FEASIBILITY STUDY

FS-0703A

WIDENING OF NC 210 FROM US 17 TO NC 50 AND THEN NC 50/NC 210 TO BRIDGE No 16 AT THE INTERCOASTAL WATERWAY IN SURF CITY

Pender County

Division 3

Prepared by the
Program Development Branch
N. C. Department of Transportation

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Date

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I. General Description

This feasibility study describes the multilane widening of NC 210 from US 17 to NC 50 and then NC 50/210 to Bridge No 16 at the Intercoastal Waterway, a distance of approximately 4.3 miles. The proposed widening is primarily symmetrical along the existing alignment with some realignment at a few curves to improve traffic safety and operations. The project location is shown on Figures 1 and 2. As part of this study, two different alternatives were investigated and the associated costs with the breakdowns are described below:

ALTERNATE 1. Four-lane divided shoulder section with a narrow raised grass median on 150-feet of right-of-way.

ALTERNATE 2. Combination of four-lane divided shoulder section with narrow raised grass median and five-lane shoulder section on 150-feet of right-of-way.

This study is the initial step in the planning and design process for this project and is not to be considered the product of exhaustive environmental or design investigations. The purpose of the study is to describe the problem, recommend a treatment including costs, and identify potential problem areas that deserve consideration in the planning and design phases.

II Background

The primary purpose of this project is to provide improved traffic safety and operations for motorist on NC 210 and NC 50/NC 210 between US 17 and Topsail Island in Pender County. This feasibility study was requested by the Town Surf City.

NC 210 and NC 50/NC 210 are designated as a major collector in both the Pender County Thoroughfare Plan and the North Carolina Statewide Functional Classification System.

The land immediately surrounding the project area along NC 210 is mostly undeveloped property with some scattered single-family residences. Along NC 50/NC 210, land use is primarily moderate commercial mixed with some residential.

Currently, NC 210 is a two-lane roadway with 26-feet pavement width between US 17 and NC 50. Additional widening is provided at the US 17 and NC 50 intersections in order to accommodate left turn lanes.

At the southeast end of the project corridor, planning and design for TIP project B-4929, the reconstruction of bridge No 16 over intercoastal waterway on NC 50/NC 210 are underway.

III. Traffic and Safety

The current year (2009) Average Daily Traffic (ADT) along NC 210 ranges from 12,300 vehicles per day (vpd) at the northwest end (US 17) of the project to 10,800 vehicles per day (vpd) near the NC 50 intersection. The current year (2009) Average Daily Traffic (ADT) along NC 50/NC 210 section of the project ranges from 14,700 vehicle per day (vpd) at the NC 210 intersection to 12,800 vehicles per day (vpd) near the southeast end of the project near the Intercoastal Waterway. For the design year 2035, the estimated Average Daily Traffic (ADT) along NC 210 ranges from 38,200 vehicles per day (vpd) at the northwest end (US 17) of the project to 27,000 vehicles per day (vpd) near the NC 50 intersection. The projected 2035

design year Average Daily Traffic (ADT) along NC 50/NC 210 ranges from 33,000 vehicles per day (vpd) at the NC 210 intersection to 26,800 vehicles per day (vpd)near the southeast end of the project near the Intercoastal Waterway. Truck traffic is estimated to make up 3% of the ADT traffic.

There are two existing traffic signals within the project limits. They are located at US 17/NC 210 and NC 50/NC 210.

The existing NC 210 and NC 50/NC 210 segments operate at a level of service (LOS) D under the current year traffic volumes. If no improvements are provided, we anticipate this facility to operate at a LOS "F" in the 2035 design year. However, with the proposed multilane widening of NC 210 and NC 50/NC 210 and necessary auxiliary lanes at major intersections, the facility is anticipated to operate at a LOS "D" or better through the design year 2035.

During the three year period from October 1, 2005 to September 30, 2008, there were 30 accidents reported within the project limits. There were 10 injury accidents and 20 property damages only crashes of which 8 crashes occurred at night and no fatalities as a result of these incidents. The accident rate for this 4.32 mile portion of roadway was 74.04 accidents per 100 million vehicle miles of travel (acc/100mvm), which was much lower than the Statewide rate of 175.41 accidents/100mvm for two-lane undivided secondary routes.

The most prevalent accident types along this corridor are as follows: approximately 30 percent of accidents were rear end, slow or stop, 23 percent were with animal and an additional 23 percent were with fixed object accidents. Individually, all other accident types are approximately twenty-four (24) percent or less of total accidents. Improvements to upgrade this section of roadway to a multilane facility should reduce the likelihood of these types of accidents.

IV. Description of Alternatives

ALTERNATE 1. Four-lane divided shoulder section with 12 foot travel lanes, 4 foot paved shoulders and a minimum 23 foot raised grass median on 150-feet of right-of-way. Alternative #1 proposes widening NC 210 symmetrically along most of the existing alignment with some realignment aimed at improving several curves between US 17 and NC 50. This alternative continues east symmetrically along the existing NC 50/NC 210 alignment up to Bridge #16 at the Intercoastal Waterway. The length of this alternative is approximately 4.3 miles.

With this alternative, 17 resident relocation and 15 business relocations are expected. The total cost of this alternative, including construction, utility relocation and right-of –way is estimated to be ***$54,300,000.***

Construction	$22,500,000
Right-of-way	$24,500,000
Utility Relocation	$ 7, 300,000
Total (Alternative #1)	$54,300,000

Given the available information and the fact that a three-lane facility already exists from NC 50/NC 210 intersection to bridge #16 at Surf City, a second alternative was considered which provides a combination of four-lane divided shoulder section and five-lane shoulder section.

ALTERNATE 2. Combination of four-lane divided shoulder section with a minimum 23-feet raised grass median and five-lane shoulder section on 150-feet of right-of-way. Both the four-lane divided and five-lane shoulder sections include 12 foot travel lanes and 4 foot paved shoulders. In addition to the conditions mentioned above, Alternative #2 proposes widening to four-lane divided with shoulder section symmetrically along existing NC 210 with some slight realignment aimed at improving several curves between US 17 and NC 50. Finally this alternative widens NC 50/NC 210 to a five-lane shoulder section symmetrically along the existing alignment up to Bridge #16 at the Intercoastal Waterway. The length of this alternative is approximately 4.3 miles.

With this alternative, 17 resident relocation and 15 business relocations are expected. The total cost of this alternative, including construction, utility relocation and right-of –way is estimated to be ***$52,500,000*** .

Construction	$20,700,000
Right-of-way.....	$24,500,000
Utility Relocation.....	$ 7,300,000
Total (Alternative #2).....	$ 52,500,000

V. Recommendations

It is recommended to improve the impacted sections of NC 210 and NC 50/NC 210 from the existing two-lane to a four lane divided shoulder section with a narrow raised grass median. The proposed improvement starts from US 17 and ends at Bridge #16 at Surf City.

Two different alternatives were investigated and the associated costs with the breakdowns are described in Section IV above. The capacity analyses indicated that both options described in Section IV would accommodate the projected 2035 design year volume with an acceptable level of service (LOS). Although Alternative #2 cost approximately $1.8 million less than Alternative #1, Alternative #2 is not preferred because five-lane sections tend to promote indiscriminate left turn movements. However, the four-lane divided section proposed in Alternative #1 provides improved traffic safety and operations by preventing indiscriminate left turn movements and allow pedestrian refuge if needed.

VI. Additional Comments

A detailed environmental study was not conducted for this feasibility study. However, we have screened the existing information available for this area for environmental and historic concerns. Based on maps at the Department of Environment & Natural Resources and Natural Heritage Section, there is one threatened or endangered species, Shellfish Strata that may potentially exist in the immediate project area and impacts to historic properties are not anticipated along this project. In addition, this project falls in an

environmentally sensitive area and impacts to wetlands are expected, and permits with the U.S. Army Corps of Engineers will be necessary.

NC 210 is a designated bike route and the NCDOT Division of Bicycle and Pedestrian Transportation has requested that bicycle accommodations be provided under this project where appropriate. Therefore, the cross-section alternates for this project accommodate bicycles on the proposed 4 foot paved shoulders.

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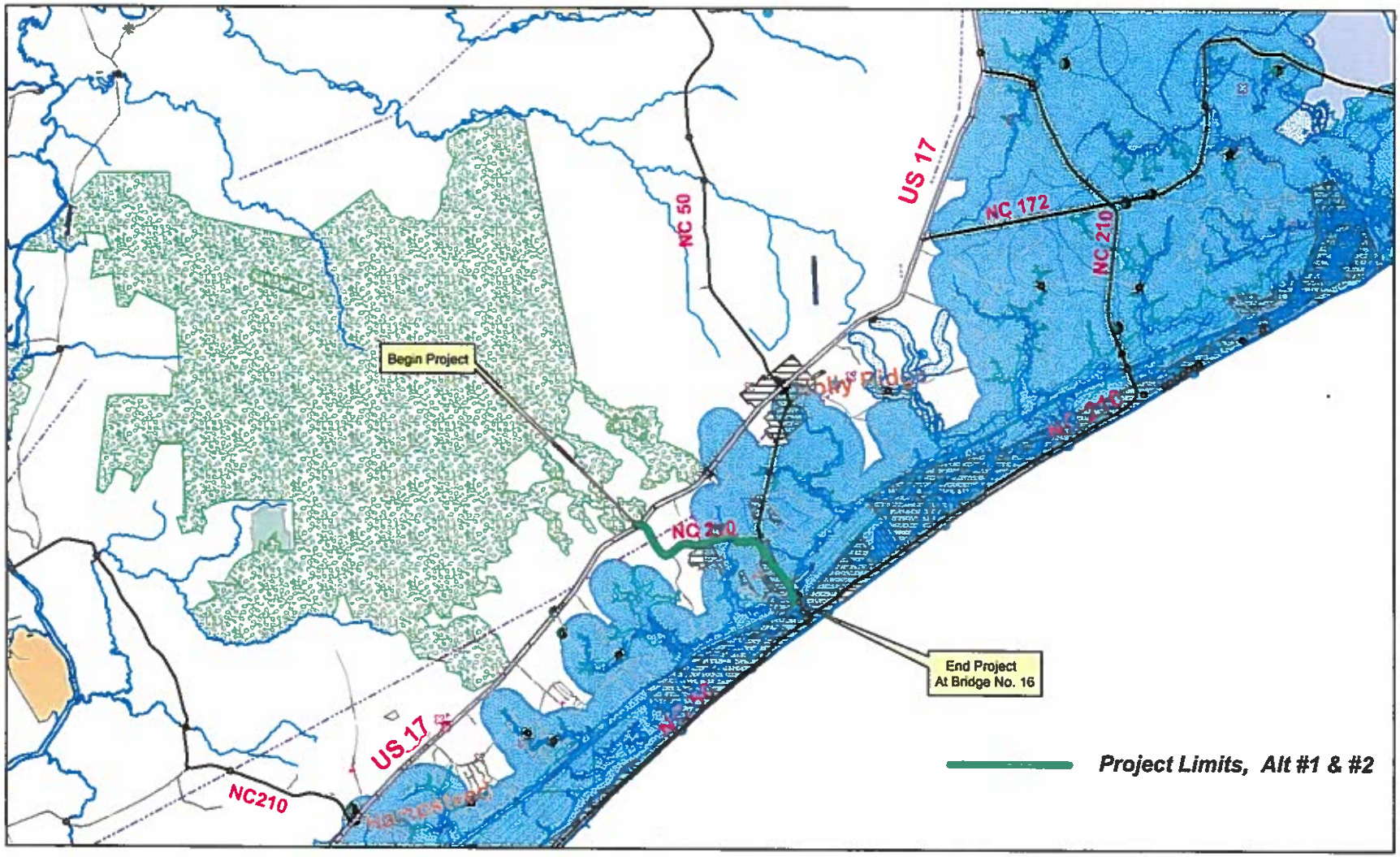
Figure 1



0 1.5 3 6 9 12 Miles

N W E S

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Figure 2
Edgecombe
Barlowes
Watts
Prop. Realignment
Prop. Realignment
Prop. Realignment
BEGIN PROJECT
END PROJECT
AT BRIDGE #16
Intracoastal
Prop Realignment
Existing Alignment
Scale = 1500' ±
DEPARTMENT OF TRANSPORTATION
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TO NC 50 AND THEN NC 50/NC210
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REVISIONS