 1714 to a point opposite SR 1770, as shown on Figure 2. The length of new construction for the SR 1714 relocation is approximately 0.4 miles (0.6 km). The proposed cross section for SR 1714 is a two-lane, 24-foot (7.2-m) pavement with 8-foot (2.4-m) soil shoulders, on a 100-foot (30.5-m) wide right-of-way. Eighteen residential relocatees and 1 business relocatee are anticipated. The estimated total cost is $6,100,000 as follows:

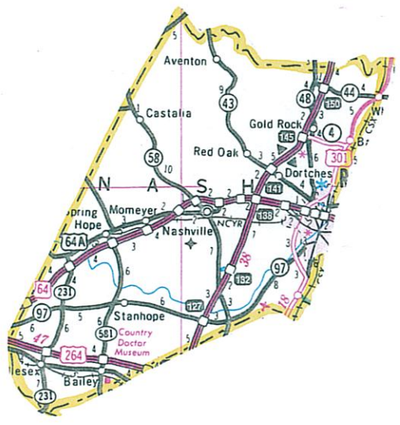
Construction	$3,500,000
Right of Way	2,600,000
Total Cost	$6,100,000

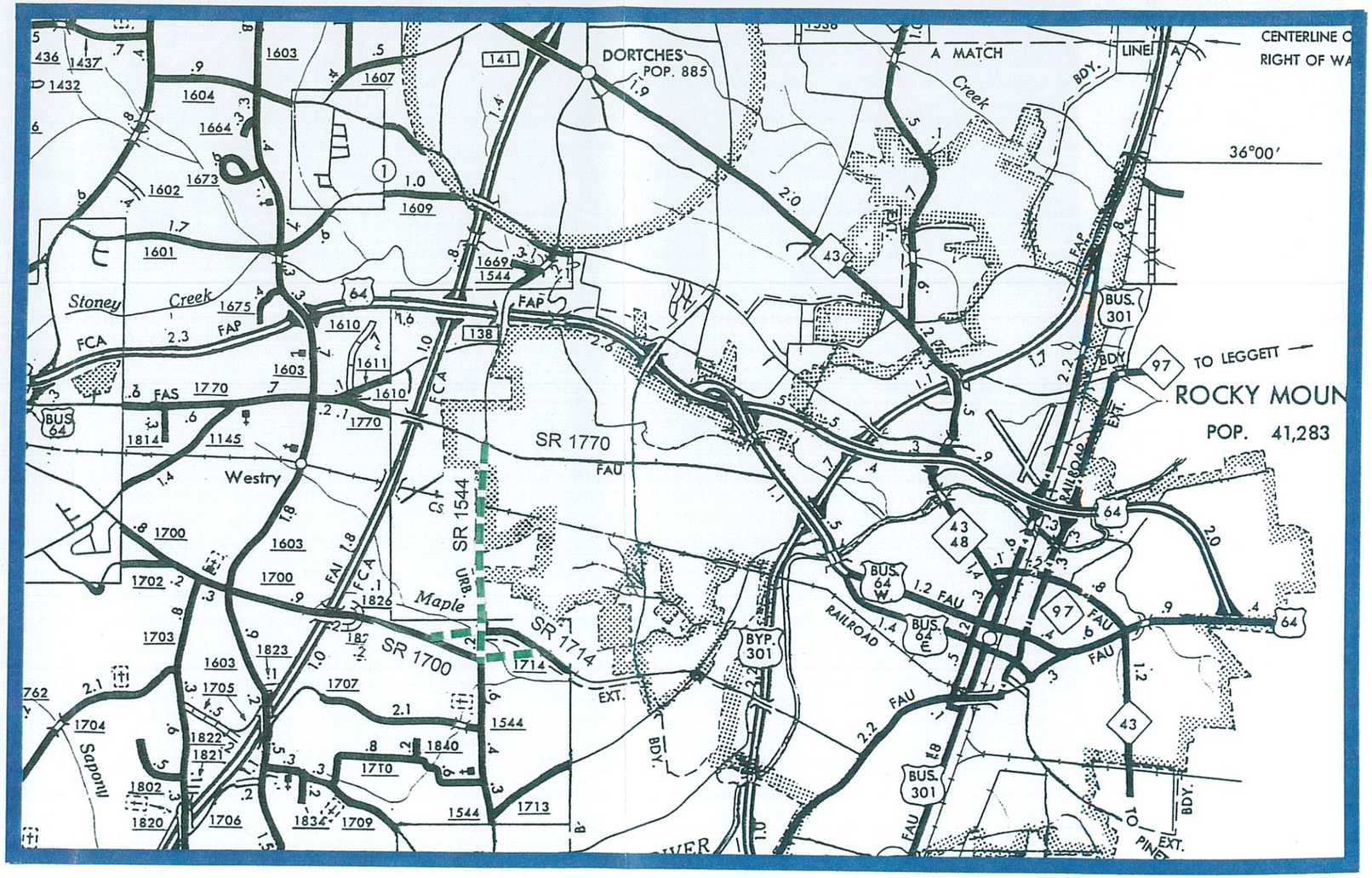
V. OTHER COMMENTS AND CONCERNS

This project may require a Section 404, Corps of Engineers Nationwide Permit. A portion of this project bisects wetlands.

No bicycle acommodations were requested on this project.





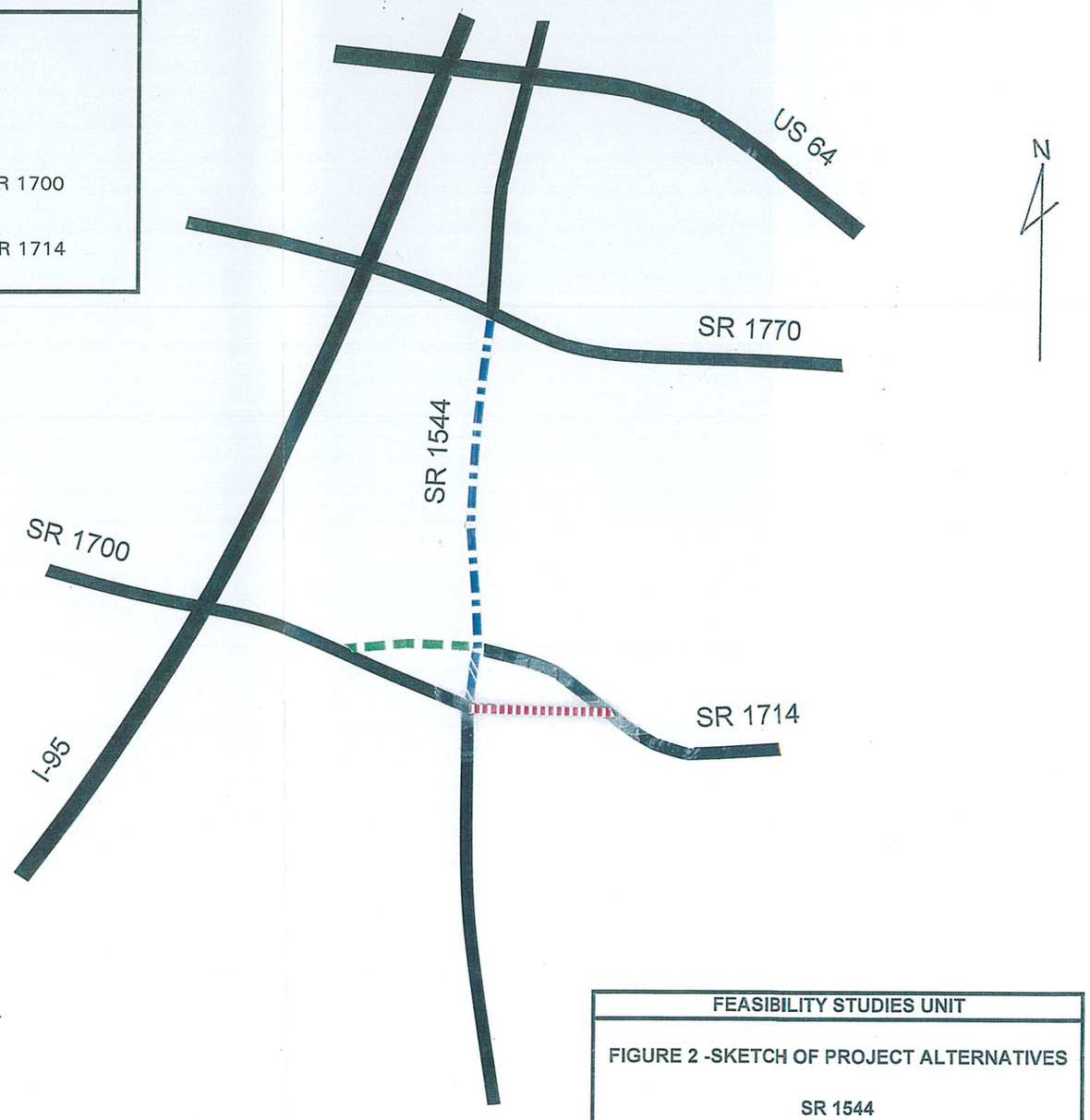


1 0 1 2 3 4 MILES

FEASIBILITY STUDIES UNIT		
FIGURE 1 - STUDY LOCATION WIDENING SR 1544 FROM SR 1700 TO SR 1770 AND EXTENSION OF SR 1700 AND SR 1714 ROCKY MOUNT R-3316		
DIVISION 4	NASH COUNTY	FIGURE 1

LEGEND

ALTERNATE 1	Widen SR 1544 from SR 1770 to SR 1714
ALTERNATE 2	Widen SR 1544 from SR 1770 to SR 1700
ALTERNATE 3	Widen SR 1544 from SR 1770 to SR 1714, Relocate SR 1700
ALTERNATE 4	Widen SR 1544 from SR 1770 to SR 1700, Relocate SR 1714



FEASIBILITY STUDIES UNIT		
FIGURE 2 -SKETCH OF PROJECT ALTERNATIVES SR 1544 ROCKY MOUNT R-3316		
DIVISION 4	NASH COUNTY	FIGURE 2