



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JAMES B. HUNT JR.
GOVERNOR

E. NORRIS TOLSON
SECRETARY

March 31, 1998

MEMORANDUM TO: Mrs. Carolyn Grant, Member, Board of Transportation
Mr. D. A. Allsbrook, Jr., P.E. Division Engineer, Division 5
Mr. David D. King
Mr. W. H. Webb, P.E.
Mr. J. M. Lynch, P.E. (6) Attention: Roberto Canales, P.E.
Congestion Management Engineer
Mr. J. B. Williamson
Mr. H. F. Vick, P.E. (2)
Mr. R. L. Hill, 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. David Smith, P.E.

FROM:

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

A handwritten signature in black ink that reads "David G. Modlin".

SUBJECT:

Feasibility Study # I-3812, Proposed Interchange
Modifications, I-85 at US 1, Vance 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: Mr. L. A. Sanderson, P.E.
Mr. D. R. Morton, P.E.
Mr. Kim L. So



FEASIBILITY STUDY

Proposed Interchange Modifications

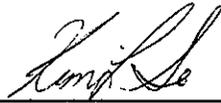
I-85 and US 1

Vance County

Division 5

I-3812

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



Kim L. So
Highway Planning Engineer



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

2/26/98

Date

FEASIBILITY STUDY

Proposed Interchange Modifications I-85 and US 1

Vance County

I-3812

I. GENERAL DESCRIPTION

This feasibility study investigates modifying the I-85 and US 1 interchange north of Henderson in Vance County to provide additional traffic movements. Modifications to transform the existing Y-interchange into a trumpet interchange were studied. The modifications include adding two new ramps to allow traffic to travel from US 1 North to I-85 South and from I-85 North to US 1 South. The existing left exit ramp from I-85 South to US 1 South would be replaced with a right exit ramp. Approximately 0.8 mile (1.3 km) of I-85 North would be shifted closer to I-85 South to minimize the length of the overhead bridges (see Figure 1). The addition of the a new ramp from I-85 North to US 1 South would cause the exit and entrance ramps on US 1 Business to be relocated as shown on Figure 1.

The estimated cost for modifying the interchange is \$12,400,000, (\$100,000 for right-of-way and \$12,300,000 for construction).

This study is not a detailed planning/environmental investigation. A feasibility study presents studied cross-sections for improvements, general corridors of improvements, and estimated costs of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues that deserve consideration in the planning and construction stages.

II. NEED FOR PROJECT

This project was requested by the Vance County Board of Commissioners.

The interchange at I-85 and US 1 is a partial interchange. Currently, US 1 northbound traffic cannot go south on I-85, and I-85 northbound traffic cannot get on US 1 South at this interchange.

I-85 is classified as an Interstate, and US 1 is classified as an Other Principal Arterial on the Statewide Functional Classification System and on the Thoroughfare Plan for Vance County.

The total volume of traffic that would travel from I-85 North to US 1 South and from US 1 North to I-85 South was estimated at 1,900 vehicles per day (vpd) for 1997. The estimated traffic volume for the design year 2020 is 3,800 vpd. Truck traffic is estimated to make up 12% of the daily traffic.

III. STUDIED IMPROVEMENTS

This feasibility study investigates the possibility of modifying I-85 and US 1 interchange to provide additional traffic movements. Considering the existing interchange configuration, modifications to transform it into a trumpet interchange were studied. The modifications include adding two new ramps to allow traffic to travel from US 1 North to I-85 South and from I-85 North to US 1 South. The existing left exit ramp from I-85 South to US 1 South would be replaced with a right exit ramp. Approximately 0.8 mile (1.3 km) of I-85 North would be shifted closer to I-85 South to minimize the length of the overhead bridges (see Figure 1). The addition of the a new ramp from I-85 North to US 1 South would cause the exit and entrance ramps on US 1 South to be relocated as shown on Figure 1.

The travel lane width for the components of the revised interchange varies from 12 feet (3.7 m) on realigned I-85 North to 21 feet (6.4 m) on the loop. The shoulder width varies from 8 feet (2.4 m) to 14 feet (4.3 m).

It is estimated that this project would require no relocation of residences or businesses.

Low utility conflicts are expected.

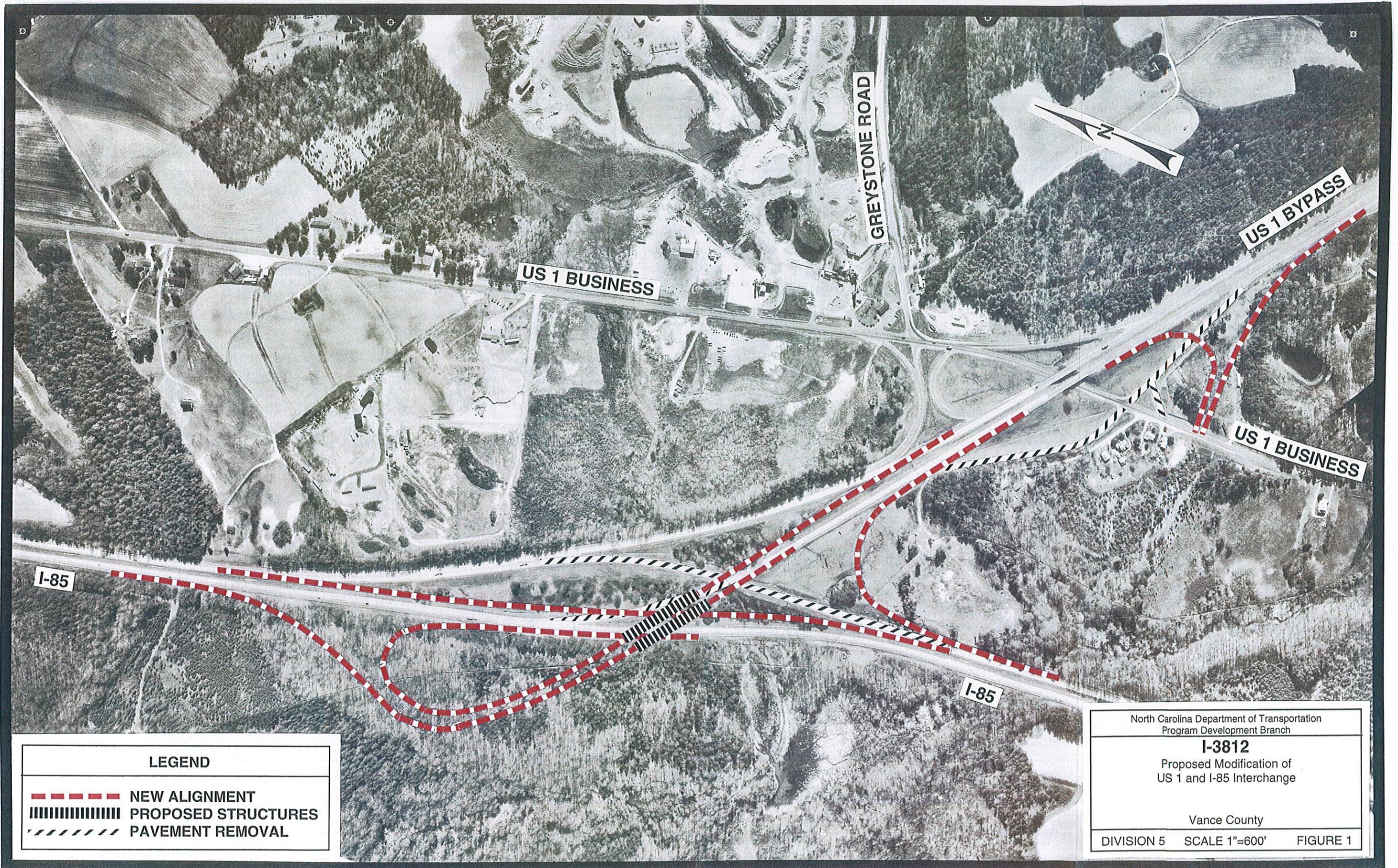
The estimated project costs are as follows:

Right-of-Way	\$ 100,000
Construction	<u>\$12,300,000</u>
Total Cost	\$12,400,000

IV. OTHER COMMENTS AND CONCERNS

No historical or architecturally significant sites have been identified in the project corridor. It is not anticipated that this project will require any environmental permits.

Based on maps at the Department of Environment, Health & Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.



LEGEND	
	NEW ALIGNMENT
	PROPOSED STRUCTURES
	PAVEMENT REMOVAL

North Carolina Department of Transportation
 Program Development Branch

I-3812
 Proposed Modification of
 US 1 and I-85 Interchange

Vance County

DIVISION 5 SCALE 1"=600' FIGURE 1