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FEASIBILITY STUDY

US 17 & US 158
Elizabeth City Bypass
Pasquotank-Camden Counties
R-2515

Prepared by
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4/3/90
Date

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I. GENERAL DESCRIPTION

This preliminary report covers a proposed bypass of Elizabeth City. This bypass will carry US 17 around the west side of Elizabeth City and will carry US 158 around the north side (See Figures 1 and 2). The proposed project is 15.5 miles long. This project is included in the 1990-1996 Transportation Improvement Program with planning scheduled to begin in Federal Fiscal Year 1990.

II. PURPOSE OF PROJECT

Existing Road Characteristics

US 17 is the major north-south route in coastal North Carolina. From the Virginia line to the South Carolina line, US 17 is identified as an Intrastate Route in the North Carolina Transportation Improvement Program. Highways are selected as Intrastate Routes based upon their importance to a region and their value to the entire state. US 17 is classified as an Urban Principal Arterial in the North Carolina Functional Classification System and is a Federal Aid Primary-Urban route.

US 158 is the major east-west route in northeastern North Carolina. The portion of US 158 studied in this report serves as a connector between the recreation areas of the Outer Banks and the large population centers served by US 17. It is classified as a Minor Arterial in the North Carolina Functional Classification System and is a Federal Aid Primary Route. US 158 is also included in the Intrastate System and is scheduled for improvement to a multi-lane facility from Winston-Salem to Whalebone.

Both US 17 and US 158 are presently routed through Elizabeth City. Even though both of these routes are carried on multi-lane curb and gutter facilities, the reduced speed limits and numerous traffic signals impede the flow of traffic through town. Adjacent land is heavily developed with commercial, residential and institutional uses.

The proposed bypass will connect the existing 4-lane divided sections of US 17 north and south of Elizabeth City with a 4-lane freeway. It will also provide a freeway bypass of Elizabeth City for US 158, connecting to existing US 158 east of Belcross.

On the southwestern side of Elizabeth City, the proposed bypass will tie into existing US 17 which is a 4-lane divided highway with a 44-foot median and no access control. On the north side of town, the bypass will connect to the recently completed reconstruction of US 17-158 which is a 4-lane divided highway with a 46-foot median and partial access control. At the eastern project terminal, the bypass will tie into existing US 158 near SR 1204. At this point US 158 is a two-lane roadway with 20 feet of pavement and 12-foot unpaved shoulders.

Traffic Volumes, Capacity, and Accident Record

The current traffic volumes range from a high of 23,000 vehicles per day (vpd) on US 17-158 in Elizabeth City to a low of 4700 vpd on US 158 at the eastern terminal of the proposed bypass. Traffic volumes on US 17-158 north of the proposed bypass are currently 8,000 vpd, and volumes on US 17 at the southern project terminal are 12,000 vpd. Approximately 3 percent of the total traffic volume are TTSTs, and 4 percent are dual tired trucks.

Numerous traffic signals, railroad crossings, roadside interference through Elizabeth City and a drawbridge on US 158 restricts traffic flow on the existing routes. These factors combined with the high traffic volumes in Elizabeth City, have resulted in a poor level of traffic service through town as evidenced by the congestion during peak periods.

During the three-year period from 1986 through 1988, a total of 484 accidents were reported on the portions of US 17 and US 158 that would be bypassed by the proposed project. This resulted in a accident rate of 5.83 accidents per million vehicle miles (ACC/MVM) compared to a state-wide average of 3.15 ACC/MVM for all urban US routes over the same period. There were no fatalities during the period, but 177 of the accidents resulted in injuries. The primary accident type was rear-end collisions with slowing or stopping vehicles. The proposed bypass should reduce the potential for this type of accident by eliminating intersections and driveways and by separating the through traffic from the local traffic.

Need for Project

A controlled access bypass will significantly reduce travel time, accident potential, and provide relief to the existing routes through Elizabeth City.

III. RECOMMENDATIONS AND COSTS

It is recommended a four-lane freeway bypass of Elizabeth City be constructed along the alignment shown on Figure 2. This alignment was chosen to minimize impacts on existing development and wetlands in the project area. The recommended cross section would consist of two 24-foot paved roadways divided by an approximate 60-foot (minimum) depressed median. The 60-foot median width was chosen to assure positive drainage. The committee studying median widths should make its final recommendations in the near future, and the median width may need to be adjusted during the planning or design phase of the project. The project would include 2-foot paved shoulders on each side of the roadway and a total 12-foot usable shoulder on the outside.

Interchanges are proposed at US 17 south of Elizabeth City, at US 17-158 north of Elizabeth City, at NC 343, and at NC 34. Grade separations are proposed at Carolina and Northwestern Railroad, SR 1333, SR 1416, SR 1208, SR 1207, SR 1203, and a second crossing of the Carolina and Northwestern Railroad. The locations of the interchanges and grade separations are shown on Figure 2.

The crossing of the Pasquotank River will require high-rise structures (65-foot clearance) to allow the passage of large sailboats using the Dismal Swamp Canal.

The estimated costs of the 15.5-mile project are as follows:

Construction		$88,600,000
Right-of-Way		9,700,000
	TOTAL	$98,300,000

The construction cost includes engineering and contingencies, and the right-of-way cost includes relocation, acquisition, and utility costs.

IV. ALTERNATIVES CONSIDERED

No other corridor for a bypass of Elizabeth City was found to be more desirable or feasible from traffic service, environmental, and cost standpoints. The proposed route was selected to minimize impacts on wetlands, potentially historic structures, and existing development while connecting to the existing four-lane divided portion of US 17 south of Elizabeth City, to the recently completed US 17-158 relocation north of Elizabeth City, and to US 158 east of the towns of Camden and Belcross. The Pasquotank River crossing was selected because of the relatively narrow width of the river and wetlands of this location, thereby minimizing the structure length and impact on wetlands.

V. ENVIRONMENTAL EFFECTS

Even though the proposed project corridor was selected to minimize impacts on wetlands, some wetland impacts can be expected where the project crosses the Pasquotank River, Knobbs Creek, and Sawyers Creek. Also, much of the farmland between US 17 south of Elizabeth City and US 17-158 north of town appears to be on former wetland areas that were drained years ago. Hydric soils will likely be encountered here, and some agencies may feel this is a wetland area. The construction of the project will require the relocation of an estimated 24 residences and 3 businesses. The project will also result in increased noise levels for development near the highway corridor. Other impacts will be primarily related to the actual construction of project and will cease upon completion of the project. These include minor erosion and siltation, increased noise levels from construction machinery, and delay and inconvenience to motorists using US 158.

VII. FUTURE ACTIVITIES

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

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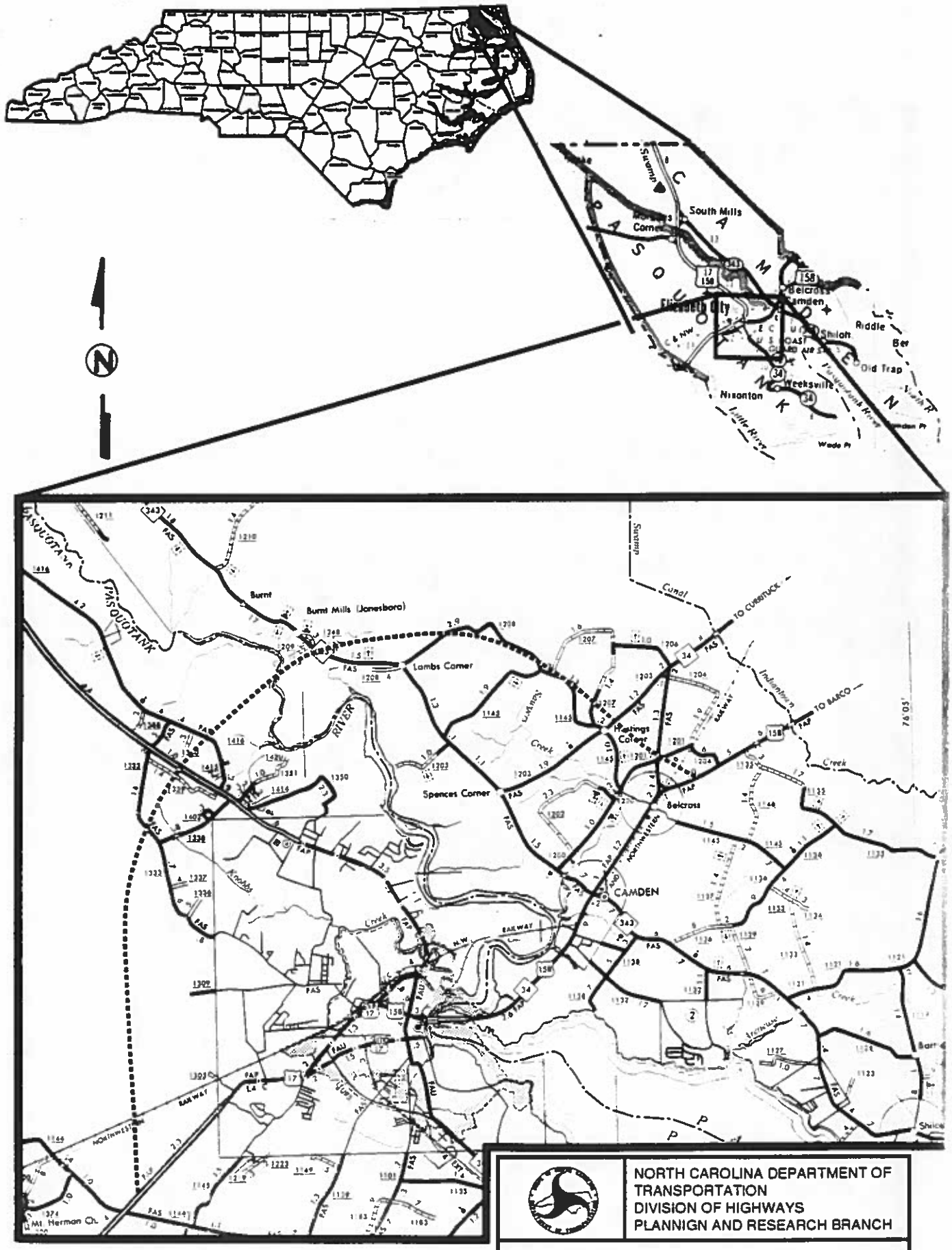

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ELIZABETH CITY BYPASS
PASQUOTANK & CAMDEN COUNTIES
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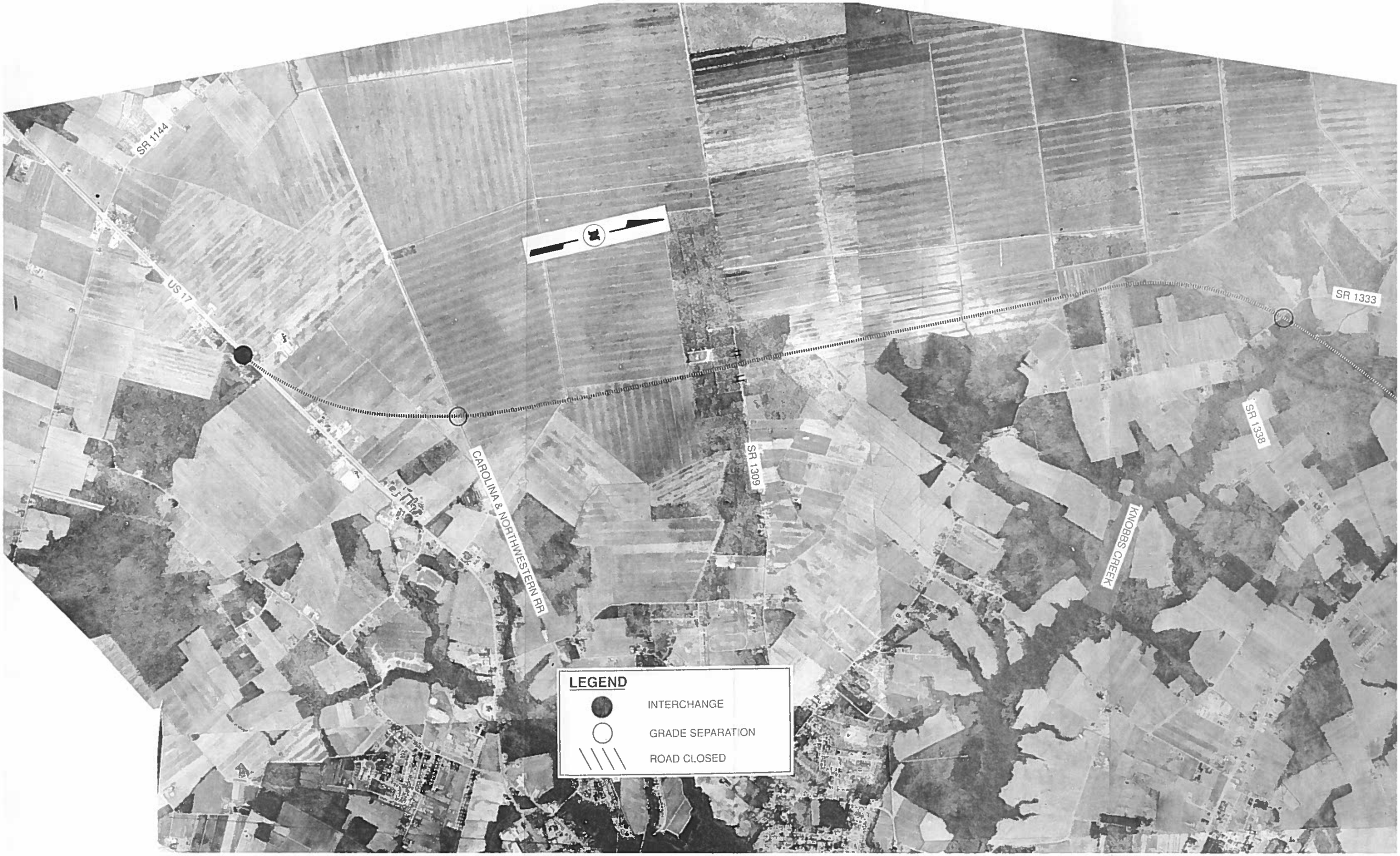
1/90 FIG. 1


SR 1144
US 17
CAROLINA & NORTHWESTERN RR
SR 1309
SR 1333
SR 1338
KNOBBS CREEK
LEGEND
INTERCHANGE
GRADE SEPARATION
ROAD CLOSED

SR 1416
SR 1339
US 17-158
SR 1333
SR 1209
NC 343
SR 1338
PASQUOTANK RIVER
SR 1208
KNOBBS CREEK
SR 1309
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FIGURE 2

SR 1208
SR 1207
SR 1207
SR 1145
SR 1203
SAWYERS CREEK
NC 34
CAROLINA & NORTHWESTERN RR
US 158
SR 1204
SR 1201
LEGEND
INTERCHANGE
GRADE SEPARATION
ROAD CLOSED
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FIGURE 2