

FEASIBILITY STUDY

NC 41
From I-40 to NC 24 in Beulaville
Duplin County
R-3409

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation

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I. GENERAL DESCRIPTION

This preliminary study describes the proposed widening of NC 41 from I-40 to NC 24 in Beulaville, Duplin County. The project location is shown on Figure 1. The proposed cross-section is a 2-lane rural section with a roadway pavement 24 feet (7.3 m) wide, and shoulders 8 feet (2.4 m) wide, including 4 feet (1.2 m) full depth paved shoulders. The total project length is approximately 15 miles (24.1 k) and includes the entire distance between I-40 and NC 24, except for approximately 1.8 miles (2.9 k) in Chinguapin, where a 3-lane shoulder section exists. No improvements are recommended in Chinguapin.

Two bridges will require replacement. Bridge Number 65 over the Northeast Cape Fear River will be replaced with a new structure with a clear deck width of approximately 32 feet (9.8 m). Bridge Number 74 over Muddy Creek will be replaced with a new structure with a clear deck width of approximately 32 feet (9.8 m). These bridges were built in 1949, have roadway widths of approximately 22 feet (6.7 m), and have sufficiency ratings of 38 and 36 respectively.

Fourteen residential and 2 business relocations are anticipated. The required right-of-way width is 80 feet (24.4 m).

The total cost including construction and right-of-way is estimated to be \$20,000,000.

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

II. NEED FOR PROJECT

The purpose of this project is to increase the roadway capacity and improve the accident experience on NC 41 within the project limits.

NC 41 is classified as a Rural Major Collector in the North Carolina Statewide Functional Classification System. Land use along the project corridor is primarily rural

residential and agricultural. There are several large farms in the project vicinity that contribute to the truck traffic on NC 41. There is some commercial development in Chinquapin and at major intersections along the NC 41 corridor. A major residential development near the west project terminal is being planned.

NC 41, within the project limits, is a two-way, two-lane, shoulder section, with a pavement approximately 22 feet (6.7 m) wide and soil shoulders that vary in width from approximately 2 feet to 8 feet (0.6 m to 2.4 m).

Traffic volume estimates on NC 41, for 1995, vary from 4,000 to 6,400 vehicles per day (vpd); and for 2020 vary from 10,000 to 14,200 vpd. It is estimated that heavy trucks account for up to 8 percent of the traffic.

The Level of Service (LOS) without the proposed improvements is estimated to be LOS D in 1995 and LOS E in 2020. With the proposed improvements the LOS is estimated to be LOS C in 1995 and LOS D in 2020.

During the three year period beginning April 1, 1992, and ending March 31, 1995, there were 173 accidents reported on NC 41 between I-40 and NC 24 in Beulaville. This resulted in a total accident rate of 197 accidents per 100 million vehicle miles (ACC/100MVM). This compares with the statewide average of 207 ACC/100MVM for all rural NC routes, in North Carolina, for 1994. There were 6 fatal accidents reported, and 72 accidents resulted in 128 injured persons. This resulted in a fatal accident rate of 6.82 ACC/100MVM. The statewide average fatal accident rate for all NC rural routes was 2.40 in 1994. The most prevalent type accidents were Ran Off Road (35%), Animal (19%), and Rear-End (16%). The wider cross-section with improved shoulders should reduce the potential for these type accidents.

III. RECOMMENDATIONS

It is recommended to widen NC 41 from I-40 to NC 24 in Beulaville, Duplin County. The project location is shown on Figure 1. The proposed cross-section is a 2-lane rural section with a roadway pavement 24 feet (7.3 m) wide, and shoulders 8 feet (2.4 m) wide, including 4 feet (1.2 m) full depth paved shoulders. The total project length is approximately 15 miles (24.1 k) and includes the entire distance between I-40 and NC 24, except for approximately 1.8 miles (2.9 k) in Chinquapin, where a 3-lane shoulder section exists. No improvements are recommended in Chinquapin.

Two bridges will require replacement. Bridge Number 65 over the Northeast Cape Fear River will be replaced with a new structure with a clear deck width of approximately 32

feet (9.8 m). Bridge Number 74 over Muddy Creek will be replaced with a new structure with a clear deck width of approximately 32 feet (9.8 m). These bridges were built in 1949, have roadway widths of approximately 22 feet (6.7 m), and have sufficiency ratings of 38 and 36 respectively.

Fourteen residential and 2 business relocations are anticipated. The required right-of-way width is 80 feet (24.4 m).

The total cost including construction and right-of-way is estimated to be \$20,000,000 as follows:

| | |
|-------------------|------------------|
| Construction..... | \$14,300,000 |
| Right-of-Way..... | <u>5,700,000</u> |
| Total Cost..... | \$20,000,000 |

IV. OTHER COMMENTS

An environmental screening was not conducted for this study. No historic properties, wetlands, or endangered species are anticipated.

According to the Office of Bicycle and Pedestrian Transportation, Duplin County is scheduled for a bicycle route mapping and signing project (E-3302) in FY 1998. NC 41, or parts of it, are likely to be designated a bike route. If NC 41 is designated a bicycle route, and because of the heavy truck traffic, the Office of Bicycle and Pedestrian Transportation requests that paved shoulders 5 feet (1.5 m) wide be provided. The above cost estimate includes paved shoulders 4 feet (1.2 m) wide.

