

FEASIBILITY STUDY

I-40 from I-85 in Greensboro to the new I-40
east of Kernersville,
Guilford County
I-2201

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

August, 1987

- (W) 9) Bridge #286 carrying westbound I-40 over NC 6 in Greensboro
Sufficiency Rating = 73.6, Vertical Clearance = 14 feet 10
inches
Length = 198 feet, Clear Roadway Width = 28 feet.
- (W) 10) Bridge #249 carrying I-40 over Southern Railway in Greensboro
Sufficiency Rating = 73.8, Vertical Clearance = 23 feet
Length = 140 feet, Clear Roadway Width = 28 feet.
- (W) 11) Bridge #233 carrying I-40 over Southern Railway in Greensboro
Sufficiency Rating = 73.3, Vertical Clearance = 22 feet 6
inches
Length = 140 feet, Clear Roadway Width = 28 feet
- 12) Bridge #220 carrying SR 1541 (Wendover Ave.) over I-40 in
Greensboro.
This bridge is included in project I-1001 for widening.
- * 13) Bridge #198 carrying SR 1546 over I-40
Sufficiency Rating = 51.2, Vertical Clearance = 14 feet 6
inches
Length = 190 feet, Clear Roadway Width = 28 feet.
- * 14) Bridge #168 carrying SR 1554 (Sampson Road) over I-40.
Sufficiency Rating = 68.9, Vertical Clearance = 14 feet 8
inches
Length = 185 feet, Clear Roadway Width = 28 feet.
- * 15) Bridge #153 carrying SR 1556 (Burnt Poplar Road) over I-40
Sufficiency Rating = 49.6, Vertical Clearance = 15 feet 10
inches
Length = 185 feet, Clear Roadway Width = 26 feet.
- * 16) Bridge #76 carrying SR 1850 (Sandy Ridge Road) over I-40
Sufficiency Rating = 43.3, Vertical Clearance = 14 feet 4
inches
Length = 192 feet, Clear Roadway Width = 26 feet.
- (W) 17) Bridge not in Bridge Inventory carrying westbound I-40 over
NC 68. Length is approximately 130 feet and clear roadway
width is 28 feet.
- (W) 18) As above but carrying eastbound I-40.
- (W)= Structure should be widened to have a clear roadway width of 56
feet.
- *= Structure should be replaced with a structure having a single
span across I-40 if median-bents are to be eliminated.

ACCIDENT INVENTORY: During the period starting in January 1984 and
ending in January 1987, a total of 591 accidents were
reported on the studied section of I-40. The
resulting accident rate was 85.99 accidents per 100
million vehicle-miles (ACC/100 MVM). The statewide

accident rate for Interstate routes was 144.4 ACC/100 MVM for urban areas and 45.5 for rural areas. The majority of the accidents took place in the vicinity of interchanges. 33.5% of the accidents were attributed to rear-end collisions with slow or stopped vehicles, 16% and 12% to angle and sideswipe collisions respectively.

III. RECOMMENDED IMPROVEMENTS

It is recommended that the studied section of I-40 be widened to six lanes by constructing two additional lanes (one lane per travel direction) in the existing median. It is also recommended that the existing pavement be widened by 4 feet on the outside lanes for traffic control purposes during construction in the median area, and to allow room for the use of New Jersey - type concrete median barrier on the finished project. Due to the presence of median bents, and the likelihood of future widening to eight lanes, two alternative improvements were studied.

Alternate A (Recommended)

1. Construct two additional lanes in the existing median (project length = 12 miles) and provide New Jersey-type median barrier.
2. Replace/widen 8 bridges (marked by W in Section II) to provide a clear roadway width of 56 feet.

Alternate B:

In addition to the improvements included in Alternate A, the nine overpasses (marked by * in Section II) are to be replaced by structures having a single-span across I-40 to eliminate median-bents.

Alternate C:

Widen to three lanes per travel direction by constructing a third lane on the outside of the existing 4-lanes. This alternate will involve widening all existing structures, and replacing all the overpasses. This may also involve additional right of way acquisition and relocation of service roads. However, this alternate will allow further future widening in the median.

Alternate A is recommended due to its lower cost and the fact that the overpasses will have to be replaced if widening to 8-lanes becomes necessary. The median-bents are to be protected by anchored concrete barriers and/or guardrail. This will provide protection from potential collisions. However, these barriers may reduce the level of service of the facility due to their close proximity to the inside lanes (4-6 feet).

It should be noted, that the portion of I-40 within the Greensboro City Limits will likely need to be widened to 8 lanes before the year 2007 due to the predicted traffic volumes. Therefore, the presently recommended widening in the median may not provide sufficient traffic carrying capacity for the design period. Additional widening on the

outside of the existing pavement, although not cost-effective at the present time due to existing development and service roads, may be necessary in the future. It is also recommended that right of way be protected between NC 68 and SR 2007 to allow for a future widening to 8 lanes and for possible future improvements to the existing SR 1850 interchange (structure #76) due to increasing commercial development in its vicinity.

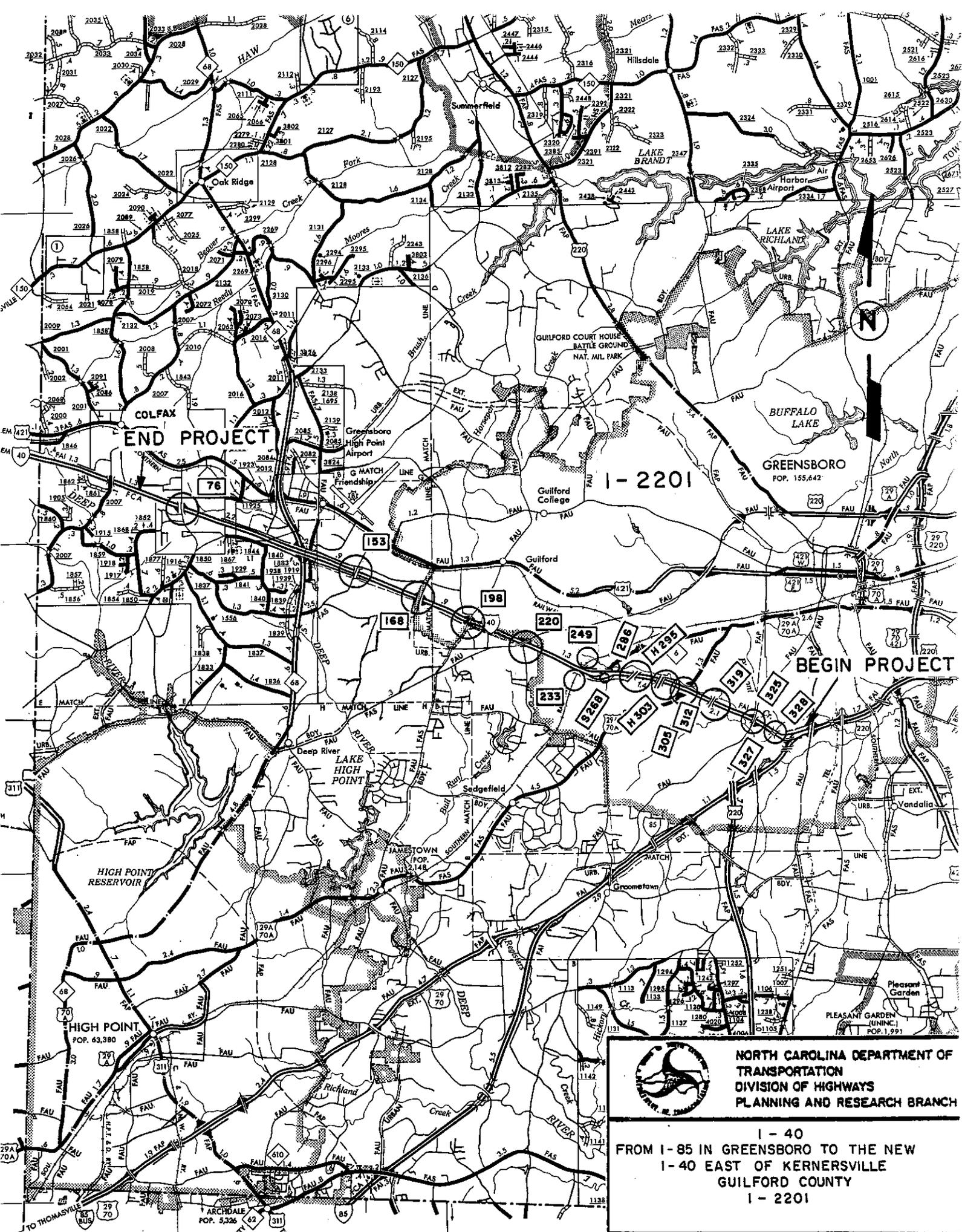
IV. ESTIMATED COSTS

The recommended improvements (Alternate A) are estimated to cost \$24,400,000. Cost estimates for Alternates B and C were not determined due to the limited time and scope allotted to this study.

V. FUTURE ACTIVITIES

If the project is to be implemented at a future date, all feasible alternatives and their associated impacts will be need to be evaluated in a planning/environmental document prior to that time, and a final decision made as the most appropriate improvements.

MM/sdt



END PROJECT

1-2201

BEGIN PROJECT

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

**1-40
FROM I-85 IN GREENSBORO TO THE NEW
1-40 EAST OF KERNERSVILLE
GUILFORD COUNTY
1-2201**

GUILFORD 62,814
RANDOLPH 29
DAVIDSON 537

GUILFORD 139
RANDOLPH 5,187

7/87 0 miles 2 FIG. 1