FEASIBILITY STUDY

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US-17, Wilmington to NC 50
at Holly Ridge, New Hanover,
Pender, and Onslow Counties
R-2405

Prepared by
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US 17, Wilmington to N. C. 50 at Holly Ridge,
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I. DESCRIPTION

This report covers the proposed widening of US 17 from Wilmington to Holly Ridge to a multi-lane facility, for a distance of approximately 21.5 miles. This project is included in the 1988-1996 Transportation Improvement Program for feasibility study and/or right of way protection. It is not currently funded. Location of the project is shown on Figure 1.

II. PURPOSE OF PROJECT

Existing Route Characteristics

The project segment of US 17 is part of a corridor that has long been the major north-south highway in coastal North Carolina. The functional classification of this route is Principal Arterial. This section of road is also designated as a major thoroughfare on the Wilmington Thoroughfare Plan (adopted 1986).

US 17 from the Virginia line to the South Carolina line is identified as a Strategic Corridor in the North Carolina Transportation Improvement Program. Highways are selected as Strategic Corridors based upon their importance to a region and their value to the entire state. Strategic Corridors are highways that possess high traffic volumes and great economic importance and/or potential. US 17 is the State's major north-south route east of I-95 and provides access to the State Port at Wilmington and to the beaches of North Carolina. This route also links Elizabeth City, Edenton, Williamston, Washington, New Bern, Jacksonville, Camp Lejeune, and Wilmington.

The studied section of US 17 has a basic pavement width of 33 feet with a shoulder width of approximately 10 feet. The pavement is marked for three lanes, with the center lane being predominantly used as a passing lane with some accommodations for left turn lanes. To the north at Holly Ridge, the pavement widens to a 5-lane width with curbing on the east side and shoulders on the west side. To the south at Ogden, the pavement also widens to a 5-lane shoulder section extending into Wilmington. The facility is constructed on good alignment through level terrain. It was upgraded through resurfacing during the years 1983 through 1988 (New Hanover County 1988, Pender County 1984, and Onslow County 1983).

According to the Division Right of Way Agent, the existing right-of-way is generally 100 feet in width and symmetrical with exceptions where permissive use or lack of finalization have permitted encroachment to occur. An abandoned railroad right-of-way closely parallels the western

side of the entire project length. This minimizes the number of structures in proximity to the highway along this edge. An AT&T Fiber-optics cable has recently been buried in this abandoned rail bed.

All intersections with US 17 are at grade. The speed limit along the studied facility is predominately 55 m.p.h., reducing to 45 m.p.h. through Hampstead and Holly Ridge. Excepting these communities, the roadside is typically undeveloped with sporadic residential and commercial development. There are no bridges along the subject road.

Traffic Volumes, Capacity, and Accident History

Current traffic volumes along US 17 range from approximately 5600 vehicles per day (vpd) near the Pender/Onslow County line to approximately 16,900 vpd near Ogden in New Hanover County. Estimated volumes for year 2010 are 11,000 vpd and 23,000 vpd respectively.

At the desirable level of service C, the present capacity of this predominantly 3-lane facility is approximately 8,000 vpd. Thus, capacity is exceeded by existing traffic volumes over approximately 85% of the project length. If no improvements were to be performed, by the year 2010, the entire studied road segment's capacity would be greatly exceeded.

The accident rate for the studied project is 125.6 accidents per 100 million vehicle miles. This is well below the state average of 191.5 for 3-lane rural US routes.

Need For Project

The purpose of this project is to provide additional lanes that would eliminate current and future capacity deficiencies on US 17. Implementing the project would facilitate north-south movement in coastal southeastern North Carolina for residents, travelers, and the Camp Lejeune Marine base in Jacksonville. It would provide a continuation of project R-2406, currently in the 1988-1996 Transportation Improvement Program to upgrade US 17 from Holly Ridge to Jacksonville. Safety would be improved by eliminating the current 3-lane section on this road.

III. RECOMMENDATIONS AND COST

Widening of US 17 to a multi-lane facility is feasible and warranted. Recommended improvements are as follows:

From SR 1363 (N. of Ogden) to SR 1582 (S. of Hampstead) - 7.6 miles and from SR 1568 to Multi-Lanes at Holly Ridge Corp. Lt. - 11.3 miles

Widen on the west side to provide a four-lane divided section (2 @ 24-foot pavements with 30-foot median). These new southbound lanes would have a minimum 2-foot paved shoulder on each side. The existing 33-foot pavement would remain as is but marked as two, 12-foot northbound lanes with 4-foot left and 5-foot right paved

shoulders. Estimated total right-of-way width to accommodate the recommended cross section is 160 feet, offset 50 feet east and 110 feet west of the existing road centerline.

From SR 1582 through Hampstead to SR 1568 - 2.6 miles

Widen to five lanes curb and gutter (64 feet face to face of curbs). Estimated right of way width is 80 feet. Widening would be symmetrical.

The total cost of the above recommended improvement is $31,300,000 of which $27,500,000 is for construction and $3,800,000 is right of way. Cost estimates were prepared by the Preliminary Cost Estimate Engineer and the Right of Way Branch.

IV. ALTERNATIVES

A possible alternative to the recommended cross section is the use of a 5-lane shoulder section in locations where a 4-lane divided section is recommended above. This alternative was studied in two ways: widening on the west side and symmetrical widening.

The asymmetrical widening alternative would construct two additional lanes along the west side of the project for a total of two northbound lanes, two southbound lanes, and a center lane for left turns. The total estimated cost for this scheme is $31,900,000, including $29,600,000 for construction and $2,300,000 for an estimated 25 feet of additional right-of-way. The right-of-way for this alternative would affect the west side properties only and would impact approximately 120 parcels (including the relocation of 10 residences and 1 business).

A symmetrical widening to obtain the same 5-lane configuration described above would cost approximately $32,400,000, with construction costs remaining at $29,600,000 and right-of-way costs estimated at $2,800,000. The higher right-of-way cost reflects an increased number of parcels involved (200 versus 120) due to work on both sides of US 17 and a utility relocation for east side power lines. No power lines exist on the west side.

Neither of the 5-lane shoulder sections above is recommended due to increased costs and less desirable functional characteristics and safety.

Consideration was also given to an alternative for a complete relocation of US 17 (see Figure 2). This alternative would provide a four lane divided expressway type facility (as recommended for the Intrastate System), and would allow for greater control of access. The alignment studied is located to the west of existing US 17 to minimize detrimental environmental effects. This alternative ties into Wilmington's proposed Northern Outer Loop to the south and bypasses Holly Ridge to the north.

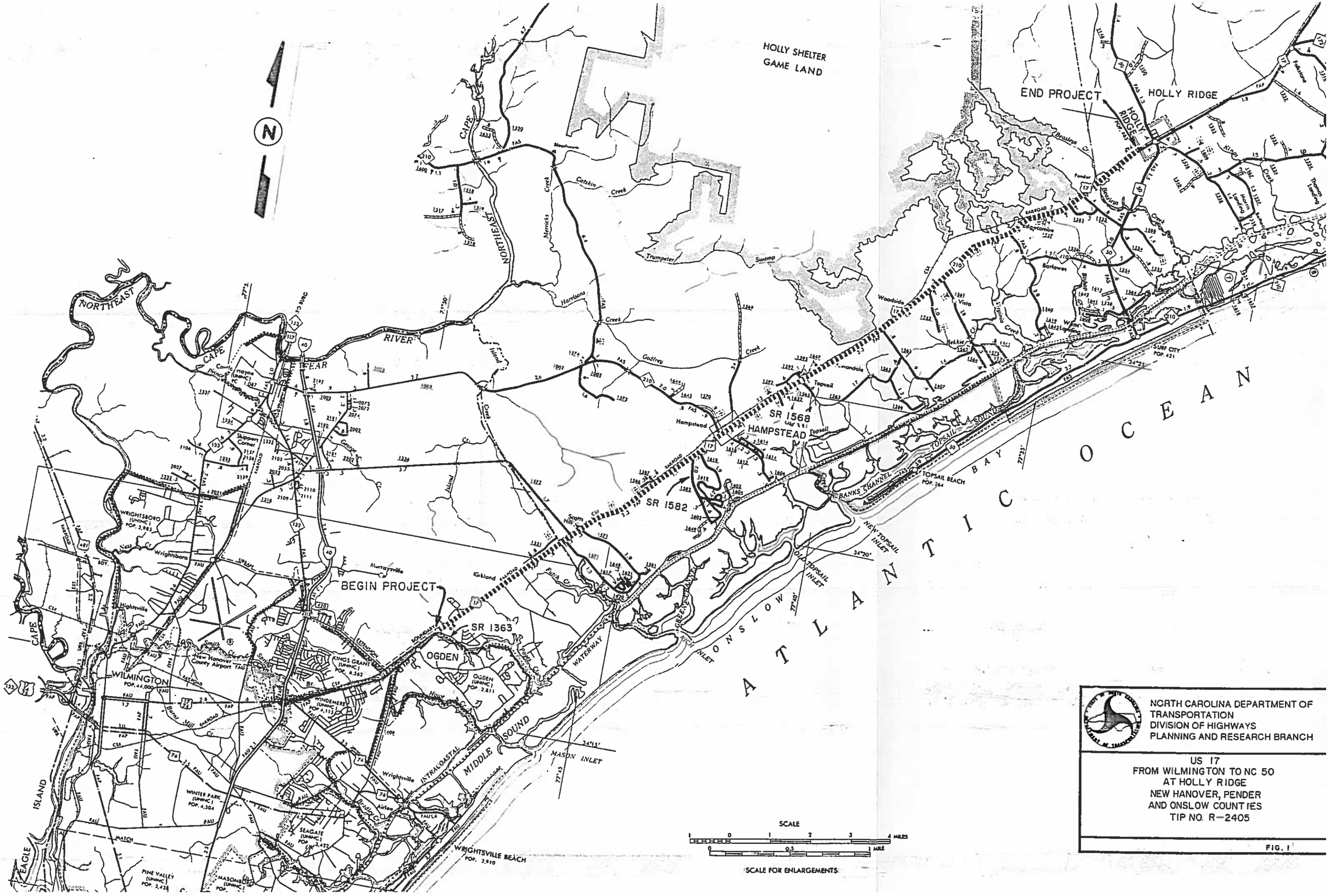
The cost for a 4-lane divided expressway type facility is $63,400,000, including $58,200,000 for construction and $5,200,000 for right-of-way.

The expressway type facility would provide a higher level of traffic service than improvement of the existing roadway due to control of access. The negative impacts of this alternative would include a significant loss of wetlands, woodlands, and animal habitat. In addition, this alternative would adversely impact the Holly Shelter Game Lands. Strong environmental objections are anticipated if this relocation scheme is pursued. The higher level of service provided by the expressway is not considered sufficient justification for a doubling of the estimated cost of improving the existing facility.

V. OTHER COMMENTS

Negative environmental impacts of the recommended project are: (1) loss of a minimal amount of woodlands (2) relocation of approximately 24 residences and 13 businesses (3) increased noise levels for remaining residences.

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



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

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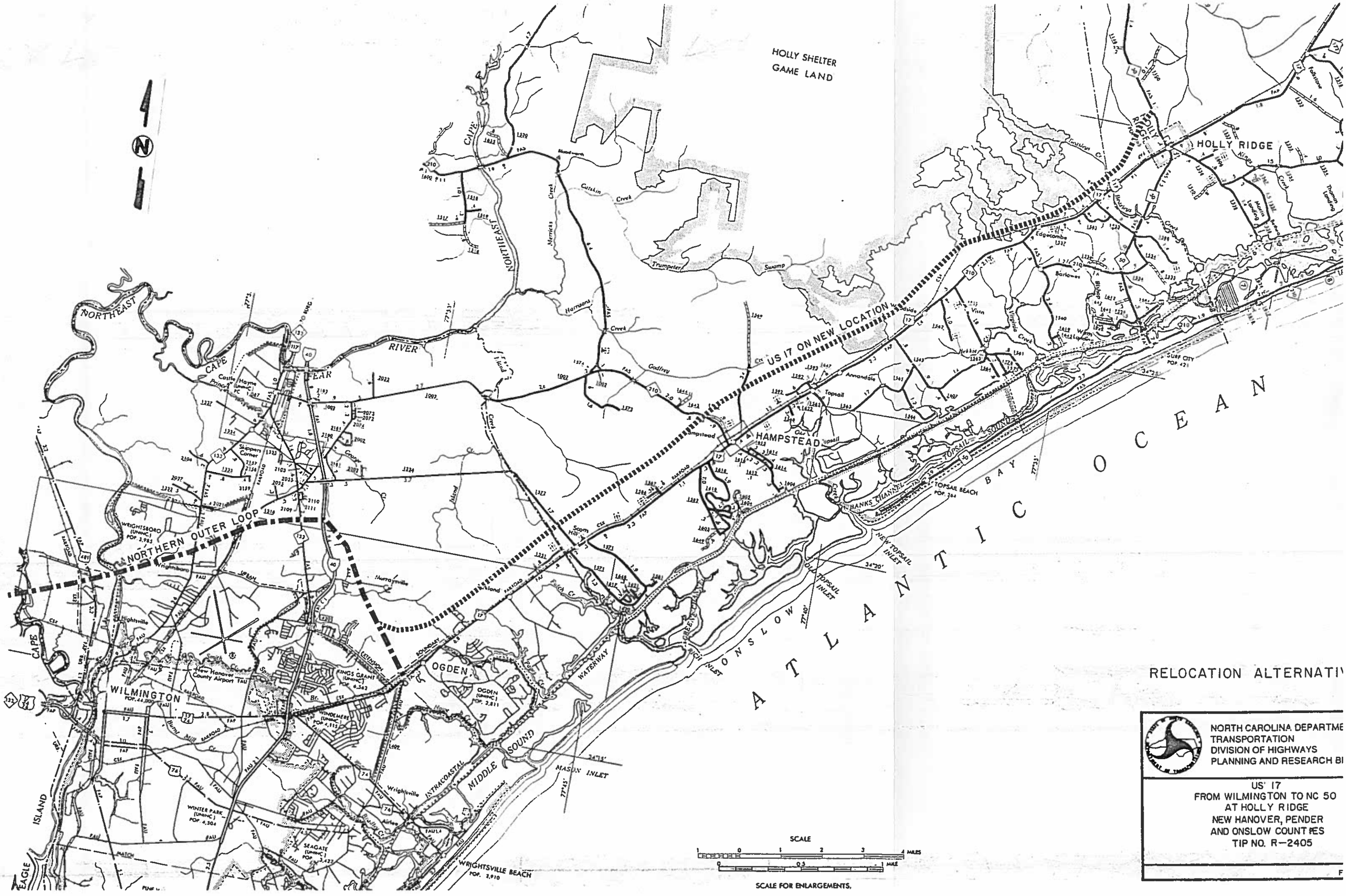
FROM WILMINGTON TO NC 50
AT HOLLY RIDGE
NEW HANOVER, PENDER
AND ONSLOW COUNTIES
TIP NO. R-2405

FIG. 1



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