STATE OF NORTH CAROLINA
# DEPARTMENT OF TRANSPORTATION

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GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

March 21, 1997

MEMORANDUM TO: Mr. Gordon Myers, Member, Board of Transportation
Mr. W. D. Smart, P.E., Division Engineer, Division 13
Mr. C. W. Leggett, P.E.
Mr. W. H. Webb, P.E.
Mr. J. M. Lynch, P.E. (6) Attention: Roberto Canales, P.E.
Congestion Management Engineer
Mr. J. B. Williamson
Mr. H. F. Vick, P.E. (2)
Mr. D. R. Morton, P.E.
Mr. G. T. Shearin, P.E.
Mr. M. R. Poole, P.E.
Mr. A. L. Avant (2)
Mr. J. D. Lane
Mr. T. A. Peoples, P.E.
Mr. L. K. Barger, P.E.

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

SUBJECT: Feasibility Study # R-3612, US 221-A Relocation from SR 1954 at Avondale to SR 1949 at Caroleen, Rutherford County.

Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded. A copy of our report is attached for your information.

DGM/joa

Attachment

cc: Dr. L. R. Goode, P.E.
Mr. B. G. Jenkins, P.E.
Mr. David W. Conner

**FEASIBILITY STUDY**

# US 221-A Relocation from SR 1954 at Avondale to SR 1949 at Caroleen Rutherford County

## Division 13

## R-3612

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

David W. Conner
Highway Planning Engineer

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

3/7/97
Date

# R-3612

US 221-A Relocation
From SR 1954 at Avondale
To SR 1949 at Caroleen
Rutherford County

## I. General Description

This preliminary study describes recommended improvements to US 221-A in Rutherford County. It is recommended that the segment of US 221-A, from SR 1954 at Avondale to SR 1949 at Caroleen, be relocated to east of Tri Community Schools (Chase Middle School). Approximately 0.5 miles (0.8 km) is recommended for relocation. For a location map, please see Figure 1.

The recommended cross section is a 2-lane, rural shoulder section with 12-foot (3.6-m) wide travel lanes, 2-foot (0.6-m) wide paved shoulders, and 8-foot (2.4-m) wide soil shoulders. The wide shoulders are recommended due to the high volume of truck traffic (approximately 8%).

The roadway should be constructed immediately east of the existing Tri Community Schools property and immediately west of the cemetery located along SR 1950. The recommended right-of-way width is 80 feet (24.4 m).

It is estimated that there will be one residence and no businesses relocated as a result of this project.

The total cost for right-of-way and construction is estimated to be $2,400,000 as follows:

| | |
|---|---|
| Right-of-Way | $ 250,000 |
| Construction | 2,150,000 |
| Total Cost | $2,400,000 |

This study is the initial step in the planning and design process for this project and is not to be considered the product of exhaustive environmental or design investigations. The purpose of the study is to describe the problem, recommend a treatment including costs, and identify potential problem areas that deserve consideration in the planning and design phases.

## II. Need For Project

The purpose of this project is to improve the traffic carrying capacity, alignment, safety, and maintenance conditions of the roadway in the manufacturing/institutional area between Avondale and Caroleen.

US 221-A is designated a major collector on the North Carolina Statewide Functional Classification System.

Within the project limits, the terrain is mountainous, horizontal alignment of the existing roadway is very poor, and fill sections of the roadway are in close proximity to the Second Broad River creating maintenance problems. Major manufacturing facilities are located at each project terminal. Truck traffic is high (approximately 8%) and speeds are slow due to the alignment. Tri Community Schools (Chase Middle School) is located on the east side of the roadway in an area with poor alignment creating traffic safety problems. The school has a driveway connection on existing US 221-A and also has an access road off of SR 1954.

There is a large cemetery located approximately 800 feet (244 km) east of existing US 221-A. The cemetery includes headstones which date some of the graves to 1928.

The proposed route for the relocation of US 221-A is undeveloped and heavily wooded. There are no apparent streams or wetlands that will be encountered as a result of the project.

Existing US 221-A is generally a 2-lane roadway with a 24-foot (7.3-m) wide pavement, soil shoulders, and high embankments in close proximity to the roadway.

The 1996 Average Daily Traffic (ADT), within the project limits, is estimated to be approximately 3000 vehicles per day (vpd) with 8% trucks and the design year (2020) estimate is approximately 7,400 vpd.

The current estimated Level Of Service (LOS) is Level D. Without improvements, it is estimated that the Level of Service will deteriorate to Level E prior to the design year. With the recommended improvements, the LOS is expected to improve to a
Level C.

## III. Detailed Description

It is recommended that the segment of US 221-A, from SR 1954 at Avondale to SR 1949 at Caroleen, be relocated to east of Tri Community Schools (Chase Middle School). Approximately 0.5 miles (0.8 km) is recommended for relocation. For a location map, please see Figure 1.

The recommended cross section is a 2-lane, rural shoulder section with 12-foot (3.6-m) wide travel lanes, 2-foot (0.6-m) wide paved shoulders, and 8-foot (2.4-m) wide soil shoulders. The wide shoulders are recommended due to the high volume of truck traffic (approximately 8%).

The roadway should be constructed immediately east of the existing Tri Community Schools property and immediately west of the cemetery located along SR 1950. The recommended right-of-way width is 80 feet (24.4 m).

A cul-de-sac should be constructed on existing US 221-A near the south project terminal and the existing pavement should be removed from the cul-de-sac to the relocated US 221-A.

A new connector should be constructed from existing SR 1949 at the north project terminal to existing US 221-A and existing pavement should be removed as shown on Figure 1.

The existing school-access road from SR 1954 to the relocated US 221-A should be upgraded and widened to provide 12-foot (3.6-m) wide travel lanes. SR 1954 should be routed along this improved segment.

All intersections within the project termini should be stop sign controlled.

At SR 1954 and SR 1949, the roadway should be widened to 3 lanes to facilitate left-turn movements.

It is estimated that there will be one residence and no businesses relocated as a result of this project.

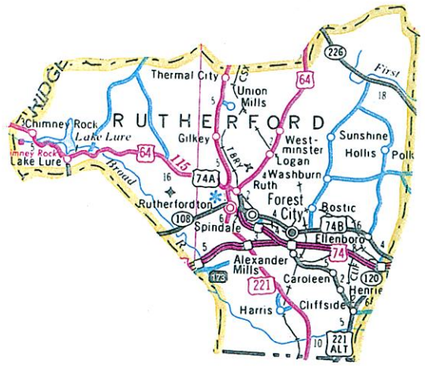
The total cost for right-of-way and construction is estimated to be $2,400,000 as follows:

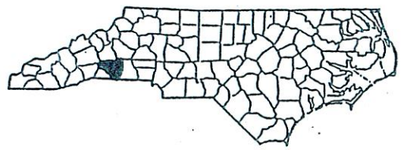
| | |
|---|---|
| Right-of-Way | $ 250,000 |
| Construction | 2,150,000 |
| Total Cost | $2,400,000 |

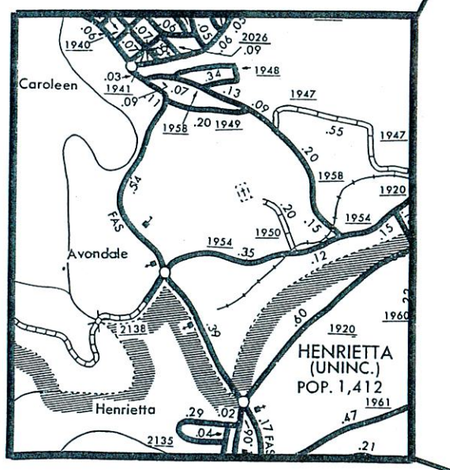
## IV. Other Comments

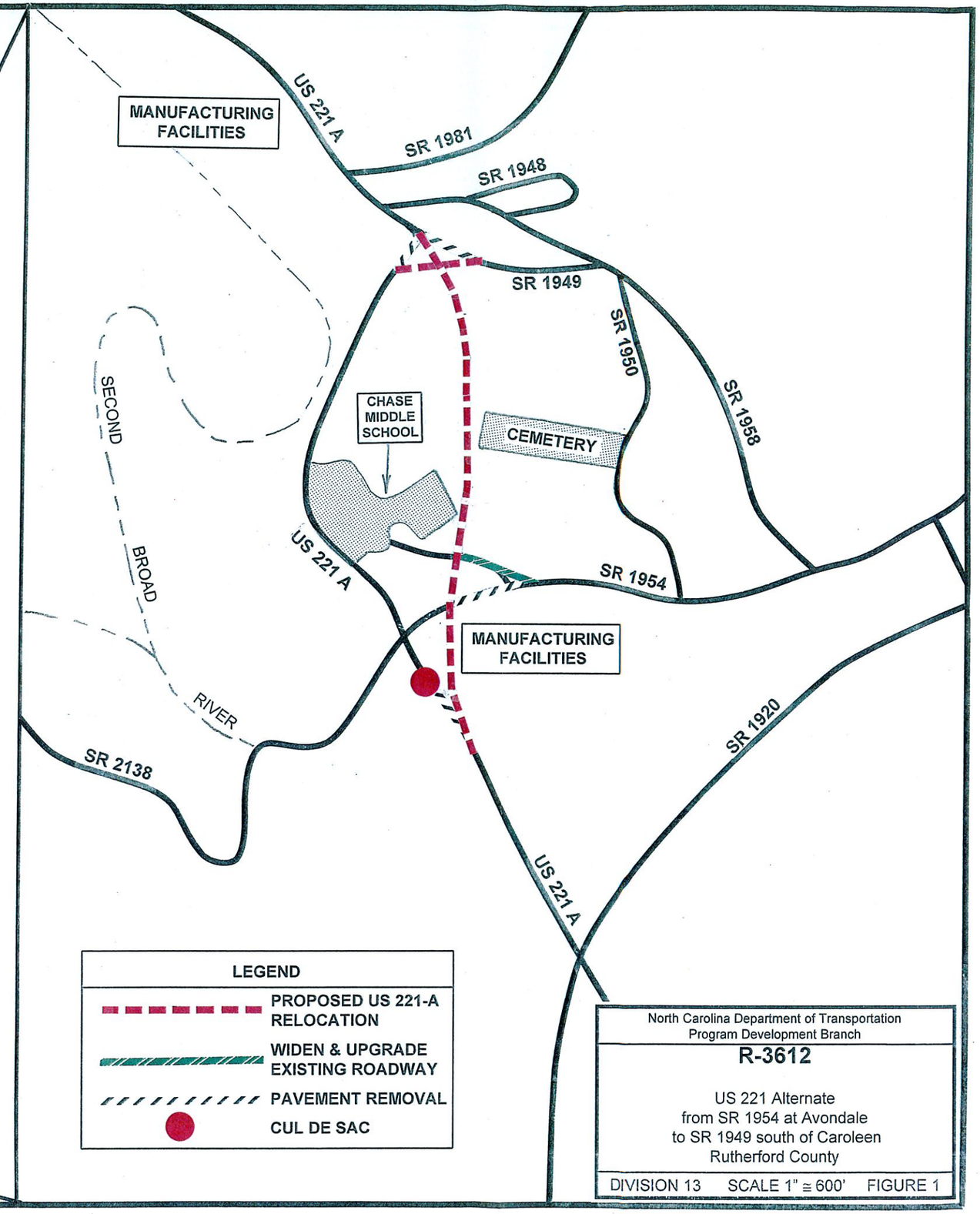
An environmental screening was not conducted for this study.

No provisions for bicycles have been included in this report.






North Carolina Department of Transportation
Program Development Branch

**R-3612**

US 221 Alternate
from SR 1954 at Avondale
to SR 1949 south of Caroleen
Rutherford County

DIVISION 13 SCALE 1" ≅ 600' FIGURE 1