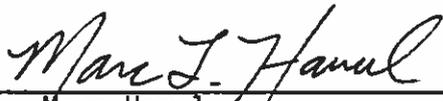


FEASIBILITY STUDY

Trans-Pender Highway
I-40 at Burgaw to Topsail Island,
Pender County
R-2421

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

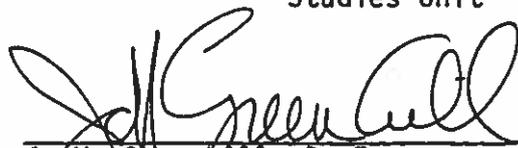


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5/22/89
Date



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Trans-Pender Highway
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I. DESCRIPTION

This report covers a preliminary study of a Trans-Pender Highway in Pender County. The project is included in the 1988-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection. It is not currently funded.

II. EXISTING ROAD SYSTEM IN AREA

The existing facilities in Pender County providing access from the Burgaw area to the coast consist of the route combinations with descriptions listed below and shown on Figure 1:

I-40/NC 210/US 17

The southern route from I-40 at Burgaw to the NC 50/210 bridge at Surf City is approximately 35.5 miles long. Approximately 17.5 miles of this route (on NC 210) has substandard pavement width of 18 to 20 feet.

NC 53/NC 50

The northern route from Burgaw to the NC 50/210 bridge at Surf City is approximately 39 miles long. This entire route has a predominantly substandard 18-foot pavement with some 22-foot pavement sections.

III. SUBJECT ROUTE

A new highway between I-40 at Burgaw and Topsail Island has been sought by local interests to provide better access to the coastal areas not only from the Burgaw area but also from I-40 and points north. It is their belief that such a transportation facility would enhance economic development in Pender County.

The subject route is shown as a corridor on Figure 1. It should be noted that any direct route between these points would have to pass through the Holly Shelter Game Land.

Existing Conditions

In the area bounded by I-40 to the west, NC 210 to the south, US 17 to the east, and NC 50/NC 53 to the north, the vast majority of the land is swamp, bog, or other form of wetland (see Figure 2).

The Holly Shelter Game Land comprises approximately 50% of the above area and is centered in it. This land is available to public hunting, and supports a variety of wildlife such as deer, bear, raccoon, alligator, and wood duck. This pristine land, as in other coastal swamps and bogs, is inaccessible due to lack of roads and usable terrain.

The Game Land supports 5 endangered species of plant or animal as listed in the Natural Area Inventory of Pender County (on file in Planning and Research and available for inspection). The species are: (1) Venus' fly-trap (3 populations), (2) Dwarf Fothergilla (1 population), (3) Rough-leaf loosestrife (1 population), (4) Red-cockaded Woodpecker (14 populations), and (5) Black Bear (2 populations). Any alignment through Holly Shelter Game Land will undoubtedly adversely impact these species.

The remaining land between the Holly Shelter Game Land and the bordering roads is equally unsuited to development. The area north and west of the Game Land is predominantly wooded swamp, bog, or creeks. Areas south of Holly Shelter are also mainly bogs and wooded swamps, except for limited sections along NC 210. The Northeast Cape Fear River with its swamps and floodplain runs north-south along the west side of the Game Lands.

Alignment

As can be seen from the description of existing conditions, alignments for a new road through or around the Holly Shelter Game Land will be undesirable and difficult, if not totally unfeasible.

The shortest possible route across the area (shown as a corridor on Figure 1) would result in a minimum of 23 miles of road, with 10 miles traversing across the Game Land. This would amount to an estimated taking of at least 125 acres of the Game Land swamp, assuredly resulting in severe environmental impacts, with mitigation options limited. These impacts include a large loss of wetlands, loss of wildlife habitat/breeding area, and disruption and division of game lands. The area is not well suited to roadway construction, so extensive bridging would be anticipated if this project was implemented. Also, a high rate of vehicle/animal conflicts would result from the location of the highway in a pristine type habitat.

Initial traffic that would use this facility is estimated at 2000 vehicles per day (vpd). This is projected to increase to 6000 vpd in the year 2010. With consideration to the high cost of construction and negative environmental impacts, the projected traffic volumes do not warrant a facility through the Holly Shelter Game Land.

Possible routes above and below the Holly Shelter Game Land are likewise not recommended. The terrain is similar to that in the actual wildlife management area, with similar negative environmental effects. While there are potential routes that minimize these impacts, they are only slightly more direct than the existing NC 53/NC 50 or I-40/NC 210/US 17 routes and would therefore be redundant.

In summary, construction of a new road through or around the Holly Shelter Game Land is not recommended due to high construction costs, severe negative environmental impacts, and likely controversy involving the general public.

IV. ALTERNATIVES

An alternative to providing a direct route between the Burgaw area and the coast is the upgrading of one of the two existing routes described above. As upgrading the NC 53/NC 50 route involves 39 miles versus 17.5 miles of upgrading the I-40/NC 210/US 17 route, the latter alternative is the only one addressed below.

Existing Facilities

The nearest and most logical alternative route from the Burgaw area to the coast follows I-40, NC 210, US 17, and a short section of NC 50. Of these routes, only NC 210 and a section of NC 50 from NC 210 to the Surf City bridge need to be upgraded.

I-40 was recently constructed and conforms to modern interstate standards. Approximately 9.5 miles of the route are included in this alternative and obviously have no need for improvement.

The studied section of NC 210 runs from its interchange with I-40 south of Burgaw to the intersection with NC 50 approximately 1.5 miles north of the Surf City bridge. On this route, 8.5 miles of NC 210 are common with US 17 (discussed below). Therefore, the total length of NC 210 that needs to be upgraded is 16.0 miles. The existing pavement width is 18-20 feet with variable 3 to 8-foot soil shoulders. There are four curves on the route exceeding the 6° maximum curve for safe travel at 55 mph. As in most coastal areas, the flat terrain allows for acceptable grades throughout. The current traffic volume on NC 210 west of Hampstead is approximately 2000 vehicles per day.

US 17 is currently adequate for safe travel at 55 mph on the studied section that is common with NC 210. However, this route is being proposed for upgrading to a multi-lane facility under the T.I.P. project number R-2405, which covers the section from Wilmington to Holly Ridge.

NC 50 from the intersection with NC 210 to the Surf City bridge (1.5 miles) has a substandard pavement width of 18 feet with variable soil shoulder widths of 2 to 8 feet.

Existing bridges along the alternative route are all on NC 210 and are outlined below:

<u>Bridge No.</u>	<u>Location</u>	<u>Length (Ft.)</u>	<u>Width (Ft.)</u>	<u>Age (Yrs.)</u>	<u>Rating (New Bridge=100)</u>
21	NE Cape Fear	591	24	34	39.4
18	Catskin Creek	73	24	38	42.9
13	Harrisons Creek	73	24	38	30.9

Recommendations and Costs

It is recommended the above discussed alternative route continue to be utilized to provide the primary access between Burgaw and Topsail Island. This recommendation is supported by the very negative cost,

environmental, and anticipated public reaction factors involved in providing a new route across or around Holly Shelter Game Land.

The recommended improvements to NC 210 (16.0 miles) and NC 50 (1.5 miles) consist of upgrading to a 28-foot pavement width for two 12-foot lanes and 2-foot paved shoulders with 8-foot soil shoulders. Along NC 210 between I-40 and Hampstead, realignment of unsuitable curves at two locations is recommended. These curves are located on an aerial photograph on file in the Planning and Research office.

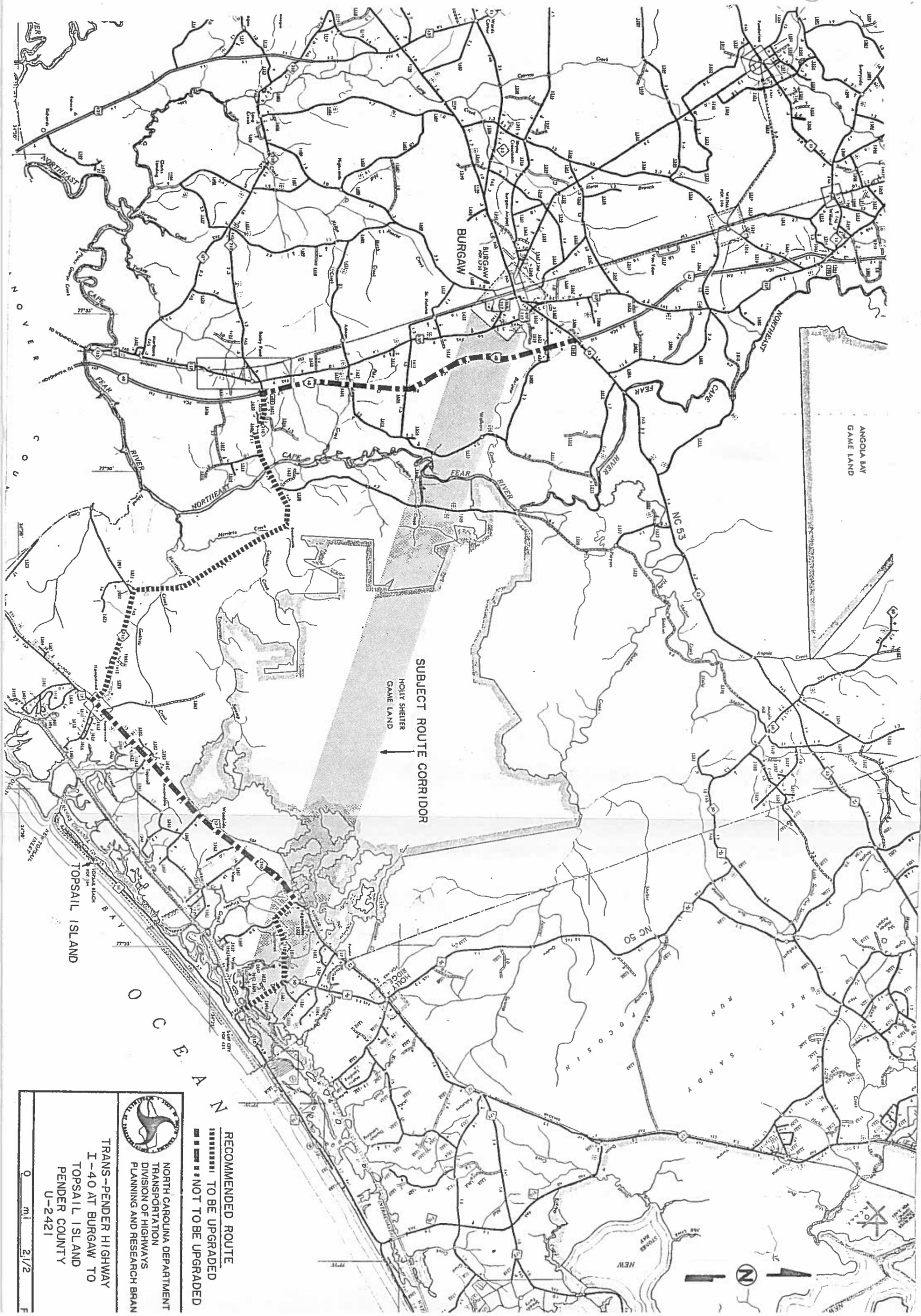
Only Bridge No. 21 needs to be replaced with a new and wider structure in conjunction with the improvement of NC 210. The other bridges are slated for replacement in the Transportation Improvement Program. Bridges No. 18 (B-1317) and No. 13 (B-1318) are scheduled for construction in Fiscal Year 1993.

Total estimated cost for the recommended improvements is \$11,900,000, with \$9,400,000 for construction and \$2,500,000 for right-of-way.

OTHER COMMENTS

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

MH/sdt



SUBJECT ROUTE CORRIDOR
 HOLLY SHERER
 GAME LAND



NORTH CAROLINA DEPARTMENT
 TRANSPORTATION
 DIVISION OF HIGHWAYS
 PLANNING AND RESEARCH BRAN

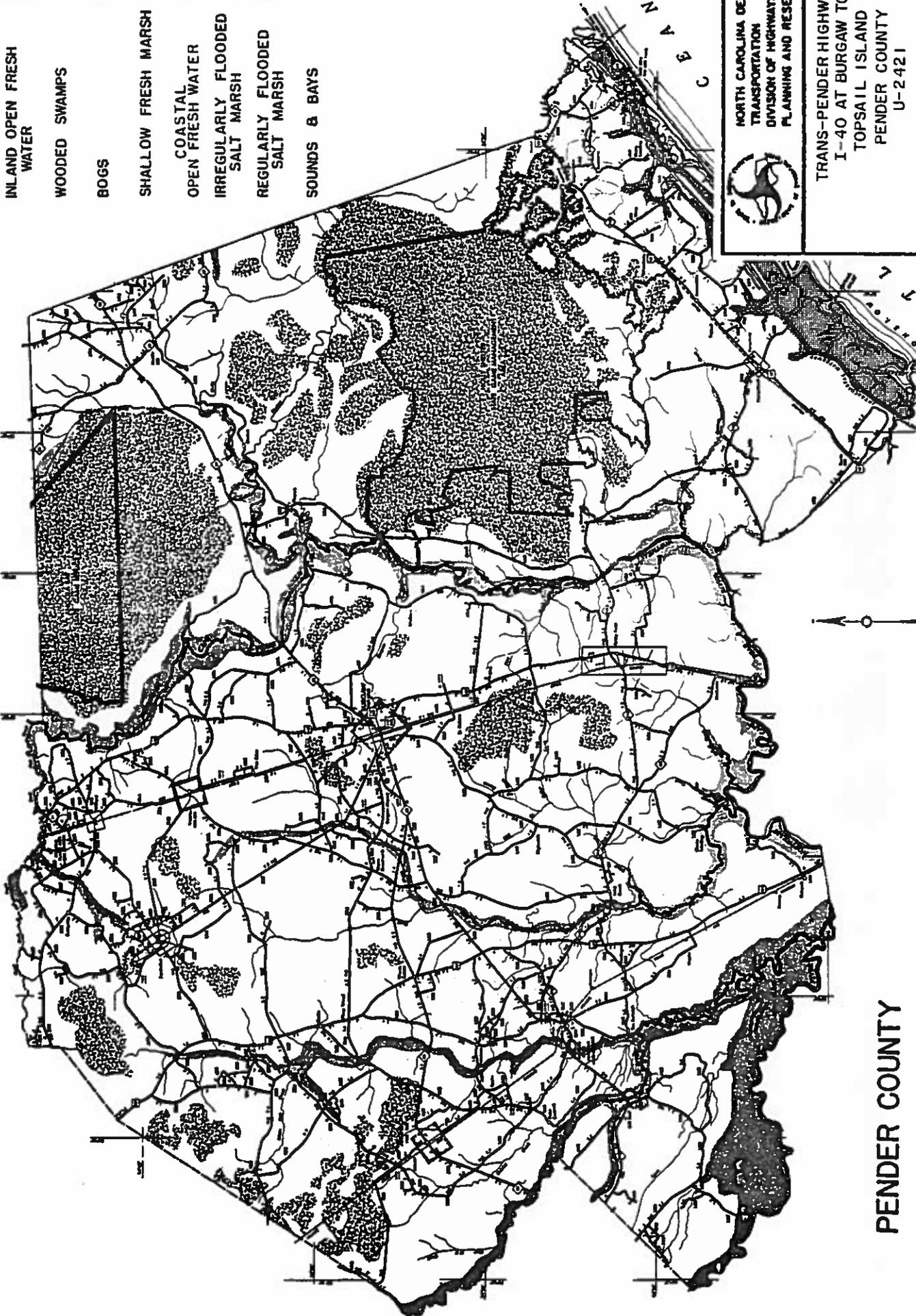
TRANS-PENDER HIGHWAY
 I-40 AT BURGAW TO
 TOPSAIL ISLAND
 PENDER COUNTY
 U-2421

RECOMMENDED ROUTE
 TO BE UPGRADED
 NOT TO BE UPGRADED



LEGEND

-  SEASONALLY FLOODED BOTTOMLANDS
-  INLAND OPEN FRESH WATER
-  WOODED SWAMPS
-  BOGS
-  SHALLOW FRESH MARSH
-  COASTAL OPEN FRESH WATER
-  IRREGULARLY FLOODED SALT MARSH
-  REGULARLY FLOODED SALT MARSH
-  SOUNDS & BAYS



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