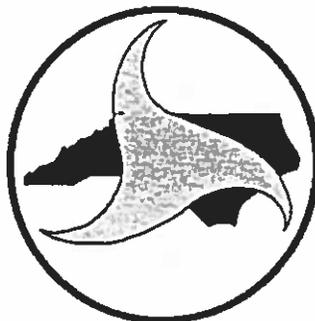


FEASIBILITY STUDY

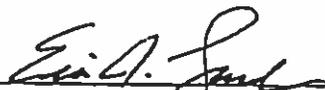
SR 1008 (Mt. Carmel Church Rd. / Farrington Rd.)
from US 64 to US 15-501
Chatham and Orange Counties

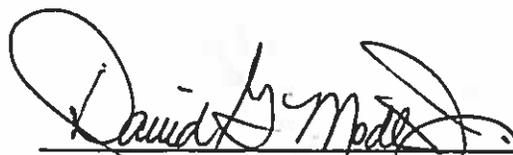
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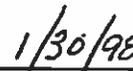
R-3829



Prepared by the
Program Development Branch
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Date

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SR 1008 (Mt. Carmel Church Rd. / Farrington Rd.)
from US 64 to US 15-501
Chatham and Orange Counties
R-3829

I. General Description

This feasibility study describes widening SR 1008 (Mt. Carmel Ch. Rd. / Farrington Rd.) from US 64 in Chatham County to US 15-501 in Orange County, a distance of 12.2 miles (19.6 km). The project location is shown on Figures 1 and 2. From US 64 to SR 1717 (Lystra Rd.), the recommended cross-section is a two-lane shoulder section, 24 feet (7.3 m) wide with 4-foot (1.2-m) paved shoulders, on 60 feet (18.3 m) of right-of-way with no access control. From SR 1717 to US 15-501, the recommended cross-section is a four-lane divided curb and gutter section, with 12-foot (3.7-m) wide inside lanes, 14-foot (4.3-m) wide outside lanes, 10-foot (3.0-m) berms, and a 20-foot (6.1-m) wide raised median on 120 feet (36.6 m) of right-of-way with no access control. It is anticipated that there will be no residences or businesses relocated due to this project. The total cost of the project, including construction and right-of-way, is estimated to be \$26,300,000.

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 proposed project including costs, and to identify potential problems that may require consideration in the planning and design phases.

II. Need for Project

The purpose of this project is to provide improved traffic flow for anticipated growth in Chatham County. This project will also address safety issues such as improving existing horizontal alignment problems and realigning several intersections along the project. This project faces opposition from the Town of Chapel Hill, the Town of Carrboro, Orange County, and the Durham-Chapel Hill-Carrboro Urban Area MPO.

SR 1008 is designated as a major thoroughfare in the Chapel Hill-Carrboro Thoroughfare Plan and as a minor urban arterial and a major rural collector in the North Carolina Statewide Functional Classification System.

Development within Orange County consists primarily of single family residences and subdivision accesses. South of the Orange County border in Chatham County, there is a great deal of new development. The Governors

Club is a large subdivision that will eventually contain 1,250 units and a golf course. Governors Village is located adjacent to the Governors Club and will contain 350 units at full build-out. Part of Governors Village will be developed into a 350,000 square foot commercial development, which will include retail, office space, and apartments. North of Governors Village on SR 1727 (Whippoorwill Ln.) is Carolina Meadows, a large assisted living facility with a capacity for over 400 residents. From SR 1726 (Old Farrington Rd.) to SR 1717 (Lystra Rd.), development is primarily residential. South of SR 1717, development is a mix of residential, commercial, and recreational. The project crosses the B. Everett Jordan Lake Recreational Area, and there are several wildlife accesses, marinas and campgrounds in the vicinity.

SR 1008 is currently a two-lane roadway with a pavement width ranging between 22 and 24 feet (6.7-7.3 m) with soil shoulders. The roadway is a three-lane section with a two-way left-turn lane from the Governors Club entrance to north of SR 1727 (Whippoorwill Ln.), and from SR 1913 (Bennett Rd.) to US 15-501 (see Figure 2). There are existing traffic signals at the intersections with US 64 and at US 15-501.

There are several structures within the project limits. Bridge No. 46 and Bridge No. 52 carry SR 1008 over branches of Jordan Lake. These bridges were built in 1976 and have reinforced concrete decks on precast, prestressed concrete girders. Both bridges have a clear deck width of 38 feet (11.6 m). Bridge No. 46 is 381 feet long and has a sufficiency rating of 91.9, and Bridge No. 52 is 451 feet long and has a sufficiency rating of 98.0.

There is also a pipe culvert located at Cub Creek, located just south of SR 1726 (Old Farrington Rd.). Bridge No. P62 is a corrugated metal triple-barrel pipe culvert that was installed in 1984. This culvert is 99 feet 4 inches (30.3 m) long along its centerline and currently has a sufficiency rating of 92.9.

TIP Project R-942 will widen US 15-501 to a multilane facility. It is currently scheduled for right-of-way acquisition in April 1997 and for construction in April 1998.

From SR 1752 (Martha's Chapel Rd.) to US 15-501, SR 1008 is designated as part of the NC-2 Mountains to Sea Bicycling Highway. Accommodations for bicycle traffic are recommended as a part of this project.

The 1997 Average Daily Traffic (ADT) along SR 1008 varies from 1,900 vehicles per day (vpd) in Chatham County to 10,000 vpd in Orange County. For the design year 2025, the estimated traffic volumes on SR 1008 will range between 5,100 vpd in Chatham County to 22,100 vpd in Orange County. Truck traffic is estimated to make up four percent of daily traffic.

Due to the wide range of traffic volumes, the Level of Service (LOS) along SR 1008 varies greatly. Below is a table illustrating the current and projected Levels of Service for this project. A multilane alternate was not considered south of SR 1717 (Lystra Rd.) due to low projected volumes in the design year, 2025.

Table 1. Level of Service Comparison

Segment	Two-lane Alternate LOS		Four-lane Alternate LOS	
	1997	2025	1997	2025
US 15-501 to SR 1915	E	F	A	B
SR 1915 to SR 1916	D	E	A	B
SR 1916 to SR 1726	D	E	A	A
SR 1726 to SR 1717	C	D	A	A
SR 1717 to US 64	B	C	Not Evaluated	

During the three-year period from April 1994 to March 1997, there were 138 accidents reported on SR 1008 within the project limits. There were 71 injuries reported as a result of these accidents, including no fatalities. The accident rate along SR 1008 within the project limits is 416.70 accidents per 100 million vehicle miles (acc/100mvm). This compares with the 1996 statewide rate of 255.93 acc/100mvm for two-lane rural secondary routes. The majority of accidents along the project have occurred during the morning and afternoon peak hours. The following table illustrates the types of accidents primarily occurring within the project limits:

Table 2. Accident Frequency Comparison

Type of Accident	Number of Accidents	Percentage of Total Accidents
Ran Off Road - Right	29	21.0%
Animal Collision	22	15.9%
Rearend - Slow or Stop	16	11.6%
Angle	15	10.9%
Ran Off Road - Left	13	9.4%
Left Turn - Same Road	13	9.4%
All other accidents	30	21.8%

The improvements proposed under this project should help improve the operational safety throughout the project corridor.

III. Recommendations

It is recommended to widen SR 1008 (Mt. Carmel Church Rd. / Farrington Rd.) from US 64 in Chatham County to US 15-501 in Orange County, a distance of 12.2 miles (19.6 km). The project location is shown on Figures 1 and 2.

From US 64 to SR 1717 (Lystra Rd.), the recommended cross-section is a two-lane shoulder section, 24 feet (7.3 m) wide with 4-foot (1.2-m) paved shoulders, on 60 feet (18.3 m) of right-of-way with no access control. It is not warranted to widen this segment to a multilane section due to insufficient traffic volumes.

From SR 1717 to US 15-501, the recommended cross-section is a four-lane divided curb and gutter section, with 12-foot (3.7-m) wide inside lanes, 14-foot (4.3-m) wide outside lanes, 10-foot (3.0-m) berms, and a 20-foot (6.1-m) wide raised median on 120 feet (36.6 m) of right-of-way with no access control. Wide outside lanes are recommended to accommodate bicycle traffic along this route. It is recommended to widen this segment asymmetrically as appropriate in order to minimize the right-of-way impacts.

There is extremely poor horizontal alignment in a short segment of roadway located south of SR 1916 (Parker Rd.) (see Figure 2). From April 1994 to March 1997, seven traffic accidents have been reported in this area. It is recommended to realign the roadway in this area in order meet design standards consistent with a 50 mph (80 km/h) design speed.

It is also recommended to realign the intersections with SR 1915 (Old Lystra Rd.), SR 1916 (Parker Rd.), SR 1726 (Old Farrington Rd.), and SR 1725 (Hinton Rd.) in order to improve their safety (SR 1915 and SR 1916 are shown on Figure 2, SR 1726 and SR 1725 are shown on Figure 1).

It is anticipated that no residences or businesses will be relocated due to the project. The total cost of the project is as follows:

Construction.....	\$ 24,600,000
Right-of-way.....	\$ 1,700,000
<hr/>	
Total Cost	\$ 26,300,000

IV. Alternates

A second alternate was examined for the intersection with US 15-501 at the northern terminus. This alternate realigns SR 1008 from north of SR 1915 (Old Lystra Rd.) to US 15-501 by utilizing the alignment of SR 1913 (Bennett Rd.) and abandoning the existing roadway north of SR 1913. There is currently no development along this roadway. This option would greatly improve the operation of the intersection of US 15-501 and SR 1994 (Culbreth Rd.) by converting the existing intersection from four legs to three.

It is anticipated that no residences or businesses will be relocated due to this alternate. The total cost of the project under this alternate is as follows:

Construction.....	\$ 24,400,000
Right-of-way.....	\$ 1,650,000
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Total Cost	\$ 26,050,000

A third alternate was also considered to improve SR 1008 from US 64 to US 15-501 to a two-lane shoulder section, 24 feet (7.3 m) wide with 4-foot (1.2-m) paved shoulders, on 60 feet (18.3 m) of right-of-way with no access control. This alternate will not provide a satisfactory Level of Service from SR 1717 to US 15-501 in the design year 2025 and would only provide a marginal Level of Service with current traffic volumes.

It is anticipated that no residences or businesses will be relocated due to this alternate. The total cost of the project under this alternate is as follows:

Construction.....	\$ 7,900,000
Right-of-way.....	\$ 1,500,000
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Total Cost	\$ 9,400,000

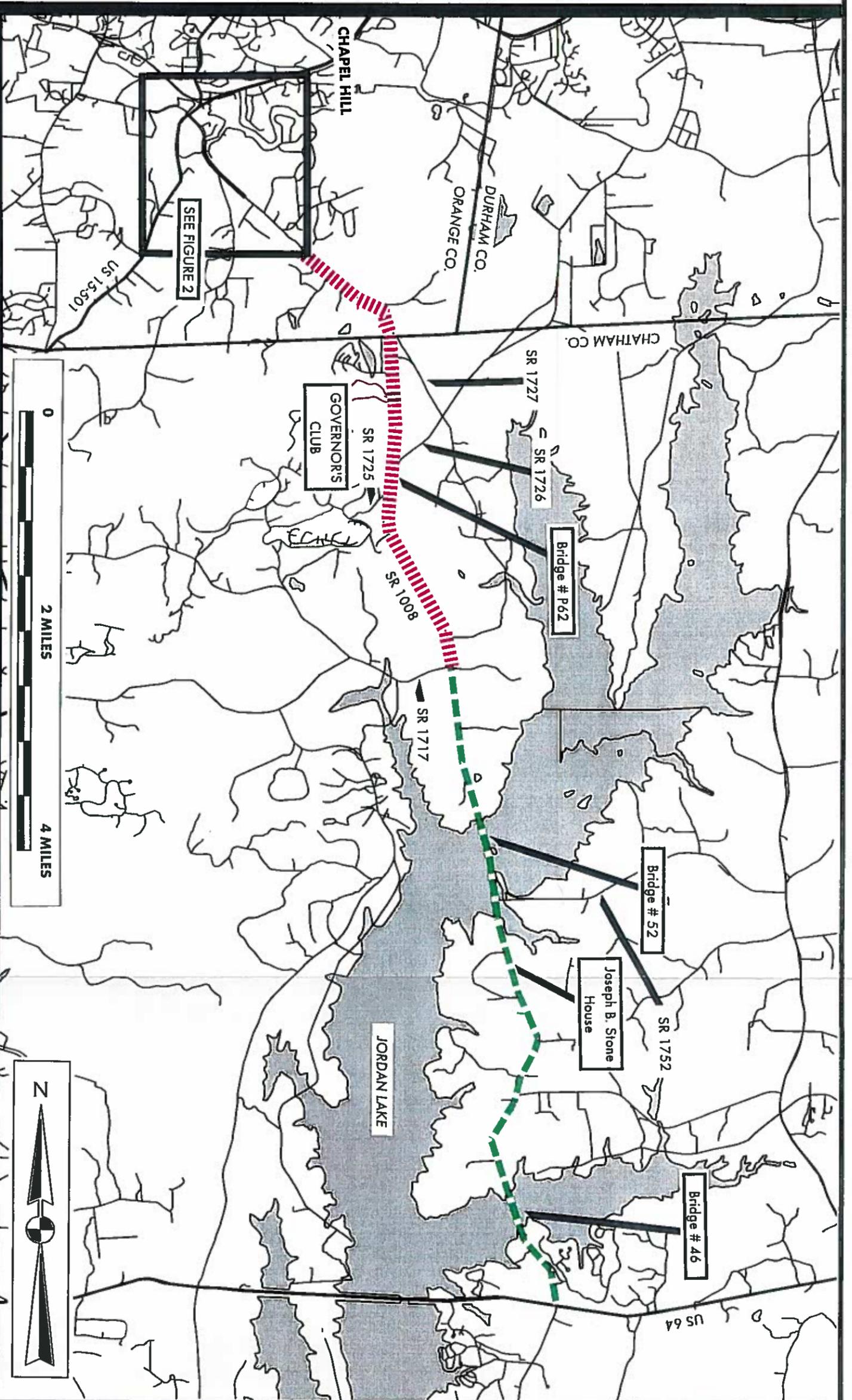
V. Additional Comments

An environmental screening was not conducted for this study. However, no impacts to wetlands are anticipated.

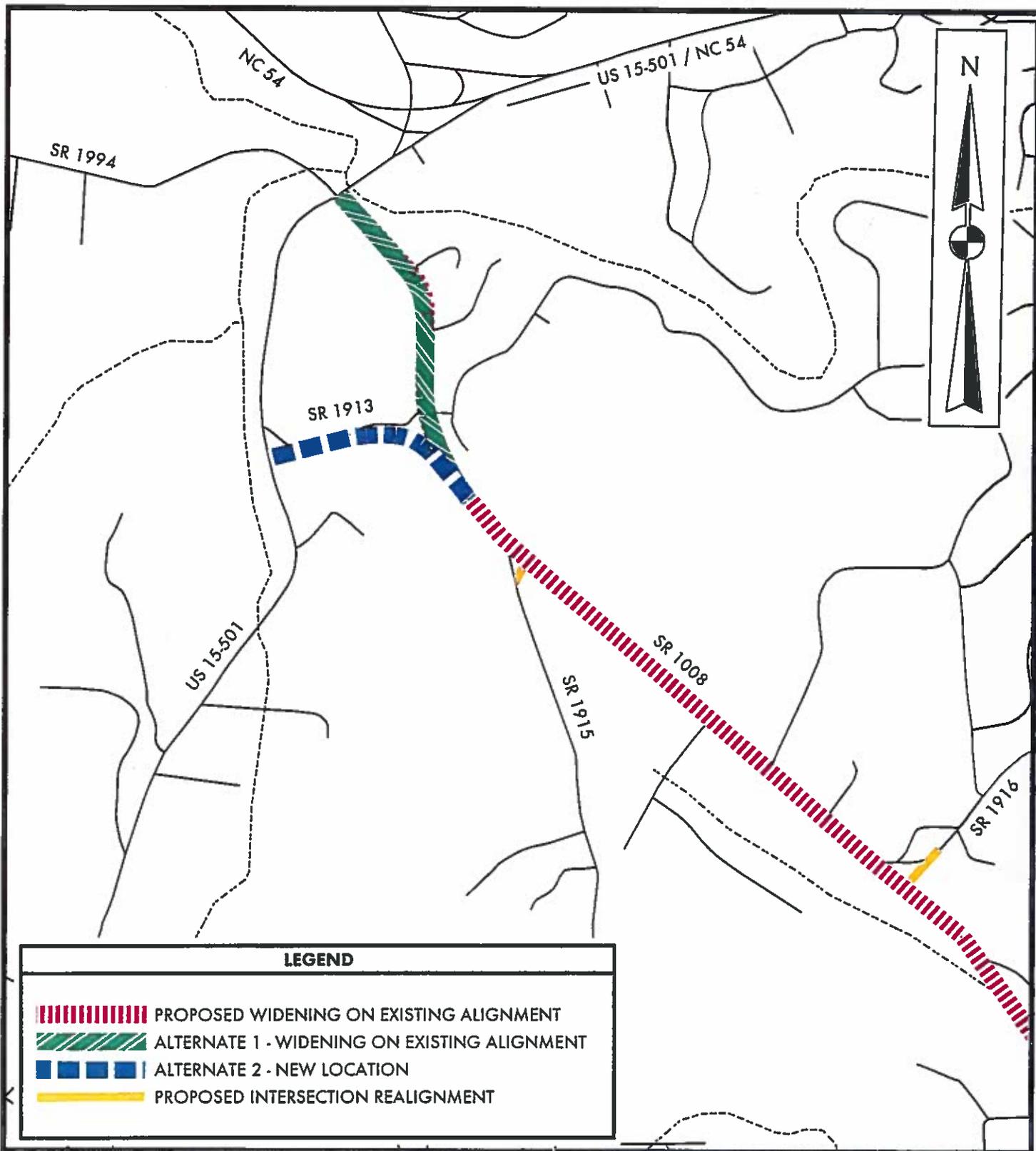
There is a property within the project limits listed on the National Register of Historic Places. The Joseph B. Stone House is located north of the intersection with SR 1752 (Martha's Chapel Rd.). No impact to this structure is anticipated as a part of this project.

Based on maps at the Department of Environment, Health & Natural Resources - Natural Heritage Section, a candidate for protection as a threatened or endangered species was identified within the project corridor. The Thin-pod White Wild Indigo (*Baptisia albescens*) is a rare plant and has been identified along SR 1008 just north of Jordan Lake.

The section of Cub Creek within the project corridor is a Class WS-IV waterway and is classified as a critical nutrient sensitive water area (NSW CA). This waterway is part of the Cape Fear River Basin.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION PROGRAM DEVELOPMENT BRANCH		
R-3829		
SR 1008 (MT. CARMEL CH. RD./FARRINGTON RD.) FROM US 64 TO US 15-501		
DIVISIONS 7 & 8	CHATHAM AND ORANGE COUNTIES	FIGURE 1



LEGEND

-  PROPOSED WIDENING ON EXISTING ALIGNMENT
-  ALTERNATE 1 - WIDENING ON EXISTING ALIGNMENT
-  ALTERNATE 2 - NEW LOCATION
-  PROPOSED INTERSECTION REALIGNMENT



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION PROGRAM DEVELOPMENT BRANCH		
R-3829 SR 1008 (MT. CARMEL CH. RD./FARRINGTON RD.) FROM US 64 TO US 15-501		
DIVISIONS 7 & 8	CHATHAM AND ORANGE COUNTIES	FIGURE 2