FEASIBILITY STUDY

NC 16

from Waxhaw Outer Loop to

the Proposed Rea Road Extension in Weddington

Union County

Division 10

R-3802

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

Kim L. So
Highway Planning Engineer

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

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Date

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I. GENERAL DESCRIPTION

This is a feasibility study for the widening of NC 16 from NC 75 in Waxhaw to the proposed Rea Road Extension in Weddington, Union County. The Town of Waxhaw requested that the southern project terminus be moved from NC 75 to the proposed location of the future Waxhaw Outer Loop, which is approximately 0.6 mile (1 km) north of NC 75. The section of NC 16 south of the proposed Waxhaw Outer Loop lies in the Waxhaw Historic District. The project is approximately 6.2 miles (10 km) in length. The studied typical section is a four-lane, median divided, shoulder section with 46-foot (14-m) wide grass median and 8-foot (2.4-m) outside shoulders. There would be two 12-foot (3.7-m) wide travel lanes in each direction with 4-foot (1.2-m) paved outside shoulders and 2-foot (0.6-m) paved median shoulders. A 180-foot (54.9-m) wide right-of-way with partial control of access is recommended. The estimated cost of the project is $17,250,000 ($7,550,000 for right-of-way and $9,700,000 for construction).

This study is not a detailed planning/environmental investigation. A feasibility study presents studied cross-sections for improvements, general corridors of improvements, and estimated costs of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues that deserve consideration in the planning and construction stages.

II. NEED FOR PROJECT

This project was requested by Union County Chamber of Commerce Transportation and Safety Committee. The studied improvements are needed to reduce traffic congestion and accident potential on NC 16.

NC 16 is classified as a rural major collector on the Statewide Functional Classification System. This route is classified as a major thoroughfare on the Waxhaw Thoroughfare Plan.

The existing NC 16 is generally a two-lane, 22-foot (7.3-m) wide roadway with 6 to 10-foot (1.8 to 3.1-m) shoulders. There are additional left-turn lanes at some subdivision entrances and major intersections . Approximately 80 feet (24.4 m) of right of way may be claimed. Land use along the studied corridor consists of agricultural and rural residential development.

Based on information from the State Historic Preservation Office, a potentially historic property known as the Howard Family House is located on the east of NC 16 approximately 0.2 mile (0.3 km) from the northern project terminus. The Howard Family House is on the State Study List.

Estimated 1997 average daily traffic (ADT) on NC 16 varies from 7,200 vehicles per day (vpd) near Waxhaw to 8,800 vpd near proposed Rea Road Extension. In the design year 2020, the traffic volume is estimated to range from 14,200 to 23,400 vpd. The existing NC 16 is operating at a level of service (LOS) C, and is anticipated to operate at a LOS F in the design year 2020. With the recommended roadway improvements, the current traffic volumes along NC 16 would operate at a LOS A and in the design year, between LOS A and B.

During the period from March, 1994, through February, 1997, there were 119 accidents reported along NC 16. This resulted in an accident rate of 262.9 accidents per 100 million vehicle miles (acc/100mvm) compared to a statewide average of 224.39 acc/100mvm for this type of facility. One fatality and 44 injuries were reported during this period. The recommended improvements are expected to reduce the accident rate.

III. RECOMMENDED ALTERNATE

It is proposed to widen NC 16 to multi-lanes. The length of the project is approximately 6.2 miles (10 km). The location of the recommended improvements is shown on Figure 1. The studied typical section is a four-lane shoulder section divided by a 46-foot (14-m) grass median. There would be two 12-foot (3.7-m) wide lanes in each direction with 8-foot (2.4-m) outside shoulders (4-foot (1.2-m) paved) and 2-foot (0.6-m) paved median shoulders. A 180-foot (54.9-m) wide right-of-way is recommended. The existing Bridge Number 33 on the project corridor has a sufficiency rating of 68.4 and an estimated remaining life of 12 years, but the bridge roadway width is only 20 feet (6.1 m). It is recommended that Bridge Number 33 be replaced with dual bridges each having a deck width of 30 feet (9.2 m).

The east side of NC 16 is less developed, therefore widening would be mainly asymmetrical to the east of existing NC 16 to minimize right-of-way costs. However, to avoid any adverse impact to the potentially historic property identified as the Howard Family House, the widening from SR 1318 (Lockhaven

Road) to the northern project terminus would be asymmetrical to the west of NC 16.

Full median width would be maintained through the greater part of the project beginning from the southern project terminus. In order to provide a smooth connection with NC 16 north of this project corridor, the improved facility would transition from a median-divided roadway to an undivided roadway near SR 1318 (Lockhaven Road). The undivided section would continue from SR 1318 to the northern project terminus. Due to the high volume of traffic going west at the Proposed Rea Road (TIP Project U-2506), NC 16 at the northern project terminus should include two left-turn lanes.

In the design year 2020, the improved facility would operate at an estimated minimum Level of Service B. The studied improvements are expected to decrease traffic congestion and improve safety.

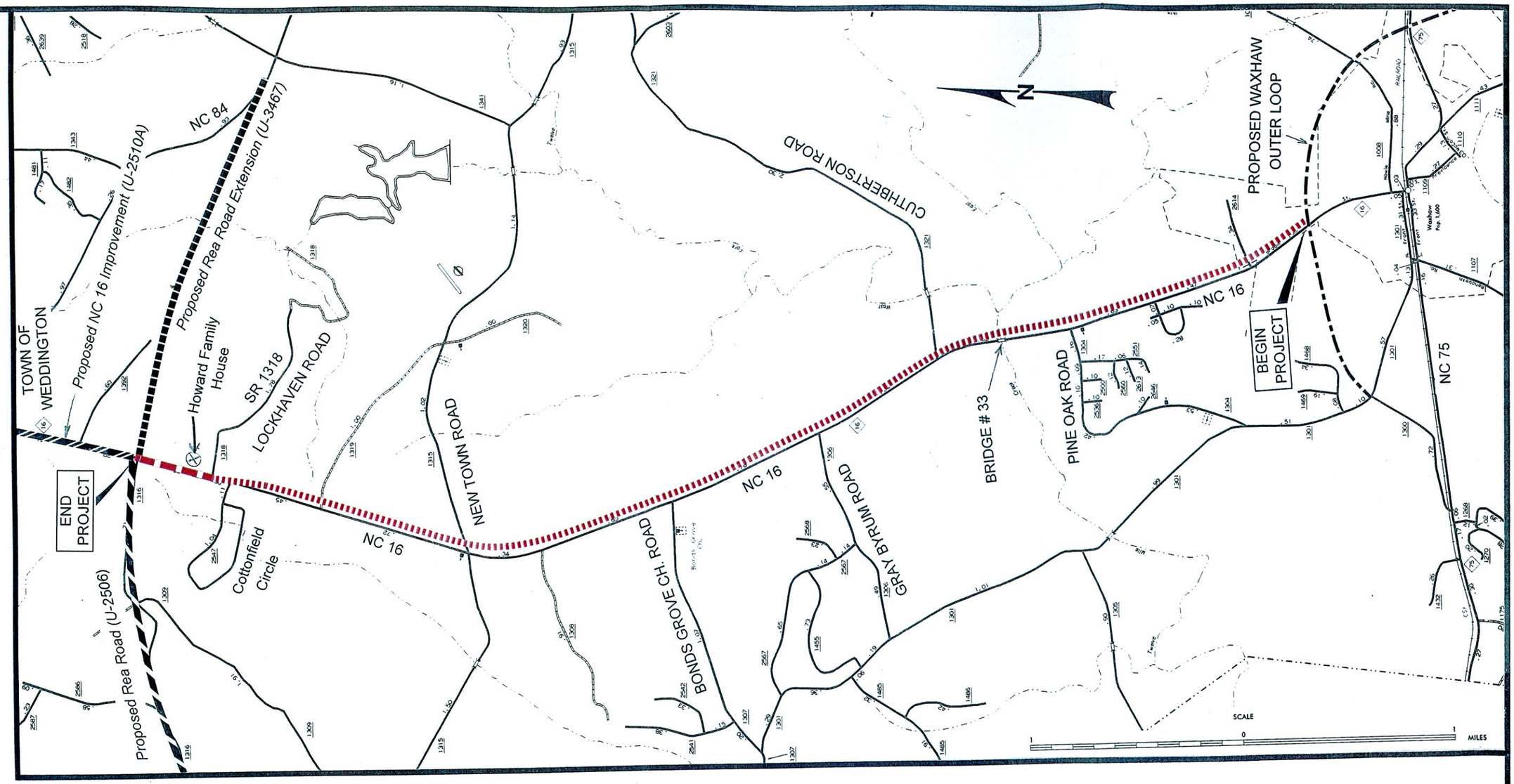
Total project cost is estimated as follows:

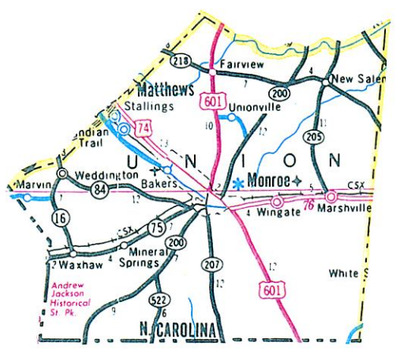
Right-of-Way	$ 7,550,000
Construction	$ 9,700,000
Total	$ 17,250,000

IV. OTHER COMMENTS AND CONCERNS

It is estimated that this project would require the relocation of 23 residences and 5 businesses.

Based on maps available at the Department of Environment, Health, and Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.





LEGEND	
	Widen asymemetrical to the west of NC 16 (Undivided Section)
	Widen asymemetrical to the east of NC 16 (Median Divided Section)

NC DEPARTMENT OF TRANSPORTATION
FEASIBILITY STUDIES UNIT

R-3802

Widen NC 16 to multi-lanes from the Proposed Waxhaw Outer Loop to the Proposed Rea Road Extension in Weddington

Union County

DIVISION 10 | FIGURE 1