

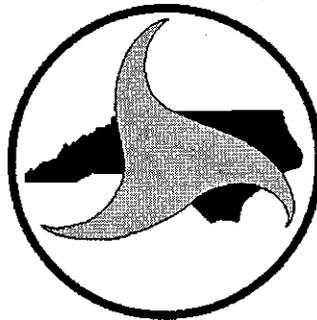
FEASIBILITY STUDY

Randleman

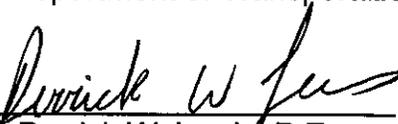
**New Connector
from the proposed I-74/US 311 Interchange near Sophia to the
US 220/SR 1950 (West Academy Street) Interchange
Randolph County**

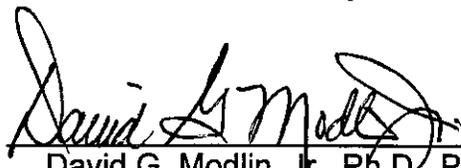
Division 8

FS-9908A



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


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5/7/99
Date

Randleman
New Connector
from the proposed I-74 / US 311 Interchange near Sophia to the
US 220/SR 1950 (West Academy Street) Interchange

Randolph County
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I. General Description

This feasibility study describes constructing a new connector from the proposed I-74 / US 311 interchange (R-2606) near Sophia to the US 220 / SR 1950 (West Academy Street) interchange. The recommended cross-section is a two-lane shoulder section with 28 feet (8.5 m) of pavement including 2-foot (0.6-m) paved shoulders. The recommended right-of-way width is 100 feet (30.5 m). Three alignment alternatives for this new connector are evaluated in this report.

Alternate 1

Alternate 1 (See Figure 1) utilizes the existing SR 1951 alignment and some new alignment to connect US 311 with the US 220/SR 1950 interchange. The new connector begins at the US 311/SR 1518 intersection. The total length of this alternate is 1.3 miles (2.0 km). It is anticipated that there will be two residences and no businesses relocated due to this alternate. The total cost of this alternate, including construction and right-of-way, is estimated to be \$4,100,000.00.

Construction.....	\$ 3,450,000
Right-of-way.....	\$ 650,000
Total Cost	\$ 4,100,000

Alternate 2

Alternate 2 (See Figure 2) is mostly on new location from US 311 to the US 220/SR 1950 interchange. This alternate intersects US 311 about 0.19 miles (0.31 km) east of the proposed US 311/I-74 westbound ramp intersection. The total length of this project is 1.6 miles (2.6 km). It is anticipated that there will be no residences and no businesses relocated due to this alternate. The total cost of the alternate, including construction and right-of-way, is estimated to be \$6,050,000.00

Construction.....	\$ 5,300,000
Right-of-way.....	\$ 750,000
Total Cost	\$ 6,050,000

Alternate 3

Alternate 3 (See Figure 3) begins with a new trumpet type interchange with I-74 northwest of Sophia and continues on new location as well as on the existing SR 1990 alignment to connect with the US 220/SR 1950 interchange. The total length of this alternate is 2.4 miles (3.8 km). Since this alternate's alignment and the new interchange with I-74 are just north of Sophia, it is anticipated that there will be 22 residences and no businesses relocated with this alternate. The total cost of the alternate, including construction and right-of-way, is estimated to be \$16,550,000.00. This Alternate has full control of access within at the proposed interchange with the future I-74.

Construction.....	\$ 13,700,000
Right-of-way.....	\$ 2,850,000
Total Cost	\$ 16,550,000

Since Alternate 1 is expected to provide adequate access to the proposed I-74 / US 311 interchange and cost significantly less than Alternates 2 and 3, it is recommended that Alternate 1 be implemented under this project.

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 access from the City of Randleman to the Proposed I-74 (R-2606) near Sophia. The City of Randleman supports this project although the new connector is not on the Randleman Thoroughfare Plan.

SR 1951 (Island Ford Road) is currently a two-lane shoulder section with a pavement width of 20 feet (6.1 m). SR 1990 (Commonwealth Road) is a two-lane shoulder section with a pavement width of 24 feet (7.3 m). Development along Alternate 1 is mostly residential while Alternate 2 is mostly undeveloped farmland. Alternate 3 is a mixture of farmland with residential development just north of Sophia.

There are no existing traffic signals at the intersections associated with the project study area.

TIP Project R-2606 will construct the US 311 Bypass (Future I-74) as a four-lane divided freeway. It is currently scheduled for right-of-way acquisition in 2006 and for construction in post year.

The NCDOT Division of Bicycle and Pedestrian Transportation has indicated that the new connector does not coincide with any bicycle TIP request or designated bicycle route.

The estimated 1998 Average Daily Traffic (ADT) along the new connector is 3400 vehicles per day (vpd). For the design year 2020, the estimated traffic volume on the new connector is 6200 vpd. Truck traffic is estimated to make up nine percent of daily traffic. Based on the projected design year traffic volume, the proposed two-lane facility is expected to function at a LOS C in the current year and LOS D in the 2020 design year regardless of the alternate chosen.

III. Recommendations / Description of Project

It is recommended that Alternate 1 be implemented, if it is decided to construct this new connector from the proposed I-74 interchange near Sophia to the US 220/SR 1950 interchange. The total length of Alternate 1 is 1.3 miles (2.0 km).

The cross-section for Alternate 1 is a two-lane shoulder section with 28 feet (8.5 m) of pavement including 2-foot (0.6-m) paved shoulders. The recommended right-of-way width is 100 feet (30.5 m). This Alternate begins by relocating a small section of SR 1951 to the US 311/SR 1518 intersection. This intersection is approximately 0.76 miles (1.2 km) east of the proposed US 311 / I-74 westbound ramp terminal (R-2606). This alternate then utilizes the existing SR 1951 alignment to the SR 1990 intersection area, where it proceeds on new location to the US 220/SR 1950 interchange. The section of SR 1990 east of the new connector is relocated to intersect SR 1951, 1000 feet (304.9 m) south of the existing SR 1990/SR 1951 intersection. It is anticipated that there will be two residences and no businesses relocated due to this alternate. The total cost of this alternate, including construction and right-of-way, is estimated to be \$4,100,000.00.

Construction.....	\$ 3,450,000
Right-of-way.....	\$ 650,000
Total Cost	\$ 4,100,000

A transportation benefit analysis was also completed for this project. For the period between the current year and the 2020 design year, it is estimated that the total transportation benefits for the project are \$8,894,000, which is an average of \$404,272.00 per year. The total benefits include accident cost savings, time cost savings, and operating cost savings.

IV. Other Alternates Considered

Alternate 2

The cross-section for Alternate 2 is a two-lane shoulder section with 28 feet (8.5 m) of pavement including 2-foot (0.6-m) paved shoulders. The right-of-way width needed is 100 feet (30.5 m). Alternate 2 (See Figure 2) begins approximately 0.19 miles (0.3 km) away from the proposed US 311 / I-74 westbound ramp intersection and proceeds north on mostly new location until utilizing some of the SR 1990 alignment, as well as some additional new location to connect with SR 1950. The section of SR 1990 east of the new connector is relocated to intersect SR 1951, 1000 feet (304.9 m) south of the existing SR 1990 intersection. The total length of this project is 1.6 miles (2.6 km). It is anticipated that there will be no residences or businesses relocated due to this alternate. The total cost of this alternate, including construction and right-of-way, is estimated to be \$6,050,000.00

Construction.....	\$ 5,300,000
Right-of-way.....	\$ 750,000
Total Cost	\$ 6,050,000

Alternate 3

The cross-section for Alternate 3 is a two-lane shoulder section with 28 feet (8.5 m) of pavement including 2-foot (0.6-m) paved shoulders. The recommended right-of-way width is 100 feet (30.5 m). Alternate 3 begins with a new trumpet type interchange with I-74 northwest of Sophia and continues on new location until it intersects the SR 1990/SR 1936 intersection. From this point this alternative utilizes the existing SR 1990 alignment until proceeding on new location near SR 1951 in order to connect with the US 220/SR 1950 interchange. The total length of this alternate is 2.4 miles (3.8 km). The section of SR 1990 east of the new connector is relocated to intersect SR 1951, 1000 feet (304.9 m) south of the existing SR 1990/SR 1951 intersection. It is anticipated that there will be 22 residences and no businesses relocated due to this alternate. The total cost of the alternate, including construction and right-of-way, is estimated to be \$16,550,000.00.

Construction.....	\$ 13,700,000
Right-of-way.....	\$ 2,850,000
Total Cost	\$ 16,550,000

V. Additional Comments

An environmental screening was not conducted for this study. However, no impacts to historic properties or wetlands are anticipated. There is an unnamed stream within the project corridor, which is a Class C waterway. This waterway is part of the Cape Fear River Basin.

In the original request, the City of Randleman requested a multilane connector between the proposed I-74 interchange and SR 1950 (West Academy Street). A five-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs with 10-foot (3.0-m) berms on 100 feet (30.5 m) of right-of-way, was considered. However, based on the traffic projections currently available, a two-lane connector at this location is more than adequate through the 2020 design year. Therefore, a multilane connector is inappropriate and not recommended at this time.

Utilizing the alignment indicated for Alternate 1, the total cost, including construction and right-of-way for a five-lane curb-and-gutter section is estimated to be \$7,250,000.00.

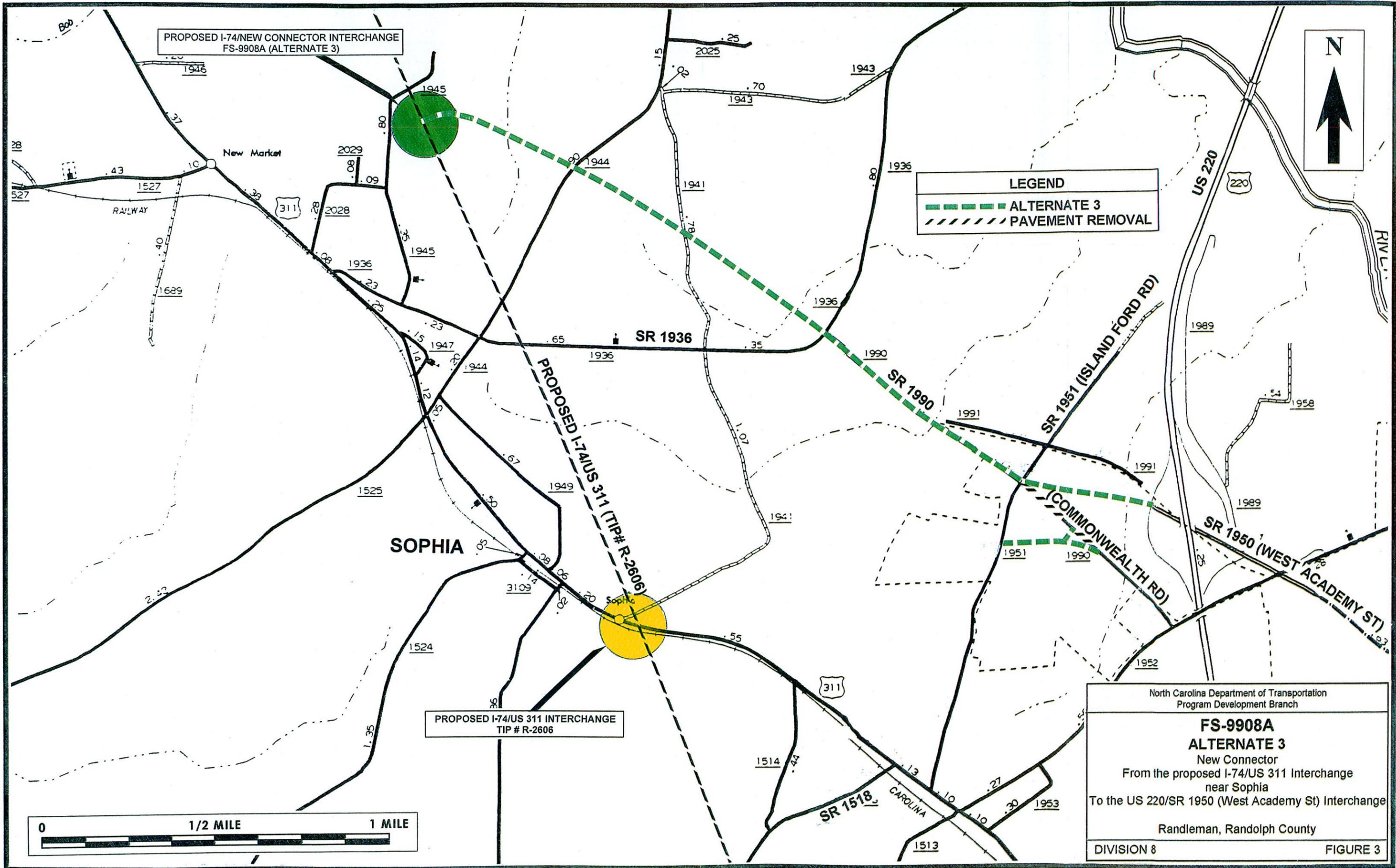
Construction.....	\$ 6,600,000
Right-of-way.....	\$ 650,000
Total Cost	\$ 7,250,000

Utilizing the alignment indicated for Alternate 2, the total cost, including construction and right-of-way for a five-lane curb-and-gutter section is estimated to be \$9,750,000.00.

Construction.....	\$ 9,000,000
Right-of-way.....	\$ 750,000
Total Cost	\$ 9,750,000

Utilizing the alignment indicated for Alternate 3, the total cost, including construction and right-of-way for a five-lane curb-and-gutter section is estimated to be \$21,450,000.00.

Construction.....	\$ 18,600,000
Right-of-way.....	\$ 2,850,000
Total Cost	\$ 21,450,000



PROPOSED I-74/NEW CONNECTOR INTERCHANGE
FS-9908A (ALTERNATE 3)

New Market

SOPHIA

PROPOSED I-74/US 311 INTERCHANGE
TIP # R-2606

SR 1936

SR 1990

SR 1551 (ISLAND FORD RD)

COMMONWEALTH RD

SR 1950 (WEST ACADEMY ST)

US 220

311

CAROLINA

SR 1518

LEGEND

ALTERNATE 3

PAVEMENT REMOVAL

N

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North Carolina Department of Transportation
Program Development Branch

FS-9908A
ALTERNATE 3
New Connector
From the proposed I-74/US 311 Interchange
near Sophia
To the US 220/SR 1950 (West Academy St) Interchange

Randleman, Randolph County

DIVISION 8 FIGURE 3