

FEASIBILITY STUDY

NC 168, Currituck County
From US 158 at Barco to Virginia State Line
R-2228

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

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I. DESCRIPTION

This report covers a preliminary study of the proposed widening of the subject road to a multi-lane facility for a distance of approximately 18.5 miles. This project is included in the 1987-1995 Transportation Improvement Program for feasibility study and/or right of way protection. It is not currently funded. Location of the project is shown on the attached map.

II. PURPOSE OF PROJECT

Existing Route Characteristics

NC 168 is designated as a minor arterial in the statewide highway system. It provides an important routing from northeast North Carolina and Southeast Virginia to US 158 and surrounding Outer Banks of North Carolina.

The studied section of road has a basic 24-foot pavement with 10-foot shoulders (including 2-foot paved) constructed on good alignment. The facility was improved in 1983 as a safety project consisting of resurfacing, guard rail installation, and paved shoulder and turn lane construction.

Six bridges are in place along the subject road. These bridges were constructed as concrete and steel facilities in 1948 and 1953 at widths of 28 and 30 feet and varying lengths of 33 to 53 feet. Except for a bridge at Sligo with a 31-ton limit, none of the bridges has a posted load limit.

According to the Division Right of Way agent, the existing right of way is generally 100 feet and symmetrical for the most part. At locations where NC 168 closely parallels the Carolina and Northwestern Railway, the right of way is offset 27 to 47 feet on the railroad side and 70 feet on the opposite side of the highway centerline. The existing right of way is clear of structures except in the Moycock area where some residences and businesses are located within the right of way. These buildings would have to be moved back at State expense to allow widening of the road.

The speed limit along the studied facility is predominantly 55 MPH. It reduces to 45 MPH through the Sligo community and a short developed section near the Virginia State Line and 35 MPH through the Moyock area. Except for greater concentrations of mixed development at Sligo and Moyock, roadside development is typically light to medium density residential with isolated commercial uses.

NC 168 is crossed by the Carolina and Northwestern Railway at one location near Moyock. The railroad track serves approximately six trains daily. The railroad crossing is protected by flashing signals and gates.

Traffic Volumes, Capacity, and Accident Record

The present annual average daily traffic range from approximately 6000 vehicles per day at Barco to 9000 vpd at Moyock. Due to the attraction of the Outer Banks, traffic volumes increase substantially during the summer months. In those periods, traffic volumes range from approximately 9000 vpd to 13,000 vpd. There are no local traffic generators that have as significant impact on traffic volumes as the "beach" traffic. In twenty years, estimated year round traffic volumes are 11,000 and 16,000 vpd, respectively. Estimated summer traffic volumes are 16,000 and 22,000 vpd, respectively.

Present capacity along the two-lane facility operating under rural conditions is approximately 6000 vpd at level of Service C. Thus, capacity is exceeded by current traffic volumes at all points along the existing road.

A total of 233 accidents were reported on NC 168 between Barco and the Virginia State Line in a recent 3-year period. This record yielded an accident rate of 1.86 accident per million vehicle miles, which compares favorably with the 1985 statewide average of 2.36 acc/mvm for two-lane NC routes. Major patterns of accidents were rear-end collisions (18%) and ran off road types (34%).

Need for Project

The purpose of the project is to provide additional lanes that would eliminate the current and future capacity deficiency on NC 168. More importantly, it is to improve traffic operation on a facility carrying seasonally high traffic volumes. The volume of summer traffic exceeds the capacity of the road by as much as two to one. Also, the added lanes would benefit a significant number of North Carolina workers commuting to jobs in Portsmouth and Norfolk, Virginia.

Implementation of this project would provide a continuation of the recent and planned widening of US 158 between Barco and Point Harbor (R-520). Based on present schedule, this segment of US 158 will have an ultimate 5-lane roadway by 1990.

III. RECOMMENDATIONS AND COST

Widening of NC 168 to a multi-lane facility is feasible and immediately warranted. Recommended cross section is generally five lanes of pavement (60 feet total) with adequate shoulders including 2-foot paved shoulders. Through the Moyock area for approximately 1.3 miles, curb and gutter should be used in lieu of shoulders to minimize damage to a significant amount of development. The recommended section for NC 168 is basically the same used or planned for the improvement of adjacent US 158.

It is anticipated that the existing road will not require any alignment change and that all bridges will be replaced at their existing sites. Widening to a shoulder section will require approximately 10 feet of additional right of way on each side of the existing symmetrical right of way and 10 feet additional just on one side where the highway is adjacent to the railroad. Widening to a curbed section can be contained within the existing right of way.

The total estimated cost of the recommended improvements is \$22,800,000, including \$16,500,000 for roadway construction, \$1,200,000 for bridge construction, \$100,000 for railroad devices, and \$5,000,000 for right of way. Right of way costs include \$1,350,000 for utility adjustment, \$1,200,000 for acquisition and relocation cost, and \$2,450,000 for land and damages. Cost estimates were made by the Roadway Design Unit and Right of Way Branch.

IV. ALTERNATIVES

A possible alternative to the recommended cross section is the use of a continuous curb and gutter section throughout the entire project length. This alternative can be contained within the existing right of way and thus would have substantially less right of way cost and impact on adjacent development. However, construction costs are higher and would nearly offset right of way cost savings derived from a curbed section. In addition, a curb and gutter facility requires costly periodic maintenance to ensure proper drainage and reduces the level of traffic service to the traveling public. Using curb and gutter would require the speed limit to drop to 45 MPH to comply with the Federal Highway Administrative Policy. Lower speeds on curbed facilities lessen the hazard of striking the curb and losing driving control but increase travel time for motorists.

Another possible alternative is widening of NC 168 to a four-lane divided roadway. However, it is not desirable because of the disruption to existing development, additional impacts to farmland, woodland, and wetlands, and increased overall cost. It is estimated that the total cost of this alternative would be \$37 million.

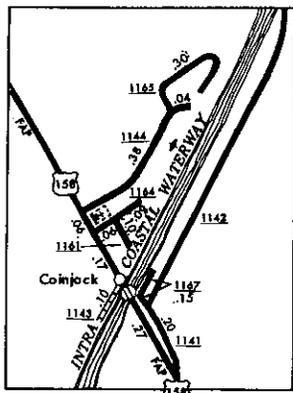
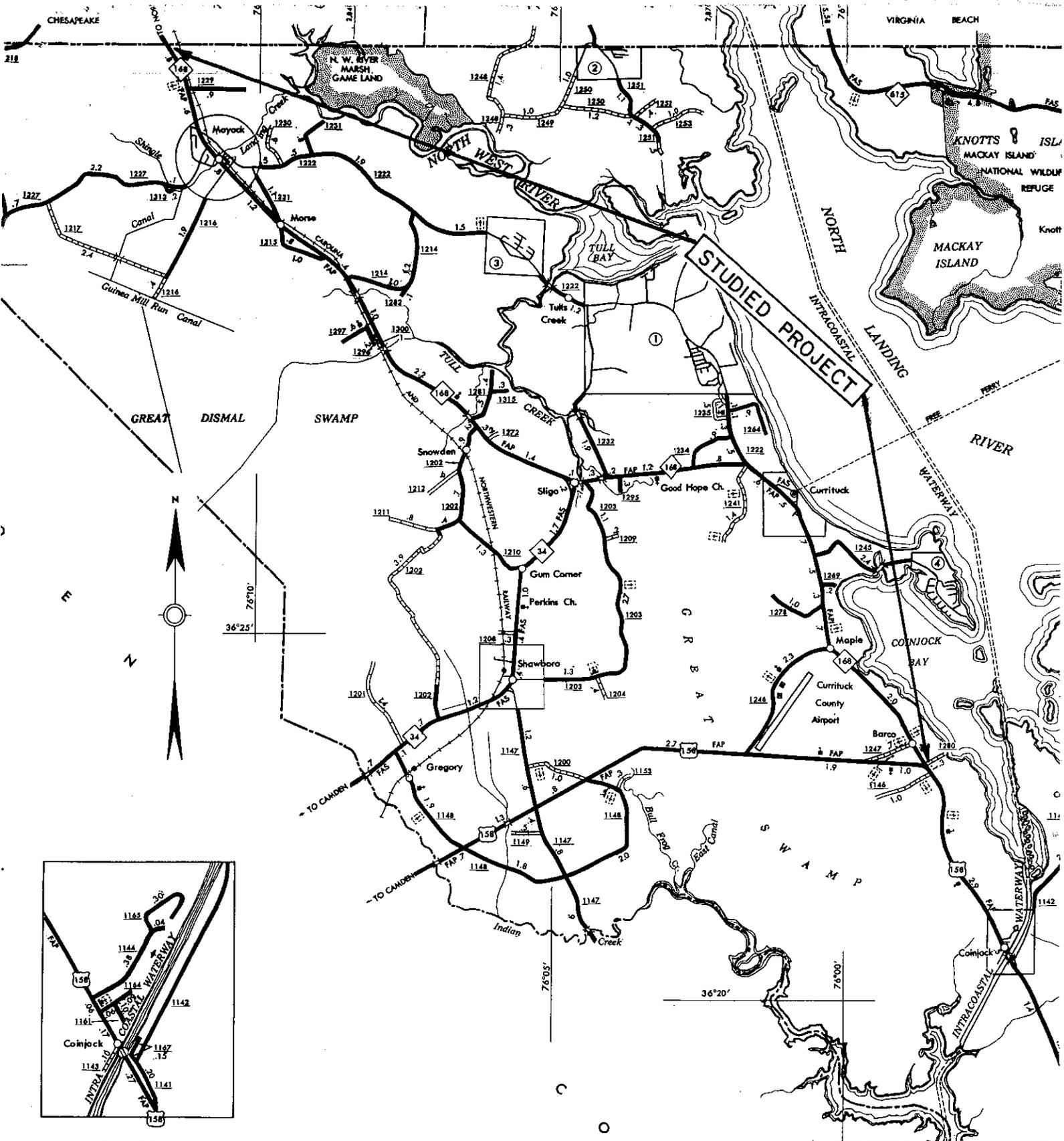
V. OTHER COMMENTS

Negative environmental impacts of the project are: (1) loss of some farmland and woodland; (2) loss of some wetlands at stream crossings; (3) relocation of approximately 14 residences and 9 businesses; and (4) increased noise levels for remaining residences.

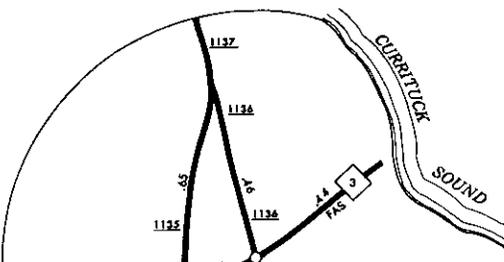
Although not part of the current state bicycle program, NC 168 has potential significance for bike traffic because of the highway's proximity to coastal areas. Also a portion of the highway may be designated as part of an east-west bike route through northeast North Carolina. Consideration should be given to possible provision of wide paved shoulders and wide outside lanes on curbed sections to accommodate bike traffic.

Local government should be encouraged to protect the additional right of way required for the recommended improvements from new development construction.

RGD/plr



COINJOCK





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

NC 168, CURRITUCK CO.
FROM US 158 AT BARCO TO
VIRGINIA STATE LINE
R - 2228

5/87 0 mile 2 FIG. 1