

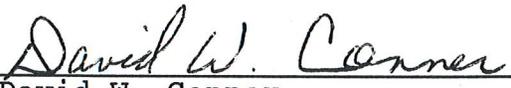
FEASIBILITY STUDY

Estes Drive (SR 1780)
From Greensboro Street (SR 1772) in Carrboro
to Airport Road (NC 86) in Chapel Hill
Orange County
U-2909

Prepared by
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I. GENERAL DESCRIPTION

This preliminary study describes proposed improvements to Estes Drive (SR 1780) in Chapel Hill and Carrboro, Orange County. It is proposed to widen Estes Drive from Greensboro Street (SR 1772) in Carrboro to Airport Road (NC 86) in Chapel Hill, a total length of 1.7 miles. Please see Figure 1 for the project location.

A 5-lane curb and gutter section (72 feet wide from face to face of curbs with 8 foot wide berms) with two travel lanes in each direction, a center turn lane, and four foot bicycle lanes is proposed for the entire project length on a 100 foot wide right of way. The existing right of way width varies from 40 to 60 feet.

The widening will retain and utilize the existing alignment to the extent possible and will generally be symmetrical to the centerline of the existing roadway.

It is estimated that there will be one residence relocated as a result of this project.

The total cost for right of way and construction is estimated to be \$ 4,800,000.

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 may require consideration in the planning and design phases.

II. NEED FOR PROJECT

The purpose of this project is to improve the traffic carrying capacity and accident experience of Estes Drive. Both Carrboro and Chapel Hill requested widening Estes Drive. Carrboro's request was "Widen Estes Drive to three lanes from the Carrboro Town Limits to North Greensboro Street, and include bike lanes, and a right turn lane." The improvements as defined by Carrboro's request are estimated to cost \$ 870,000. Chapel Hill's request was "Widen Estes Drive to 14 foot travel lanes from Airport Road to Carrboro Town limits."

In consideration of future projected traffic volumes on Estes Drive, the NC Department of Transportation staff recommends that the project limits include Estes Drive from Greensboro Street to Airport Road as a 5-lane curb and gutter section (72 feet wide from face to face of curbs with 8 foot wide berms).

Estes Drive is designated a major thoroughfare on the Chapel Hill-Carrboro Area Thoroughfare Plan. It is not classified in the North Carolina Statewide Functional Classification System.

Development on Estes Drive between the southwest project terminal and the Chapel Hill city limits is generally medium density residential development. Development near the northeast project terminal includes some institutional uses including facilities of UNC-CH, a park-and-ride lot, and an airport. The remaining land is generally undeveloped.

Estes Drive is a 2-lane, 2-way, 20 foot wide, shoulder section with 2 foot wide soil shoulders.

At the southwest project terminal the Greensboro Street intersection is a "T" type intersection controlled with a traffic signal. Greensboro Street is 36 feet wide with the northwest leg consisting of one thru lane, one left turn lane, and one lane exiting the intersection. The southeast leg consists of one combination thru-right lane and one lane exiting the intersection. Estes Drive is widened at this intersection and consists of one right turn lane, one left turn lane, and a lane exiting the intersection.

The northeast project terminal, at Airport Road, is also a signalized intersection. Airport Road is a 64 foot, 5-lane curb and gutter section on the south leg, and a 60 foot, 5-lane shoulder section on the north leg. Both the north and south legs consist of one combination thru-right lane, one thru lane, one left turn lane, and two lanes exiting the intersection. Both legs of Estes Drive have been widened to 46 feet at this intersection and each leg includes one right turn lane, one thru lane, one left turn lane, and one lane exiting the intersection.

Estes Drive crosses the Southern Railroad approximately 0.5 miles east of Greensboro Street. This crossing is at grade and is protected with gates and flashing beacons. There are two trains passing daily. Based on train traffic and projected average daily vehicular traffic counts, this crossing has an exposure index greater than 30,000 and can, therefore, be considered for a grade separation. A grade separation at this crossing is not recommended because the required fill slopes would cause Village Drive to be closed.

There is one culvert located on Estes Drive at approximately 0.6 miles east of Greensboro Street. The culvert has a sufficiency rating of 98.3 and an estimated remaining life of 8 years.

The 1992 Average Daily Traffic (ADT) on Estes Drive is estimated to be 12,000 vehicles per day (vpd). The design year (2013) ADT is estimated to be 21,000 vpd.

The Level Of Service (LOS) on Estes Drive is estimated to currently be level E. With the proposed improvements the LOS is expected to improve to level B and level C will prevail through the design year. Without these improvements it is estimated that in the design year the LOS will be F.

During the period from August 1, 1989 through July 31, 1992, there were 63 accidents reported on Estes Drive between Greensboro Street and Airport Road. This resulted in an accident rate of 258.3 accidents per 100 million vehicle miles (Acc/100 MVM), compared to a statewide average of 295.0 Acc/100 MVM for all urban SR routes during 1991. There were no fatalities reported during the period, but 25 of the accidents resulted in injuries. The most prevalent accident types were rear-end (57.1%) and left turn (15.9%). The wider cross section with center turn lane proposed will reduce the potential for these types of accidents.

III. RECOMMENDATIONS

It is proposed to widen SR 1780 (Estes Drive) from SR 1772 (Greensboro Street) in Carrboro to NC 86 (Airport Road) in Chapel Hill a total length of 1.7 miles. Please see Figure 1 for the project location.

A 5-lane curb and gutter section (72 feet wide from face to face of curbs, with 8 foot wide berms) with two travel lanes in each direction and a center turn lane, is proposed for the entire project length. This cross section also provides for 4 foot wide bike lanes on each side. The required right of way width is 100 feet. The widening will retain and utilize the existing alignment to the extent possible and will be generally symmetrical to the centerline of the existing roadway.

The widening will include lengthening the existing 9 foot by 8 foot box culvert located approximately 0.6 miles east of Greensboro Street.

Estes Drive at the western project terminal should be tapered to a 4 lane section from approximately 300 feet east of Greensboro Street to Greensboro Street and should include a right turn lane, a left turn lane, and two eastbound lanes. The traffic signal at this intersection will require modification.

At the eastern project terminal, Estes Drive should include a right turn lane, a thru lane, a left turn lane, and two westbound lanes.

A grade separation at the Southern Railroad crossing is not recommended because the required fill slopes would cause Village Drive to be closed.

It is estimated that there will be one residence and no businesses relocated as a result of this project. The width of existing right of way varies from 40 to 60 feet.

The total cost for right of way and construction is estimated to be \$ 4,800,000 as follows:

Right of Way Cost	\$ 1,550,000
Construction Cost	3,250,000
Total Cost	\$ 4,800,000

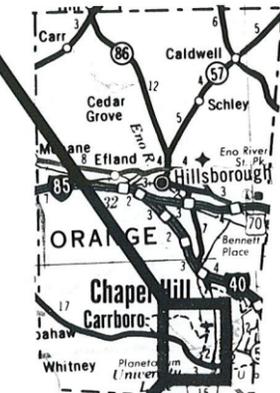
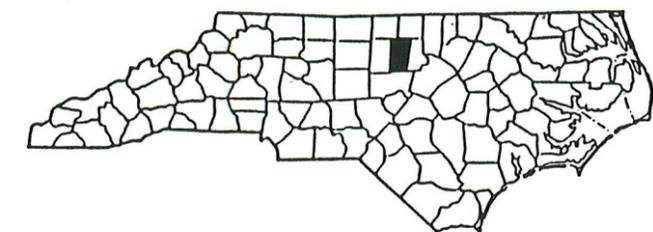
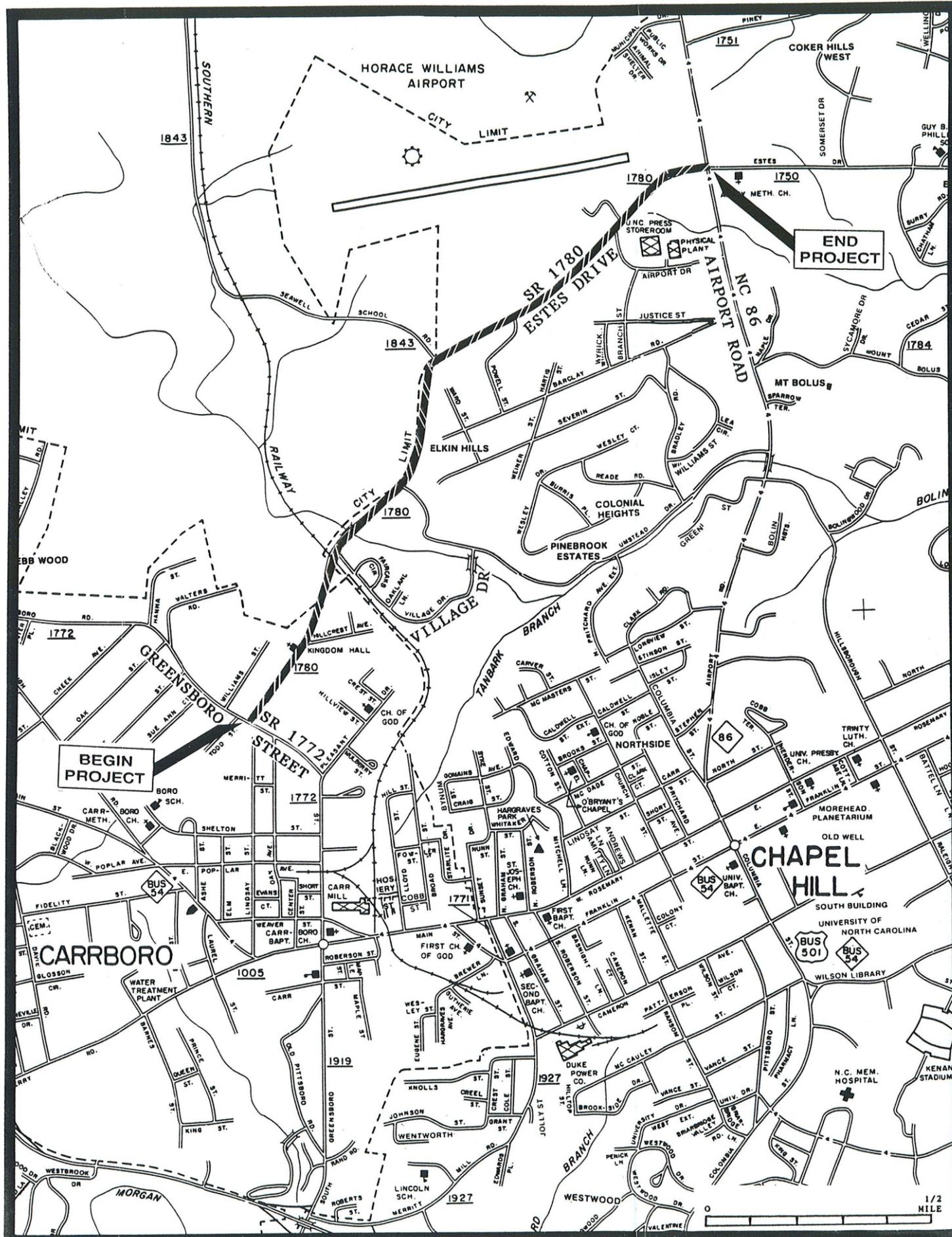
V. OTHER COMMENTS

The NCDOT Bicycle Program has identified Estes Drive as a roadway with potentially significant bicycle use, and has requested that this project include 4 foot wide bike lanes to accommodate this use. The 72 foot wide recommended cross section provides this extra width.

There are no wetlands or historic properties known to be involved with this project, however, an environmental screening was not conducted.

During the planning phase of the project, provision of a 16-foot wide, raised, plantable median should be considered if the municipalities agree to maintain it. Also, future consideration can be given to providing 14-foot wide outside lanes to accommodate bicycles rather than 4 foot bike lanes. This would reduce the typical section width from 72 feet to 68 feet.

The improvements as requested by either Carrboro or Chapel Hill would provide accommodations for bicycles and would cost less than the proposed improvements, however, additional basic roadway capacity to accommodate future growth in motor vehicle traffic would not be provided in either case.



FEASIBILITY STUDIES UNIT		
FIGURE 1. VICINITY MAP		
CHAPEL HILL-CARRBORO ESTES DRIVE (SR 1780) FROM GREENSBORO STREET (SR 1772) TO NC 86 (AIRPORT ROAD)		
ORANGE COUNTY		
U-2909	DIV. 7	FIGURE 1