FEASIBILITY STUDY

US 1
from SR 1004 (at Hoffman)
to Moore County
Richmond and Moore Counties

Division 8

R-3800

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

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I. General Description

This preliminary study describes recommended improvements to US 1 in Richmond and Moore Counties. It is recommended that US 1 be widened from SR 1004 at Hoffman, in Richmond County, to approximately 0.3 miles (0.5 km) east of the Richmond-Moore County Line (existing 4-lane divided section), a distance of approximately 3.9 miles (6.3 km). For a location map, please see Figure 1.

Two alternate cross sections were evaluated for the proposed widening. The alternates are as described below:

Alternate 1
The Alternate 1 cross section is a 3-lane rural shoulder section with one 12-foot (3.6-m) wide travel lane in each direction, a 12-foot (3.6-m) wide center turn lane, and 10-foot (3.0-m) wide shoulders of which 4 feet (1.2 m) are paved.

The 3-lane section can generally be constructed within the existing 100-foot (30.5-m) wide right-of-way.

It is estimated that there will be no residences or businesses relocated as a result of this alternate.

The total cost for right-of-way and construction, for Alternate 1, is estimated to be $7,400,000 as follows:

Right-of-Way	$ 200,000
Construction	7,200,000
Total Cost	$7,400,000

Alternate 2
The Alternate 2 cross section is a 4-lane, divided, shoulder section with two 12-foot (3.6-m) wide travel lanes in each direction, a 46-foot (14.0-m) wide median, 2-foot (0.6-m) wide paved inside shoulders, and 10-foot (3.0-m) wide outside shoulders of which 4 feet (1.2 m) are paved.

The recommended right-of-way width for this alternate is 250-feet (76.2 m) with access limited to one access per parcel. It is estimated that this alternate will require the relocation of 25 residences and 3 businesses.

The total cost for right-of-way and construction, for Alternate 2, is estimated to be $14,800,000 as follows:

Right-of-Way	$ 2,900,000
Construction	11,900,000
Total Cost	$14,800,000

Alternate 2 (4-lane divided section) is recommended for implementation. Although Alternate 2 is more expensive and will create considerably more relocations than Alternate 1, Alternate 2 will comply with the requirements of the North Carolina Highway Trust Fund requiring routes in the Intrastate System to have a minimum of four lanes. US 1 is an integral part of the Intrastate System.

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 of US 1 in the Hoffman area and to improve the roadway to the standards of the North Carolina Intrastate System. US 1 is designated as a principal arterial on the North Carolina Statewide Functional Classification System and is a part of the Intrastate System which is defined and funded by the North Carolina Highway Trust Fund.

The project route is generally undeveloped and is characterized by woodlands and level terrain. There is a concentration of residences, along the roadway edge, just east of SR 1004. There is a large sand and gravel quarry operation located on the north side of the roadway at approximately 0.7-miles (1.1-km) west of the Richmond-Moore County Line.

Within the project termini, existing US 1 is a 2-lane roadway with a 24-foot (7.3-m) wide pavement and 7-foot (2.1-m) to 12-foot (3.6-m) wide soil shoulders. East of the project, US 1 is 4-lane median divided shoulder section through Moore County. West of SR 1004, the roadway is a 3-lane shoulder section to the North Carolina Motor Speedway which is located approximately 5.3 miles (8.5 km) south of this project. On days of races at the North Carolina Motor Speedway and the Rockingham Dragway, the center lane operates as a second travel lane leading to the race tracks prior to the races and as a second travel lane exiting the race tracks when the races are finished.

There is one structure located along the project route. Bridge #42, over Drowning Creek, is located at the Richmond-Moore County Line. The bridge was constructed in 1923, has a clear deck width of 25.9 feet (7.9 m), and is 298 feet (90.8 m) long. It has a sufficiency rating of 54.1 (out of a possible 100 points).

Within the project termini, the estimated 1997 Average Daily Traffic (ADT) is 7,000 vehicles per day (vpd). The design year (2025) estimate is 11,500 vpd. Current and future truck volumes are estimated to total about 8% of the traffic volumes.

It is estimated that the 2-lane roadway is currently operating at a Level Of Service (LOS) D and will continue to operate at Level D through the design year. If the roadway is widened to a 4-lane section, it is estimated that the Level of Service will improve to a Level A, which should prevail through the design year.

This segment of roadway is the primary southbound route to and the primary northbound route away from the North Carolina Motor Speedway and the Rockingham Dragway. On days of races, the roadway operates at Level of Service F for extended periods of time.

During the period from February 1, 1994, through January 31, 1997, there were 36 accidents reported within the project termini. This resulted in an accident rate of 69.2 accidents per 100 million vehicle miles (Acc/100MVM), compared to a statewide average of 155.5 Acc/100 MVM for all rural US routes during 1996. There was one fatality reported during the period and 16 of the accidents resulted in non-fatal injuries. The most prevalent accident types were ran-off-road (33.3%) and animal (25%).

III. Detailed Description

It is recommended that US 1 be widened from SR 1004 at Hoffman, in Richmond County, to approximately 0.3 miles (0.5 km) east of the Richmond-Moore County Line (existing 4-lane divided section), a distance of approximately 3.9 miles (6.3 km). For a location map, please see Figure 1.

Two alternate cross sections were evaluated for the proposed widening. The alternates are as described below:

Alternate 1

The Alternate 1 cross section is a 3-lane rural shoulder section with one 12-foot (3.6-m) wide travel lane in each direction, a 12-foot (3.6-m) wide center turn lane, and 10-foot (3.0-m) wide shoulders of which 4 feet (1.2 m) are paved.

Existing Bridge #42 should be replaced with a new bridge having a clear deck width of 52 feet.

The 3-lane section can generally be constructed within the existing 100-foot (30.5-m) wide right-of-way.

It is estimated that there will be no residences or businesses relocated as a result of this alternate.

The total cost for right-of-way and construction, for Alternate 1, is estimated to be $7,400,000 as follows:

Right-of-Way	$ 200,000
Construction	7,200,000
Total Cost	$7,400,000

Alternate 2
The Alternate 2 cross section is a 4-lane, divided, shoulder section with two 12-foot (3.6-m) wide travel lanes in each direction, a 46-foot (14.0-m) wide median, 2-foot (0.6-m) wide paved inside shoulders, and 10-foot (3.0-m) wide outside shoulders of which 4 feet (1.2 m) are paved.

Bridge # 42 should be replaced with new dual bridges having a clear deck width of 38 feet.

At SR 1004, the 4-lane section should taper to meet the existing 3-lane section.

The recommended right-of-way width for this alternate is 250-feet (76.2 m) with access limited to one access per parcel. It is estimated that this alternate will require the relocation of 25 residences and 3 businesses.

The total cost for right-of-way and construction, for Alternate 2, is estimated to be $14,800,000 as follows:

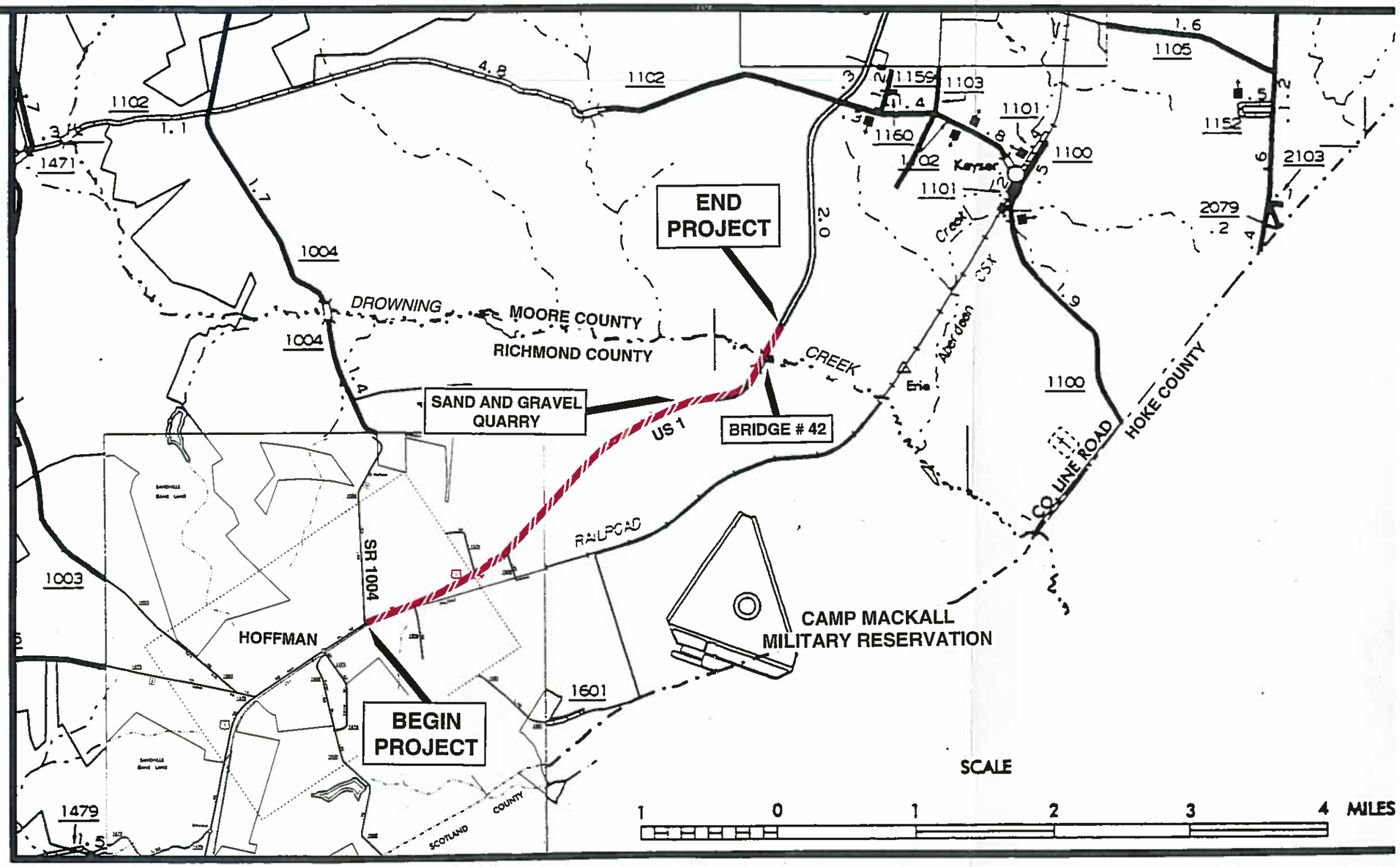
Right-of-Way	$ 2,900,000
Construction	11,900,000
Total Cost	$14,800,000

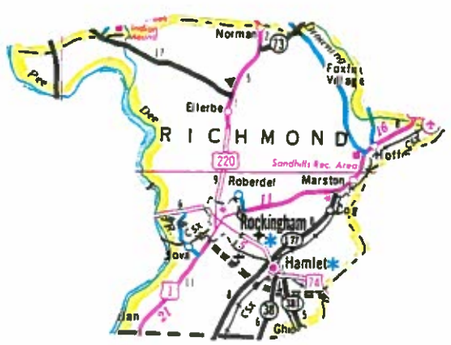
Alternate 2 (4-lane divided section) is recommended for implementation. Although Alternate 2 is more expensive and will create considerably more relocations than Alternate 1, Alternate 2 will comply with the requirements of the North Carolina Highway Trust Fund requiring routes in the Intrastate System to have a minimum of four lanes. US 1 is an integral part of the Intrastate System.

IV. Other Comments

An environmental screening was not conducted for this study; however, due to the construction potential in the area of Drowning Creek, Corps of Engineers permits and wetlands mitigation will be required. The costs for wetlands mitigation is not included as part of the above estimated project costs.

No provisions for bicycles have been included in this report.





North Carolina Department of Transportation
Program Development Branch

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US 1
from Hoffman
to the Moore County Line

Richmond County

DIVISION 8 FIGURE 1