FEASIBILITY STUDY

Elizabeth City

SR 1309 (Main Street) Extension
from Proposed US 17 Bypass
to Existing US 17 Bypass (Hughes Boulevard)

Pasquotank County

U-3420

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

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Date

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I. GENERAL DESCRIPTION

This preliminary study describes a proposed new connector, beginning at a new interchange on the Elizabeth City Bypass (TIP Project R-2515) and terminating at an at-grade intersection with Hughes Boulevard and Elizabeth Street. Three alternates were studied: (1) improving Main Street Extension with a connector on new alignment to the bypass; (2) improving Main Street Extension/Well Field Road with a connector on new alignment to the bypass; and (3) a new alignment alternate generally running north of Main Street Extension, crossing Main Street Extension north of Shillingtown Road and connecting with the bypass (Please see Figure 1). The cross sections studied for the various alternates were combinations of three-lane curb and gutter sections on existing alignment and two-lane shoulder sections on new alignment. The necessary rights of way varied from 70 feet (21.3 m) to 150 feet (45.7 m).

The estimated costs of the three studied alternates ranged from $16,630,000 to $18,080,000. The estimates include an additional diamond interchange with US 17 Bypass (R-2515).

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 problem, recommend a treatment including costs, and identify potential problem areas that require special consideration in the planning and design phases.

II. NEED FOR PROJECT

The proposed connector would provide a second connector from the Elizabeth City Bypass (TIP Project R-2515) to Elizabeth City and as studied, would provide a tie to US 158. This project would be similar in function to the Halstead Boulevard project (U-3449). This project has been requested by the Elizabeth City Downtown Inc. and the Pasquotank County Commissioners.

On the Elizabeth City Thoroughfare Plan, Main Street Extension is a Major Thoroughfare. On the Statewide Functional Classification System, Main Street Extension is classified as a Minor Arterial within the Elizabeth City city limits and as a Minor Collector within Pasquotank County.

Traffic projections for the proposed connector assume that both the US 17 Bypass (R-2515A) and Halstead Boulevard Extension (U-3449) would be constructed and their effect on traffic has been included in the year 2015 estimate. In the year 2015, Average Daily Traffic (ADT) is estimated to range from 4,800 to 10,400 vehicles per day (vpd) on the studied corridors with the lower volumes near the Bypass and the higher volumes closer to Hughes Boulevard. The Level of Service (LOS) will not be below LOS D through the design year 2015 on any alternate utilizing the studied cross sections.

Existing land use along Main Street Extension is densely developed residential. Residential use is also prevalent along Well Field Road. The studied connector on new alignment would pass through agricultural land. The new alignment alternate is through undeveloped land and impacts the more significant wetlands, estimated to be approximately 24 acres.

The existing pavement along Main Street Extension and Well Field Road is 20 feet (6.1 m) and the existing right of way appears to be 60 feet (18.3 m). Shoulder width varies from 2 to 10 feet (0.6 to 3.0 m). Utilities along Main Street Extension include fiber optic telephone cable along the south side, county water lines along the north side, and septic fields. The same holds true for Well Field Road.

The North Carolina and Virginia Railroad runs parallel to existing US 17 Bypass (Hughes Boulevard) and this project would require a new at-grade crossing just west of the Hughes Boulevard - Elizabeth Street intersection. At this point the railroad grade is 3-4 feet (approx. 1.0 m) above the Hughes Boulevard grade. Currently 4 trains per day at 20 miles per hour (32 kmph) use this track. Depending on the alternate selected, the exposure index could be as high as 41,600 or as low as 16,000. A grade separated crossing was not considered feasible at this location due to the extensive damage that would be incurred by existing, adjacent land use.

Accident records for the past three years (10/92 through 9/95) along Main Street Extension (SR 1333) within the study limits show a total of 12 accidents. Fifty (50) percent of these are a result of rear-end and left-turn accidents. The accident rate is 203 accidents per 100 million vehicle miles of travel compared to a rate of 345 acc/100mvm for urban secondary roads statewide. The studied 3-lane section within the developed portion of the project limits should help to maintain this low accident rate.

III. STUDY ALTERNATES

Three alternates were studied which would provide an additional connector from the US 17 Bypass (R-2515) to the Elizabeth City central area. These alternates are described as follows:

ALTERNATE 1

This alternate begins at Elizabeth Street and proceeds on new alignment to connect with Main Street Extension just east of Jessup Street (SR 1394). The studied cross section is 3-lane, 40-foot (12.2-m) face-to-face, curb and gutter section with 8-foot (2.4-m) berms on 70 feet (21.3 m) of right of way. The distance is 0.76 miles (1.2 km). This section requires a new bridge over Knobbs Creek.

From SR 1394, this alternate continues along Main Street Extension to Well Field Road (SR 1309) and then along Well Field Road to just west of Azalea Acres subdivision. The studied cross section is 3-lane, 40-foot (12.2-m) face-to-face, curb and gutter section with 8-foot (2.4-m) berms on 70 feet (21.3 m) of right of way. The distance is 1.56 miles (2.5 km).

From a point just west of Azalea Acres subdivision, this alternate continues on new alignment and connects to the US 17 Bypass via a studied diamond interchange. The studied cross section is a 2-lane, 24-foot (7.3 m) pavement, 8-foot (2.4-m) shoulder including 4-foot (1.2-m) paved shoulders on 150 feet (45.7 m) of right of way. The distance is 2.24 miles (3.6 km). The studied ditch section is a boulevard ditch.

The cost of Alternate 1 is estimated at $ 16,630,000 including construction cost of $ 14,100,000 and right of way cost of $ 2,530,000. The new bridge over Knobbs Creek is estimated to cost $ 103,000.

It is estimated that this alternate will require 4 residential relocations and will not impact any businesses.

ALTERNATE 2

This alternate also begins at Elizabeth Street and proceeds on new alignment to connect with Main Street Extension just east of Jessup Street (SR 1394). The studied cross section is 3-lane, 40-foot (12.2-m) face-to-face, curb and gutter section with 8-foot (2.4-m) berms on 70 feet (21.3 m) of right of way. The distance is 0.76 miles (1.2 km). This section requires a new bridge over Knobbs Creek.

From SR 1394, this alternate continues along Main Street Extension to approximately 2000 feet (610 m) northwest of Shillingtown Road (SR 1335). The studied cross section is

3-lane, 40-foot (12.2-m) face-to-face, curb and gutter section with 8-foot (2.4-m) berms on 70 feet (21.3 m) of right of way. The distance is 2.22 miles (3.6 km).

From a point approximately 2000 feet (610 m) northwest of Shillingtown Road (SR 1335), this alternate continues on new alignment and connects to the US 17 Bypass via a studied diamond interchange. The studied cross section is a 2-lane, 24-foot (7.3 m) pavement, 8-foot (2.4-m) shoulder including 4-foot (1.2-m) paved shoulders on 150 feet (45.7 m) of right of way. The distance is 1.87 miles (3.0 km). The studied ditch section is a boulevard ditch.

The cost of Alternate 2 is estimated at $ 17,920,000 including construction cost of $ 14,700,000 and right of way cost of $ 3,220,000. The new bridge over Knobbs Creek is estimated to cost $ 103,000.

It is estimated that this alternate will require 2 residential relocations and will not impact any businesses.

ALTERNATE 3

Alternate 3, a new location alternate, was specifically requested by the Pasquotank County Commissioners. Although the number of residential relocations is minimal for Alternates 1 and 2, the impacts to yards will be significant. Alternate 3 avoids the use of existing Main Street Extension and Well Field Road.

Alternate 3 generally parallels and runs north of Main Street Extension to a point approximately 2000 feet (610 m) north of Shillingtown Road (SR 1335) where it crosses Main Street Extension and continues to US 17 Bypass, again connecting with a studied diamond interchange. The studied cross section is a 2-lane, 24-foot (7.3 m) pavement, 8-foot (2.4-m) shoulder including 4-foot (1.2-m) paved shoulders on 150 feet (45.7 m) of right of way. The distance is 5.47 miles (8.8 km). The studied ditch section is a boulevard ditch.

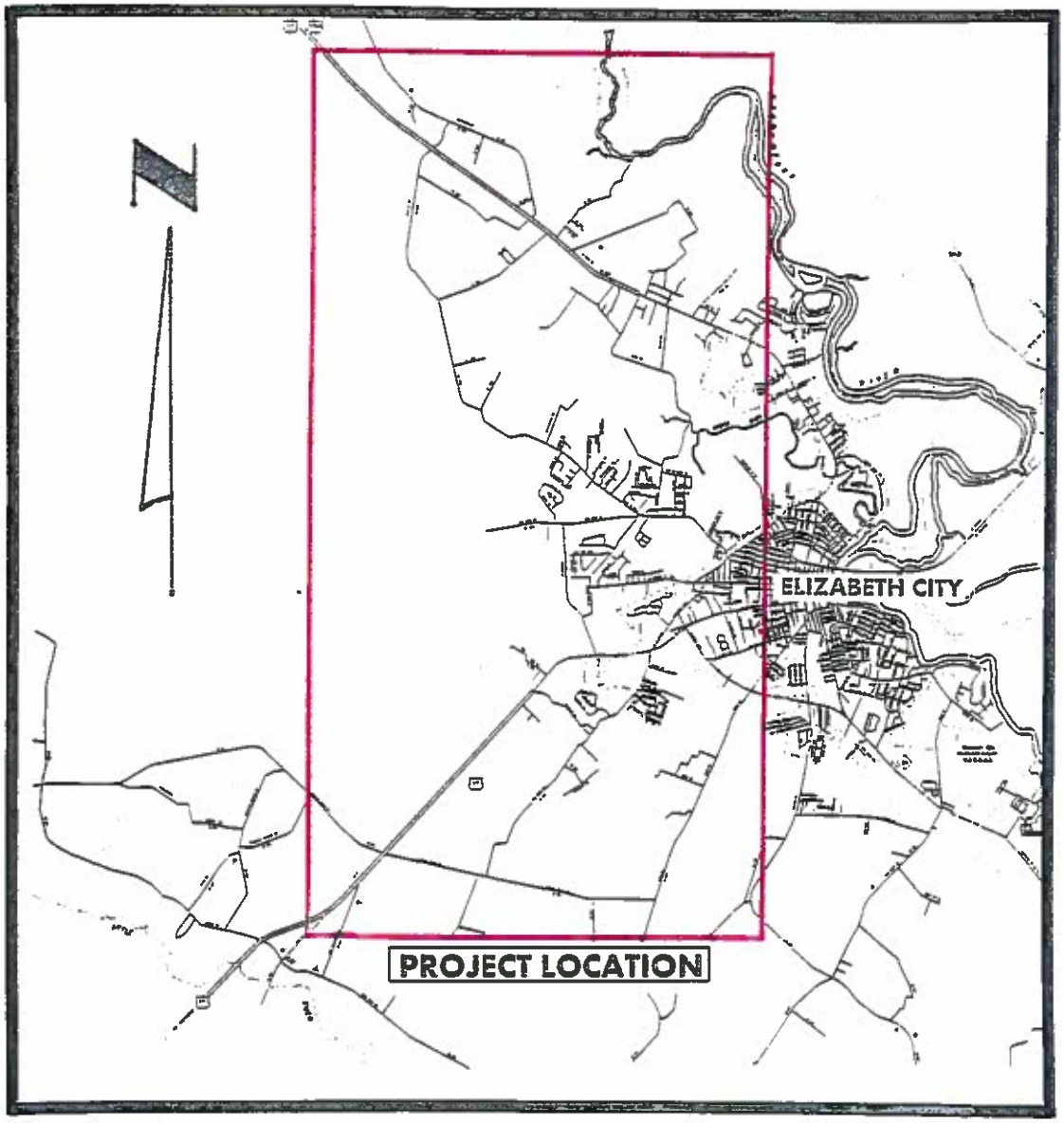
The cost of Alternate 3 is estimated at $ 18,080,000 including construction cost of $ 16,150,000 and right of way cost of $ 1,930,000. The new bridge over Knobbs Creek is estimated to cost $ 131,000.

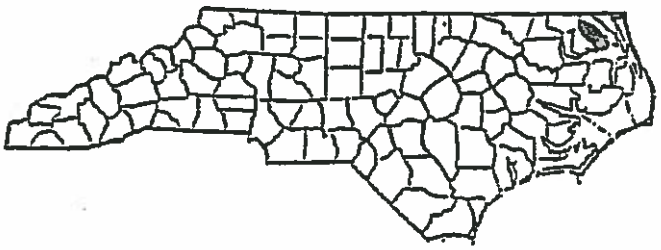
It is estimated that this alternate will not require residential relocations and will not impact any businesses.

However, it is estimated that Alternate 3 may impact as many as 24 acres of wetlands. A mitigation cost of $ 120,000 is included in the above estimates. The construction estimate also reflects significant drainage and subgrade stabilization costs. Bridging of the wetlands is not considered in the construction cost.

IV. OTHER COMMENTS

An environmental screening was not conducted for this study. No threatened and/or endangered species are expected along study Alternates 1 and 2. Due to the inaccessibility of Alternate 3, no inference can be drawn regarding impacts to threatened and endangered species. Impacts to wetlands are expected, particularly along Alternate 3, and a Corps of Engineers Section 404 permit is anticipated. A CAMA permit may be required relative to Alternate 3.





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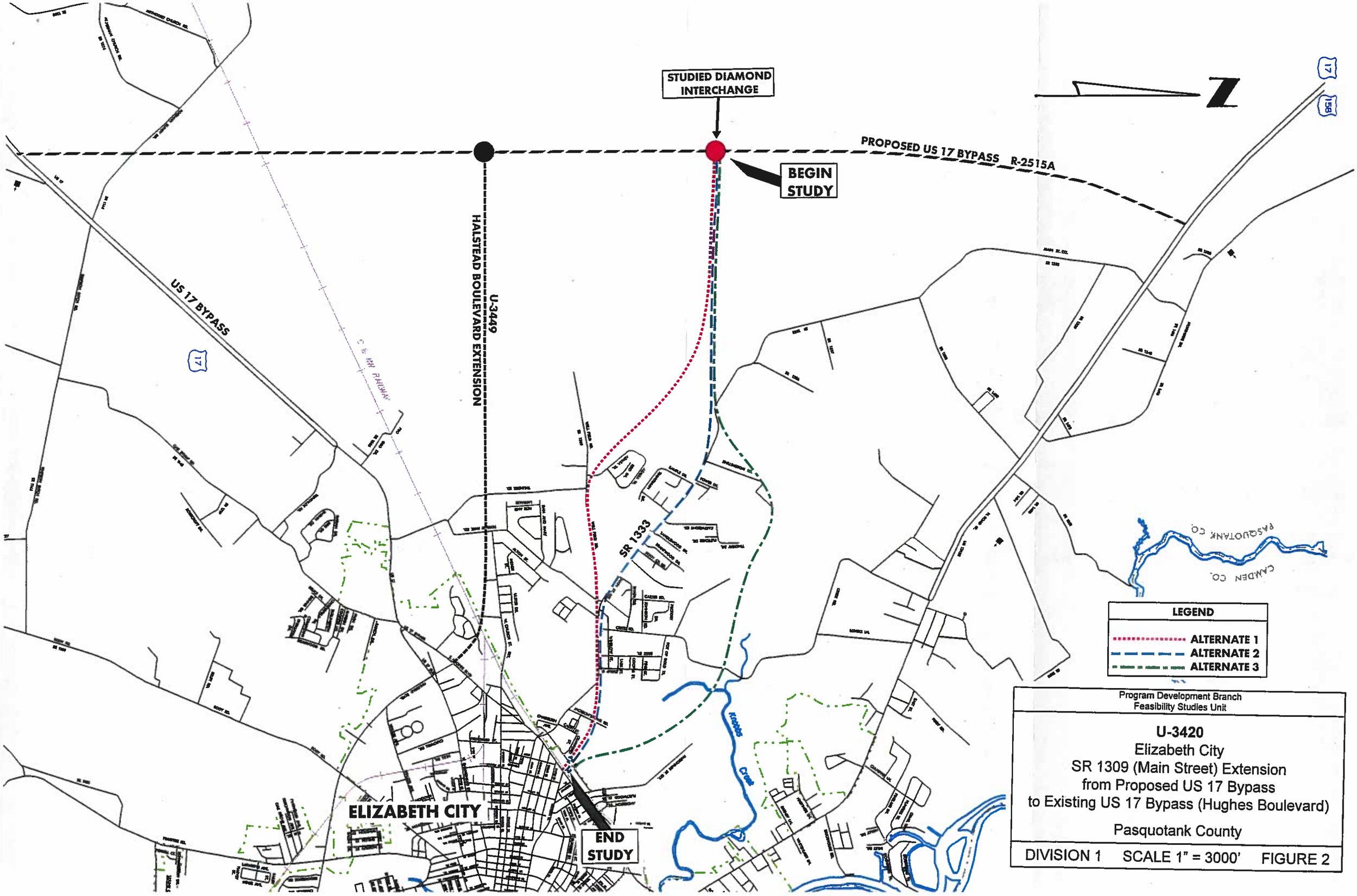
DIVISION 1 FIGURE 1


STUDIED DIAMOND INTERCHANGE
BEGIN STUDY
PROPOSED US 17 BYPASS R-2515A
U-3449
HALSTEAD BOULEVARD EXTENSION
US 17 BYPASS
17
158
SR 1333
ELIZABETH CITY
END STUDY
PASQUOTANK CO.
CAMDEN CO.
LEGEND
ALTERNATE 1
ALTERNATE 2
ALTERNATE 3
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SCALE 1" = 3000'
FIGURE 2