

FEASIBILITY STUDY

Raleigh  
Falls of Neuse Road (SR 2000)  
From Stonegate Drive (SR 3524)  
To Proposed NC 98 Relocation  
Wake County  
U-3453

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

*William J. Watson*

William J. Watson, P.E.  
Highway Planning Engineer

*David G. Modlin, Jr.*

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

*2/28/96*  
Date

Raleigh  
Falls of Neuse Road (SR 2000)  
From Stonegate Drive (SR 3524)  
To Proposed NC 98 Relocation  
Wake County  
U-3453

I. GENERAL DESCRIPTION

This preliminary study describes the proposed widening of Falls of Neuse Road (SR 2000) from Stonegate Drive (SR 3524) to the proposed relocation of NC 98 (Project R-2809) in Raleigh and Wake County. The project location is shown on Figure 1. The total project length is approximately 5.4 miles (8.6 k). The project alignment follows Falls of Neuse Road between Stonegate Drive and the Corps of Engineers Road at Falls Dam, then continues north on new location, crossing the Neuse River east of the existing bridge, then returning to follow Falls of Neuse Road to the end of the project.

The proposed cross-section, from Stonegate Drive to Corp of Engineers Road at Falls Dam, is a five-lane curb and gutter section, 68 feet (20.7 m) wide from face to face of curbs, and berms 8 feet (2.4 m) wide, on right of way 110 feet (33.5 m) wide. The proposed cross-section for the remainder of the project (mostly on new location) is a 5-lane shoulder section with paved shoulders 10 feet (3.0 m) wide, on right of way 150 feet (45.7 m) wide.

A new bridge approximately 400 feet (122 m) long with a clear deck width approximately 76 feet (23.2 m) wide will be required where the new project alignment crosses the Neuse River. The bridge will have a dual faced Jersey style median barrier.

The traffic signals at Litchford Road and at Durant Road will require revisions.

No residential or business relocations are anticipated due to this project.

The total cost including construction and right-of-way is estimated to be \$ 24,300,000.

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

## II. NEED FOR PROJECT

The purpose of this project is to increase the traffic carrying capacity and safety of Falls of Neuse Road (SR 2000) in Wake County. The project was requested by the Wake County Commissioners. This project is in an area of rapid growth. This growth will be accelerated by the proposed Northern Wake Expressway (Project R-2000), the proposed relocation of NC 98 (Project R-2809), and the annexation, by the City of Raleigh, of prime development land adjacent to the project corridor.

Falls of Neuse Road is classified as a Rural Major Collector in the North Carolina Statewide Functional Classification System, and is a Major Thoroughfare on the Raleigh Thoroughfare Plan. Land use along the project corridor is mostly single family residential and agricultural. There is no commercial development along the project corridor.

Existing Falls of Neuse Road is a two-way, two-lane road with grass shoulders. The Litchford Road intersection and the Durant Road intersection are controlled with traffic signals. Falls of Neuse Road has been widened at these intersections to provide left-turn lanes. There is a bridge on Falls of Neuse Road over the Neuse River in the community of Falls. This two-lane bridge was built in 1938 and has a sufficiency rating of 48. This bridge and the community of Falls will be bypassed by this project and a new bridge will be constructed approximately 3,500 feet (1,070 m) east of the existing bridge.

Average Daily Traffic (ADT) estimates and Level of Service (LOS) estimates for Falls of Neuse Road for the years 1995 and 2020 are shown on Figure 2. These values are shown for 3 roadway segments and for both the existing roadway and the proposed improved roadway.

During the three year period beginning April, 1992 and ending March 31, 1995, there were 63 accidents reported on Falls of Neuse Road within the project limits. This resulted in a total accident rate of 286 accidents per 100 million vehicle miles (ACC/100MVM). This compares with the statewide average of 357 ACC/100MVM for all rural Secondary routes, in North Carolina, for 1994.

There was 1 fatal accident reported, and 25 accidents resulted in 44 injured persons. The most prevalent type accidents were Ran Off Road (43%), Rear End (18%), and Animal (18%). The proposed wider cross-section with a center turn lane will reduce the potential for these type accidents.

### III. RECOMMENDATIONS

This preliminary study describes the proposed widening of Falls of Neuse Road (SR 2000) from Stonegate Drive (SR 3524) to the proposed relocation of NC 98 (Project R-2809) in Raleigh and Wake County. The project location is shown on Figure 1. The total project length is approximately 5.4 miles (8.6 k). The project alignment follows Falls of Neuse Road between Stonegate Drive and the Corps of Engineers Road at Falls Dam, then continues north on new location, crossing the Neuse River east of the existing bridge, then returning to follow Falls of Neuse Road to the end of the project.

The proposed cross-section, from Stonegate Drive to Corp of Engineers Road at Falls Dam, is a five-lane curb and gutter section, 68 feet (20.7 m) wide from face to face of curbs, and berms 8 feet (2.4 m) wide, on right of way 110 feet (33.5 m) wide. The proposed cross-section for the remainder of the project (mostly on new location) is a 4-lane divided shoulder section with a 16-foot (4.9-m) wide raised median, and right side paved shoulders 10 feet (3.0 m) wide, on right of way 150 feet (45.7 m) wide.

A new bridge approximately 400 feet (122 m) long with a clear deck width approximately 76 feet (23.2 m) wide will be required where the new project alignment crosses the Neuse River. The bridge will have a dual faced Jersey style median barrier.

The traffic signals at Litchford Road and at Durant Road will require revisions.

At the south project terminal, the proposed cross-section will tie into the cross-section to be constructed on Falls of Neuse Road under project U-2000 (Northern Wake Expressway).

At the north project terminal the cross-section proposed will tie into the cross-section proposed for Falls of Neuse Road under project R-2809.

No residential or business relocations are anticipated due to this project.

The total cost including construction and right-of-way is estimated to be \$ 24,300,000 as follows:

Construction.....	\$ 21,700,000
Right-of-Way.....	<u>2,500,000</u>
Total Cost.....	\$ 24,200,000

IV. OTHER COMMENTS

An environmental screening was not conducted for this study. No historic properties or endangered species are anticipated. Some wetlands may be encountered where the new bridge approaches the Neuse River.

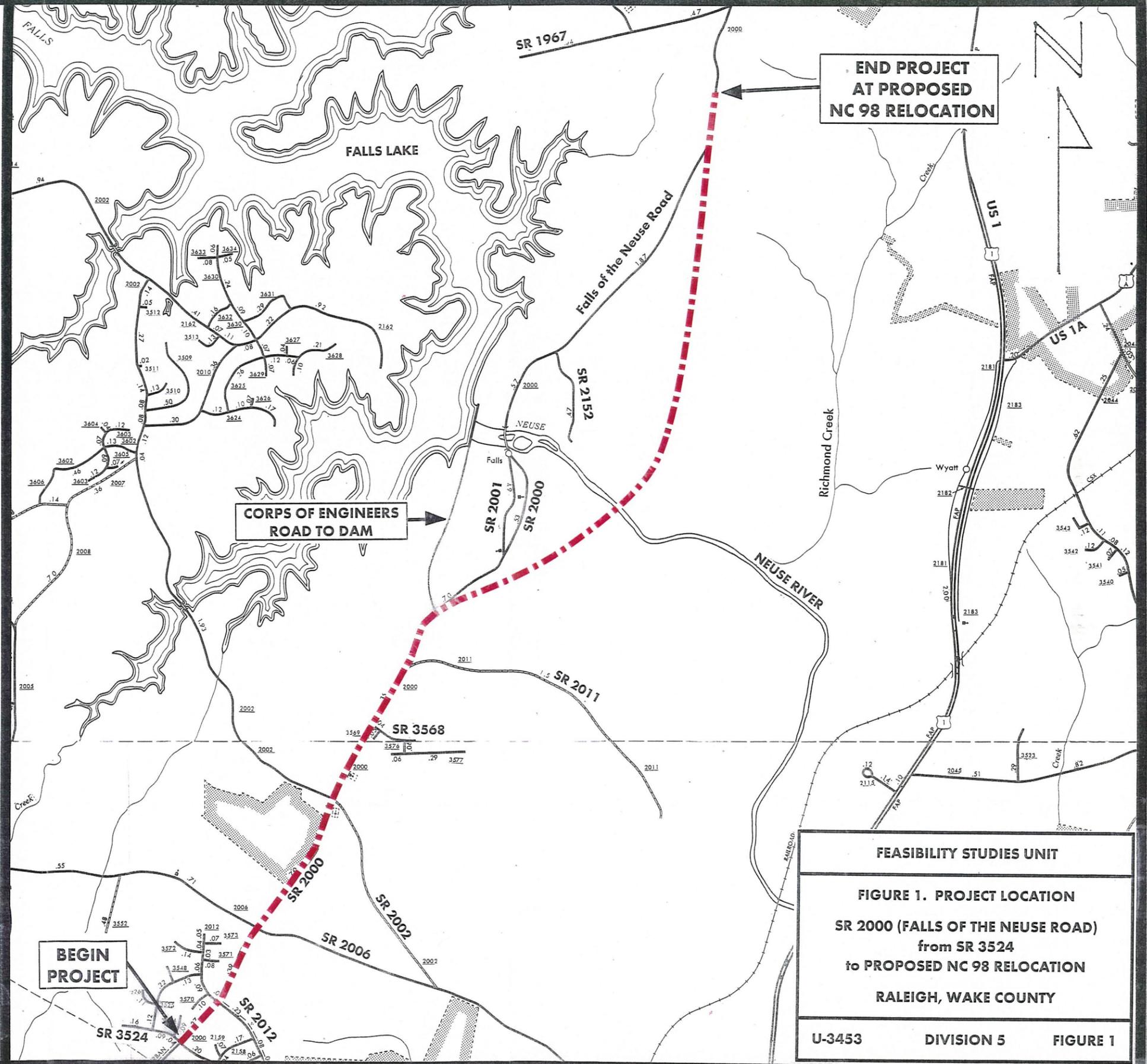
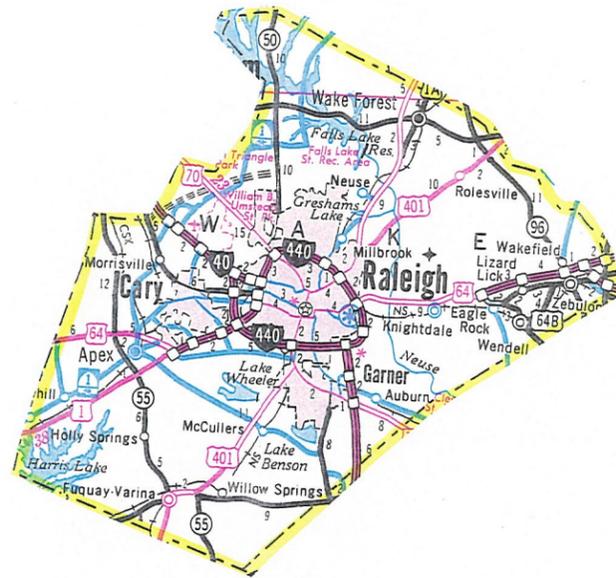
A special bicycle accommodation was identified for this project by the Office of Bicycle and Pedestrian Transportation. This need will be met by the wide outside lanes in the curb and gutter cross-section and by the paved shoulders in the shoulder section. The estimated cost of the bicycle accommodation is \$ 400,000 and is included in the above total project cost.

For the segment between the Corps of Engineers Road to Falls Dam and the north project terminal, an alternate cross-section was studied. This cross-section is a two-lane shoulder section with paved shoulders 4 feet (1.2 m) wide constructed on a right-of-way 150 feet (45.7 m) wide. The total construction cost for the project, using this cross section north of the Corps of Engineers Road, is estimated to be \$ 16,000,000. Therefore, the total project cost, including construction and right-of-way would be \$ 18,500,000 as follows:

Construction.....	\$ 16,000,000
Right-of-Way.....	<u>2,500,000</u>
Total Cost.....	\$ 18,500,000

The City of Raleigh has expressed a desire to have a 4-lane, raised median divided cross section for the project north of the Corps of Engineers Road to Falls Dam. This would require an agreement between the City of Raleigh and NCDOT regarding the maintenance of the median. The total project cost with this cross section is estimated to be \$ 23,600,000 as follows:

Construction.....	\$ 21,100,000
Right-of-Way.....	<u>2,500,000</u>
Total Cost.....	\$ 23,600,000



**FEASIBILITY STUDIES UNIT**

**FIGURE 1. PROJECT LOCATION**  
**SR 2000 (FALLS OF THE NEUSE ROAD)**  
**from SR 3524**  
**to PROPOSED NC 98 RELOCATION**  
**RALEIGH, WAKE COUNTY**

U-3453      DIVISION 5      FIGURE 1

FALLS OF NEUSE ROAD U-3453 EXISTING 2-LANE ROAD		
1995 ADT/LOS		
STONEGATE DRIVE TO DURANT ROAD	DURANT ROAD TO FALLS DAM ROAD	FALLS DAM ROAD TO END OF PROJECT
11,200 E	6,600 D	3,900 C
2020 ADT/LOS		
32,000 F	30,000 F	28,600 F

FALLS OF NEUSE ROAD U-3453 PROPOSED 5-LANE ROAD		
1995 ADT/LOS		
STONEGATE DRIVE TO DURANT ROAD	DURANT ROAD TO FALLS DAM ROAD	FALLS DAM ROAD TO END OF PROJECT
11,200 B	6,600 A	3,900 A
2020 ADT/LOS		
32,000 C	30,000 C	28,600 C

NOTE: LOS = LEVEL OF SERVICE  
ADT = AVERAGE DAILY TRAFFIC (VPD)

FIGURE 2