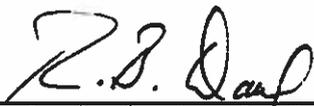


FEASIBILITY STUDY

US 17 Interchange  
with US 70 Bypass  
New Bern, Craven County  
FS-890009

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

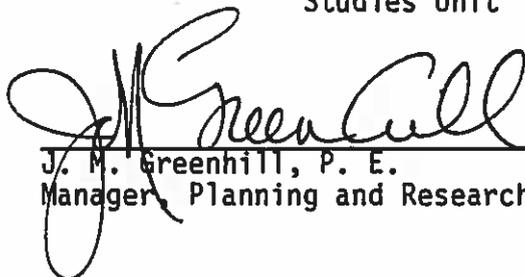


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## I. GENERAL DESCRIPTION

This report covers possible revisions to the US 17 interchange with US 70 Bypass in New Bern. The location of the project is shown on Figures 1 and 2. This study was prepared in response to a Legislative request for revisions to the existing interchange that would allow a more direct flow of traffic between US 17 and US 70 Bypass.

## II. EXISTING CONDITIONS

The existing interchange is a simple diamond design with US 70 being the major route and US 17 the minor route. US 70 is a 4-lane divided highway with full control of access, and is carried over US 17 on twin structures that were constructed in 1976. US 17 is also a 4-lane divided roadway but without access control. Both of the ramp terminals on US 17 are signal controlled.

US 70 Bypass is designated a freeway in the New Bern Thoroughfare Plan and US 17 is designated a major thoroughfare. US 70 functions as a bypass around the city of New Bern while US 17 serves as a radial route into New Bern and as direct access to the heavily developed commercial district surrounding the interchange. Both of these highways are Federal Aid Primary routes and both are classified as Urban Principal Arterials in the North Carolina Functional Classification System. Both of these routes have also been designated as part of the Strategic Corridor System.

The posted speed limit on US 17 is 45 mph and the posted limit on US 70 Bypass is 55 mph.

The interchange is surrounded by commercial development, with shopping centers located in three of the four quadrants.

## III. OTHER AREA PROJECTS

The Transportation Improvement Program includes a US 17 Bypass of New Bern (TIP No. R-2301). A feasibility study recently completed on this project recommends two alternative designs for further study. One of these alternatives would tie into existing US 17 south of New Bern, completely bypassing the study area. The second alternative would continue to utilize existing US 17 south of the US 70 Bypass interchange, then use US 70 Bypass eastward around New Bern.

A feasibility study covering improvements to US 17 from NC 43 to US 70 Business has recently been completed. This study recommended the widening of US 17 to a six-lane divided cross section through the interchange area with US 70 Bypass.

## IV. ALTERNATIVES

Three alternatives were considered in this study. The first would provide a loop in the northwest quadrant of the interchange, the second would add a loop in the southeast quadrant, and the third would widen

the existing northeast and southwest quadrant ramps to provide additional left turning lanes.

Alternative 1, the addition of a loop in the northwest quadrant of the existing interchange, is the most desirable alternative for providing direct access between US 17 and US 70. This loop will relieve the heavier of the two left turns in the existing diamond interchange, providing a direct move from US 70 westbound to US 17 southbound. The construction of this loop will require the relocation of the Hardee's Restaurant located in the northwest quadrant of the interchange. The loop will also require the existing ramp to be moved northward towards the Berne Square shopping center; however, the ramp will be designed to avoid the shopping center buildings and maintain driveway access to the rear of the shopping center. The cost of this loop is estimated to be \$1,945,00 including \$925,000 for construction and \$1,020,000 for right-of-way.

Alternative 2 is a loop in southeast quadrant of the interchange, providing direct access from US 70 eastbound to US 17 northbound. The traffic demand for this loop is not as great as for the loop provided by Alternative 1. This alternative will not require the relocation of any residences or businesses. The estimated cost of Alternative 2 is \$1,575,000 including \$925,000 for construction and \$650,000 for right-of-way.

Alternatives 1 and 2 could be built together as one project for a total cost of \$3,520,000 including \$1,850,000 for construction and \$1,670,000 for right-of-way. The two loops were studied as separate alternatives in this report in order that their costs and benefits could be considered separately, and because the construction of one loop is not dependent on the construction of the other.

Alternative 3 is a reduced-facility alternative. It does not provide for any direct moves that are not provided by the existing interchange. With this alternative, the ramps in the northeast and southwest quadrants would be widened to provide additional left-turn lanes. While not providing direct moves, this will add considerable capacity to the interchange at a relatively low cost. The estimated cost of widening both ramps is \$125,000. This cost is for construction only since this widening can be contained within the existing right-of-way.

## V. RECOMMENDATIONS

The construction of loops in the northwest and southeast quadrants of the US 17-US 70 Bypass interchange would be desirable from a traffic operations standpoint. These loops would eliminate the exiting left-turns for vehicles exiting US 70 Bypass onto US 17, and increase the capacity of the interchange. However, at a total cost of \$3,520,000, these loops would be costly additions to the interchange and are not urgent needs, since the existing diamond design has not been experiencing operational problems.

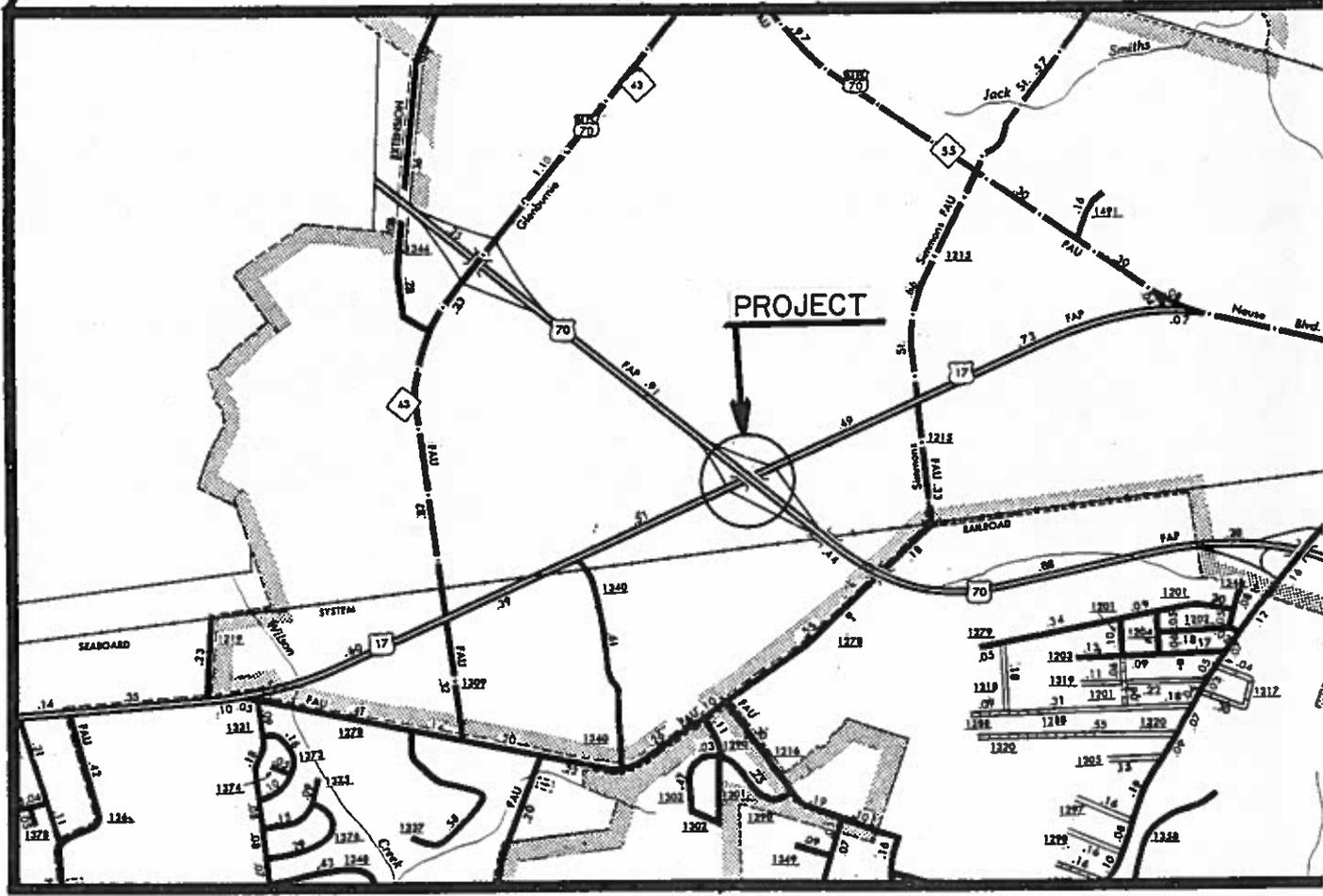
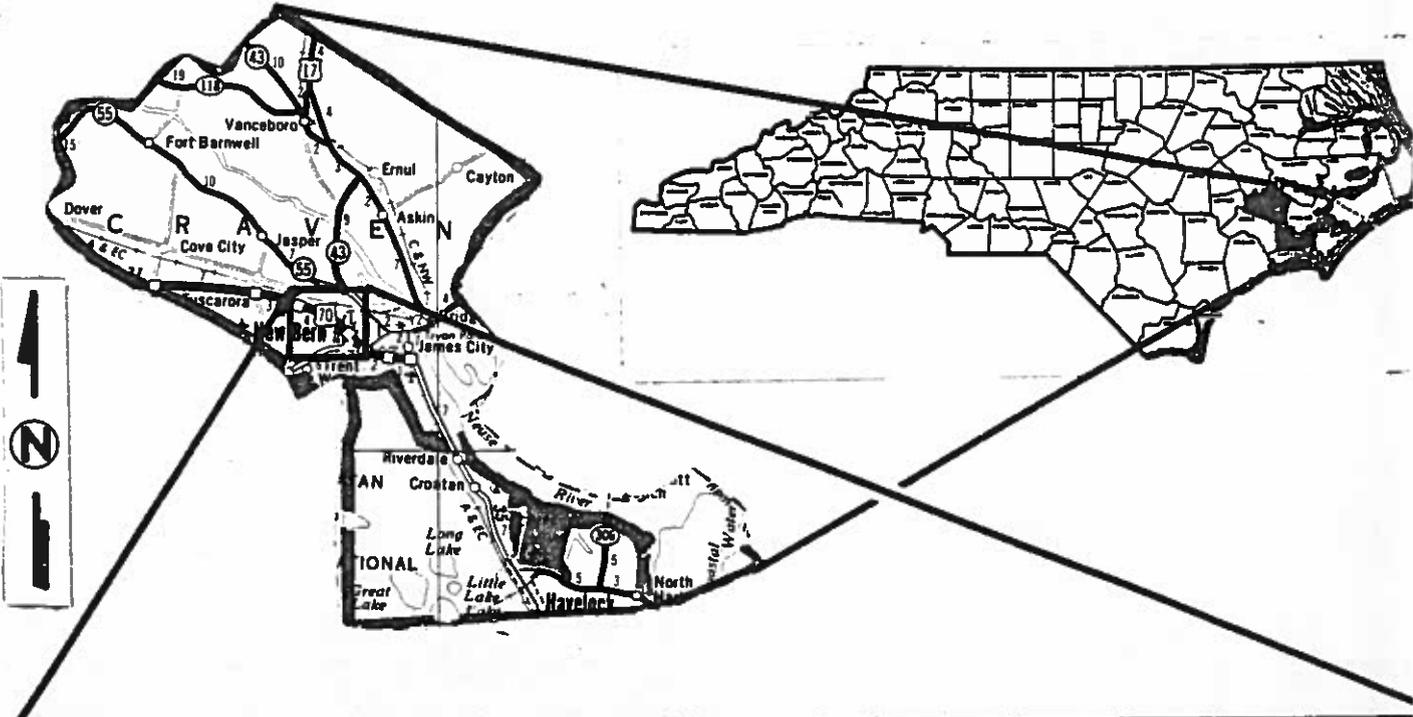
Some congestion has been observed at peak periods on US 17 through the interchange area. This congestion can most effectively be eliminated by widening US 17 through the interchange area and improved further by widening the off ramps to provide left-turn lanes (Alternative 3).

In the event that the portion of US 17 south of the interchange and the portion of US 70 Bypass east of the interchange is selected as the recommended location of US 17 Bypass around New Bern, modifications to the interchange should be made as part of that project to allow for a free flowing connection for US 17. This would include the addition of a loop in the northwest quadrant (Alternative 1) along with improvements to the existing ramps in the southeast quadrant of the interchange.

#### VI. ENVIRONMENTAL EFFECTS

The implementation of any of the studied alternatives should have no significant effect on the environment. Alternative 1 will require the relocation of one business, and Alternative 2 may have a minor wetlands involvement. Alternative 3 can be contained within the existing right-of-way with only minor impacts. Other negative impacts applicable to all three alternatives would primarily be limited to construction impacts which would be short-term in nature, ceasing upon completion of the project. These would include erosion and siltation, noise from construction machinery and dust during grading operations.

RBD/sdt




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