

FEASIBILITY STUDY

Fuquay-Varina
NC 55
From SR 1108 To SR 1114
Wake County
R-2907

Prepared by
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I. GENERAL DESCRIPTION

This preliminary study describes proposed improvements to NC 55 in Wake County. The project location is shown on Figure 1. It is proposed to widen NC 55 to a 5 lane curb and gutter section from SR 1108 in Fuquay-Varina to SR 1114; a distance of approximately 3.3 miles. The proposed right of way width is 100 feet.

It is estimated that there will be one residential and three business relocatees. The total estimated cost for construction and right of way is \$ 5,600,000.

This study is the initial step in the planning and design process for this project and is not the product of an exhaustive environmental investigation or design effort. The purpose of this study is to describe the problem and an attainable solution, and provide cost estimates for the right of way and construction required to realize the solution.

II. NEED FOR PROJECT

The purpose of these improvements is to relieve current and projected capacity and accident problems on this segment of NC 55. NC 55, within the project limits, is classified as a Major Collector in the North Carolina Functional Classification System and is designated a Major Thoroughfare on both the Fuquay-Varina and Wake County Thoroughfare Plans.

This project is one of five improvements planned for the NC 55 corridor between Fuquay-Varina and the Research Triangle Park. Immediately north of this project is the proposed Holly Springs Bypass (R-2541), a two lane facility on multilane right of way. Please see Figure 1 for the Bypass location. From north of Holly Springs, where the Bypass rejoins NC 55, to the Research Triangle Park in Durham County, NC 55 will be widened to a 5-lane section under projects, R-2905, U-2901, and R-2906. Also, the proposed Western Wake Parkway intersects NC 55 approximately 0.7 miles north of SR 1398 as shown on Figure 1. There is sentiment in both Holly Springs and Fuquay-Varina to connect the Holly Springs Bypass and the Western Wake Parkway, thereby making a continuous bypass of both towns, generally parallel and to the west of NC 55. It is estimated that such a bypass would reduce the traffic volumes on NC 55 by 60 to 70 percent. The traffic volumes cited below do not reflect this reduction.

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Approximately one mile south of this project, US 401 is being widened to a multilane facility from NC 55 northward a distance of approximately two miles, under project R-2416.

NC 55 is generally a two lane roadway with pavement generally 24 feet wide and soil shoulders approximately 8 feet wide. The existing right of way width is estimated to vary from 60 to 70 feet. The speed limit varies from 45 mph to 55 mph. There are no bridges, large culverts, or signalized intersections within the project limits. Immediately south of this project SR 1108 intersects NC 55 forming a "Y" type intersection. Traffic islands channel northbound SR 1108 traffic so that the approach to NC 55 is less acute. The intersection is controlled with a stop sign on SR 1108.

Land use along this route is primarily agricultural with some residential development and small amounts of commercial development, primarily at the SR 1108 and SR 1398 intersections. About 0.4 miles north of the project is the town of Holly Springs and about 1.0 mile south of the project NC 55 intersects US 401 immediately north of the Fuquay-Varina Central Business District.

The estimated 1993 Average Daily Traffic (ADT) on NC 55 is 12,000 vehicles per day (vpd) and the estimated ADT for the year 2015 is 30,000 vpd. Based on the 1993 ADT, the level of service on existing NC 55 is level D. Without the proposed improvements, it is estimated that by the year 2015 the level of service will have deteriorated to level F. With the recommended improvements it is estimated that NC 55 will operate at level of service B initially and level D in the year 2015.

During the period from August 1, 1989 through July 31, 1991 there were 27 accidents reported on NC 55 within the project limits. This resulted in an accident rate of 112 accidents per 100 million vehicle miles (Acc/100 MVM), compared to a statewide average of 203 Acc/100 MVM for all two-lane, undivided, rural NC routes for 1992. There were no fatal accidents reported during the period, however ten of the accidents resulted in non-fatal injuries. The most prevalent type accident was the rear-end type (34%). The wider cross section with center turn lane proposed for this route will reduce the potential for this type accident.

III. RECOMMENDATIONS

It is recommended to widen NC 55 to a 5-lane curb and gutter section (64 feet wide from face to face of curbs with 8 foot wide berms) from SR 1108 in Fuquay-Varina to SR 1114 a distance of approximately 3.3 miles. The proposed right of way width is 100 feet.

At the SR 1113 - SR 1398 intersection both SR 1113 and SR 1398 will require minor revisions in alignment and some channelizing islands will be required.

At the southern project terminal it is recommended that the full width of widening begin approximately 600 feet north of SR 1108 with tapers from the widened section joining the existing roadway at a point approximately 100 feet north of SR 1108.

At the northern project terminal it is recommended that the full width cross section extend north of SR 1114 approximately 300 feet, then taper to the existing roadway.

There will likely be one residential and three business relocatees. The total estimated cost for construction and right of way is \$ 5,600,000 as follows:

Construction.....	:	\$ 4,300,000
Right of Way.....	:	\$ 1,300,000
Total.....	:	\$ 5,600,000

IV. ADDITIONAL COMMENTS

No environmental screening was done for this study, however, two properties have been identified in the vicinity of this project that may be eligible for inclusion in the National Register of Historic Places. If it is determined that these houses are eligible, consideration should be given to shifting the widening to the opposite side of existing NC 55.

Some wetlands will be encountered on this project and a Corps of Engineers, Section 404 Individual Permit may be required.

Cost estimates for this study were based on the proposed widening being done symmetrically with respect to the existing centerline of NC 55. During the planning and/or design phase consideration should be given to alternating the widening from east to west in order to mitigate environmental and cost considerations.

