

FEASIBILITY STUDY

Kitty Hawk  
NC 12  
From Wilkinson Street in Kill Devil Hills to US 158  
Dare County

U-2917

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



Mohammed B. Mustafa, P.E.  
Highway Planning Engineer

3/14/94

Date



David G. Modlin, Jr., Ph.D., P.E.  
Head of Feasibility Studies

Kitty Hawk  
NC 12  
From Wilkinson Street in Kill Devil Hills to US 158  
Dare County

U-2917

I. GENERAL DESCRIPTION

This is a feasibility study of the construction of an alternate NC 12 on a new location. The studied improvements are not recommended for programming at this time based on the projected traffic demands, and the estimated cost of the studied improvements. The new 4-mile (6.5-kilometer) roadway was studied parallel to, and west of the existing NC 12 (see Figure 2). The studied typical cross-section is a 3-lane, 36-foot (11.0-meter) pavement with 8-foot (2.4-meter) shoulders, including 4-foot (1.2-meter) paved shoulders. The studied right-of-way width is 80 feet (24.4 meters) with no control of access. The estimated cost of the studied improvements is \$26,700,000 (\$21,600,000 for right-of-way, and \$5,100,000 for construction).

This study is not a detailed planning/environmental investigation. A feasibility study presents recommended typical cross-sections, general alignments, and estimated cost of improvement. The study also attempts to provide an early identification of potential environmental, permitting, or other issues which deserve consideration in the planning and construction stages.

II. EXISTING CONDITIONS & NEED FOR PROJECT

This project was requested by Division 1. NC 12 is classified as a major collector in the statewide functional classification system. It is anticipated that the proposed roadway will be included in the updated Dare County Thoroughfare Plan. The studied roadway will serve local traffic in Kitty Hawk and Kill Devil Hills. This traffic is currently served by the existing NC 12. However, the studied existing section of NC 12 is vulnerable to ocean overwash, and possible undercutting of the pavement subgrade. The studied alignment would provide an alternative route to the existing section of NC 12, if it becomes unusable due to flooding.

The southern terminal of the project would be at the intersection of Raymond Street and Wilkinson Street in Kill Devil Hills (see Figure 2). This intersection is currently stop-sign controlled.

The northern terminal of the project would be at a new intersection with NC 12 north of Byrd Street (see Figure 2).

Average daily traffic (ADT) on the existing NC 12 is currently estimated at 4,700 vehicles per day (vpd) in this vicinity. This volume is expected to grow to approximately 11,000 vpd by the design year 2014. While traffic demand projections for the proposed roadway are currently unavailable, the studied typical section has a traffic capacity of approximately 14,000 vpd. The proposed roadway would operate at a level-of-service D serving 11,000 vpd, which is the projected 2014 traffic volume for the existing NC 12.

### III. STUDY ALTERNATIVES

The studied improvements are not recommended for implementation at this time. However, the following is presented as the most suitable typical cross-section, and corridor for an alternate NC 12 in the study area. The studied corridor is 4 miles (6.5 kilometers) long from Wilkinson Street in Kill Devil Hills, to NC 12 north of Byrd Street in Kitty Hawk (see Figure 2). The proposed roadway would utilize the alignments of existing streets (Lindburg Avenue, Hallett Street, Poseidon Street, Severn Court, and Raymond Street) to the extent possible. Construction on new locations would be required to link the alignments of Raymond Street with Severn Court, Poseidon Street with Hallett Street, and Hallett Street with Lindburg Avenue.

The typical section is a three-lane, 36-foot (11.0-meter) pavement with 8-foot (2.4-meter) shoulders, including 4-foot (1.2-meter) paved shoulders. The typical section would be marked for one 12-foot (3.7-meter) lane per direction of travel, and a continuous 12-foot (3.7-meter) middle, left-turn lane. The recommended right-of-way width is 80 feet (24.4 meters), without access control. The continuous middle left-turn lane would safely accommodate left turns at intersections and driveways.

Project cost is estimated as follows:

Right-of-Way	\$21,600,000
Construction	\$ 5,100,000
Total Project Cost	\$26,700,000

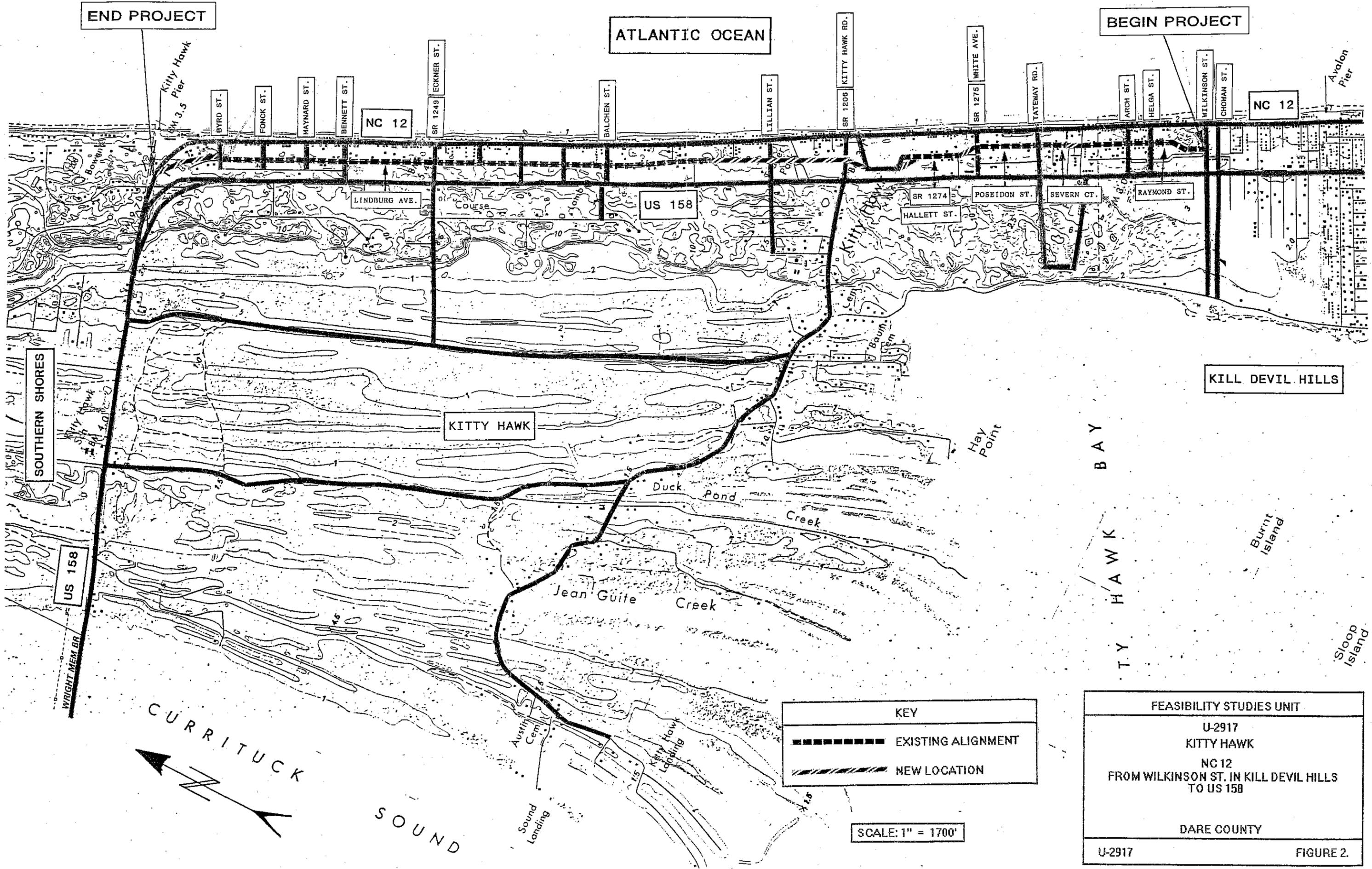
A two-lane alternative typical cross-section was also considered, but is not recommended as a T.I.P. project. This alternative would provide a 24-foot (7.3-meter) pavement with 8-foot (2.4-meter) shoulders. This cross-section may be contained within a 60-foot (18.3-meter) wide right-of-way, without access control. Estimated cost of this alternative is \$13,900,000 (\$9,800,000 for right-of-way, and \$4,100,000 for construction). This alternative is not recommended because it would not provide a left-turn lane to turning traffic at intersections and driveways.

#### IV. OTHER COMMENTS AND CONCERNS

It is anticipated that the studied three-lane typical cross-section would require 54 residential and 3 business relocations. The two-lane alternative typical cross-section would require the relocation of 29 residences and 3 businesses. An environmental screening was not conducted for this study. A CAMA permit, or Consistency Determination would be required.

The estimated costs of the studied alternatives appear to be high with respect to the anticipated benefits. In an emergency, US 158 could provide a detour route for NC 12 traffic until repairs could be accomplished. However, the studied alignment provides a very desirable alternative, or backup route for either NC 12 or US 158 between Wilkinson Street and US 158. Using phased construction, Division Forces may construct either alternate at substantial savings in construction cost.





**KEY**

- EXISTING ALIGNMENT
- ////// NEW LOCATION

SCALE: 1" = 1700'

**FEASIBILITY STUDIES UNIT**

U-2917  
KITTY HAWK

NC 12  
FROM WILKINSON ST. IN KILL DEVIL HILLS  
TO US 158

DARE COUNTY

U-2917 FIGURE 2.