

FEASIBILITY STUDY

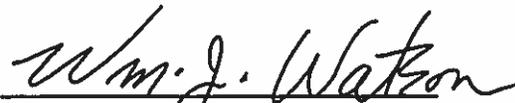
Durham

**Hillandale Road (SR 1321)
from I-85
to Carver Avenue (SR 1407)
Durham County**

Division 5

U-3804

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



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Date

**Durham
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I. GENERAL DESCRIPTION

This preliminary study describes the proposed widening of Hillandale Road (SR 1321) from I-85 to a point approximately 900 feet (274 m) north of Carver Avenue (SR 1407) in Durham. The project location is shown on Figure 1. The length of widening on Hillandale Road is approximately 0.7 miles (1.2 km). Also, both approaches on Carver Avenue should be widened. The length of widening on Carver Avenue east of Hillandale Road is approximately 500 feet (153 m), including tapers to the existing cross-section. The length of widening on Carver Avenue west of Hillandale Road is approximately 400 feet (122 m) including tapers to the existing cross-section.

The proposed cross-section on Hillandale Road is a 5-lane curb-and-gutter section, 68 feet (20.7 m) from face-to-face of curbs with 10-foot (3.0-m) berms and 5-foot (1.5 m) wide sidewalks on each side. This cross-section will allow 14-foot (4.2 m) wide outside lanes to accommodate anticipated bicycle traffic. Accommodation for bicycles on Hillandale Road is included in the Incidental Bicycle and Pedestrian Needs Section of the 1998-2004 TIP. The existing traffic signals at the Carver Avenue intersection and at the I-85 Ramp intersection will require minor revisions.

Figure 2 shows the typical 5-lane cross-section and the proposed lane use at the Carver Avenue intersection and at the intersection with the I-85 ramps where widening in addition to the 5-lane cross-section on Hillandale Road will be required.

The required right-of-way width on Hillandale Road varies from 100 feet to 112 feet (30.5 to 34.1 m). This project is expected to require 1 residential and no business relocations. The total project cost including construction and right-of-way is estimated to be \$6,300,000.

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

II. NEED FOR PROJECT

The purpose of this project is to relieve current and future traffic congestion on Hillandale Road between I-85 and Carver Avenue in Durham. Development on Hillandale Road is a mixture of commercial, residential and office uses. This project was requested by the Durham/Chapel Hill/Carrboro/MPO. Hillandale Road is shown as a Major Thoroughfare on the Durham Thoroughfare Plan. Hillandale Road is not classified on the North Carolina Statewide Functional Classification System.

Existing Hillandale Road is a 2-lane shoulder facility that has been widened to a 3-lane facility at the project termini. Both Carver Avenue approaches to Hillandale Road are 38-foot (11.6-m) wide, 2-way, curb-and-gutter sections. All approaches to the Carver Avenue/Hillandale Road intersection have existing exclusive left-turn lanes.

There is a 5-foot (1.5-m) sidewalk on the west side of Hillandale Road for most of the project length, and a 5-foot (1.5-m) sidewalk on the east side for approximately 600 feet (183 m) near the south project terminus.

Traffic volume estimates for the project corridor, for the years 1997 and 2020, are 14,600 vehicles per day (vpd) and 34,500 vpd respectively. The estimated Level of Service (LOS) for the existing facility based on 1997 traffic volumes is LOS D. By the 2020 design year the LOS is expected to be LOS E. With the proposed improvements the LOS in the 2020 design year is estimated to be LOS C.

During the three year period beginning February 1, 1994, and ending January 31, 1997, there were 104 accidents reported on Hillandale Road within the project limits. This resulted in a total accident rate of 1,142 accidents per 100 million vehicle miles (Acc/100MVM). This compares with the statewide average of 248 ACC/100MVM for all Urban Secondary routes, in North Carolina, for 1996.

There were no fatal accidents reported, and 43 accidents resulted in 61 injured persons. The most prevalent type accidents were Rear-End (52%), Left-Turn (20%), and Angle (15%). The proposed wider cross-section with a center turn lane would reduce the potential for these types of accidents.

III. RECOMMENDATIONS

It is recommended to widen Hillandale Road (SR 1321) from I-85 to a point approximately 900 feet (274 m) north of Carver Avenue (SR 1407) in Durham. The project location is shown on Figure 1. The length of widening on Hillandale Road is approximately 0.7 miles (1.2 km). Also, both approaches on Carver Avenue should be widened. The length of widening on Carver Avenue east of Hillandale Road is approximately 500 feet (153 m), including tapers to the existing cross-section. The length of widening on Carver Avenue west of Hillandale Road is approximately 400 feet (122 m) including tapers to the existing cross-section.

The proposed cross-section on Hillandale Road is a 5-lane curb-and-gutter section, 68 feet (20.7 m) from face-to-face of curbs with 10-foot (3.0-m) berms and 5-foot (1.5 m) wide sidewalks on each side. This cross-section will allow 14-foot (4.2 m) wide outside lanes to accommodate anticipated bicycle traffic. Accommodation for bicycles on Hillandale Road is included in the Incidental Bicycle and Pedestrian Needs Section of the 1998-2004 TIP. The existing traffic signals at the Carver Avenue intersection and at the I-85 Ramp intersection will require minor revisions.

Figure 2 shows the typical 5-lane cross-section and the proposed lane use at the Carver Avenue intersection and at the intersection with the I-85 ramps where widening in addition to the 5-lane cross-section on Hillandale Road will be required.

The required right-of-way width on Hillandale Road varies from 100 feet to 112 feet (30.5 to 34.1 m). This project is expected to require 1 residential and no business relocations. The total project cost including construction and right-of-way is estimated to be \$6,300,000 as follows:

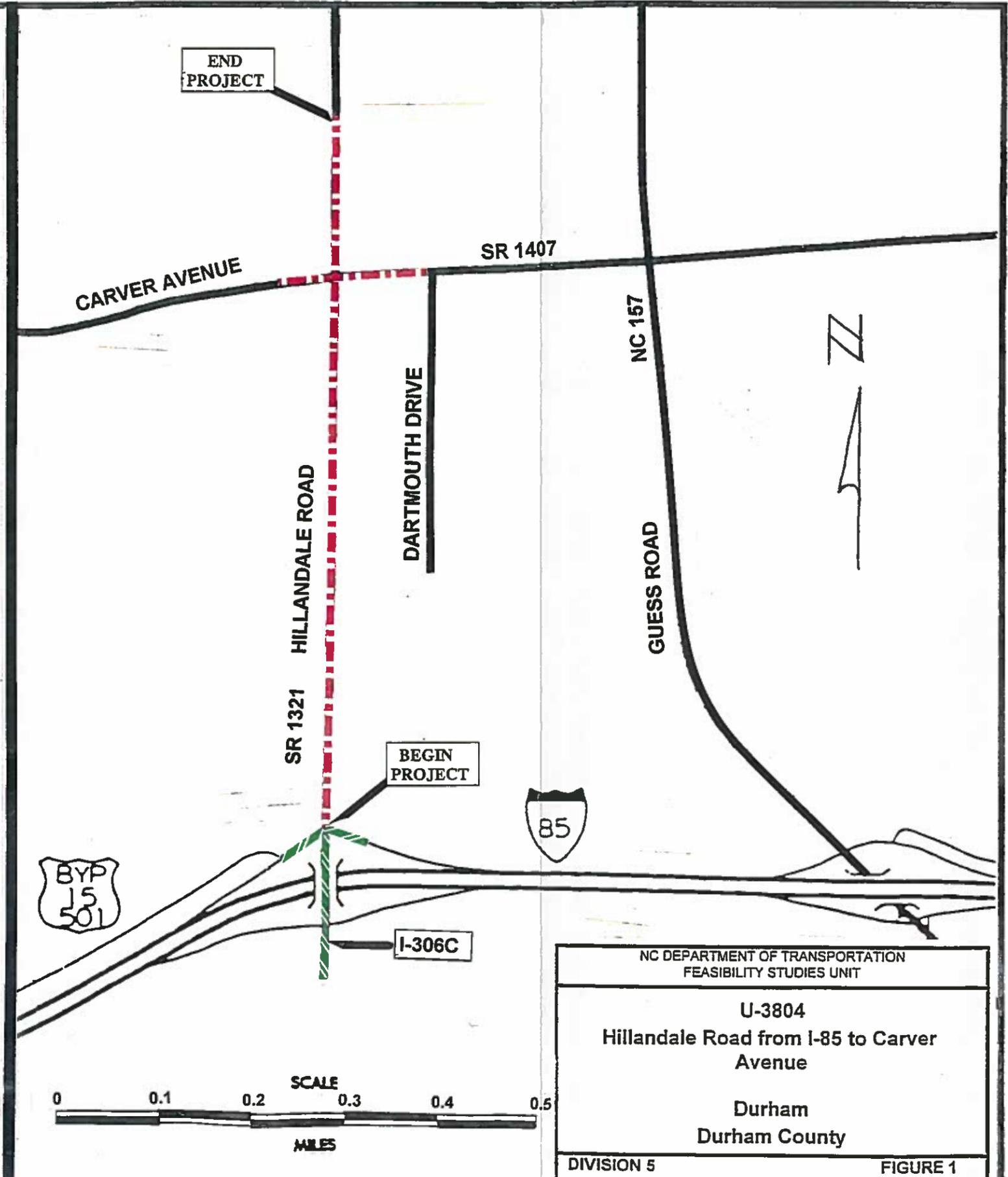
Right-of-Way	\$ 3,000,000
Construction	<u>3,300,000</u>
Total Cost	\$ 6,300,000

IV. OTHER COMMENTS

An environmental screening was not conducted for this study. No historic properties, endangered species, or wetlands are anticipated. There is a baseball/softball field in the southwest quadrant of the Hillandale Road/Carver Avenue intersection. This facility is part of the Carver Hill School complex and is owned by the Durham Public Schools system. It is the policy of the school system that the playground is not open to the general public.

This project will tie into TIP Project I-306C at the southern project terminus. The bridge over I-85 will be widened and the I-85 ramps will be widened and/or slightly relocated under project I-306C.

In accordance with NCDOT policy, the cost for replacing existing sidewalks is included in the construction cost estimate for this project. The cost to construct sidewalks where none exist will be borne by the City of Durham in accordance with NCDOT policy guidelines.



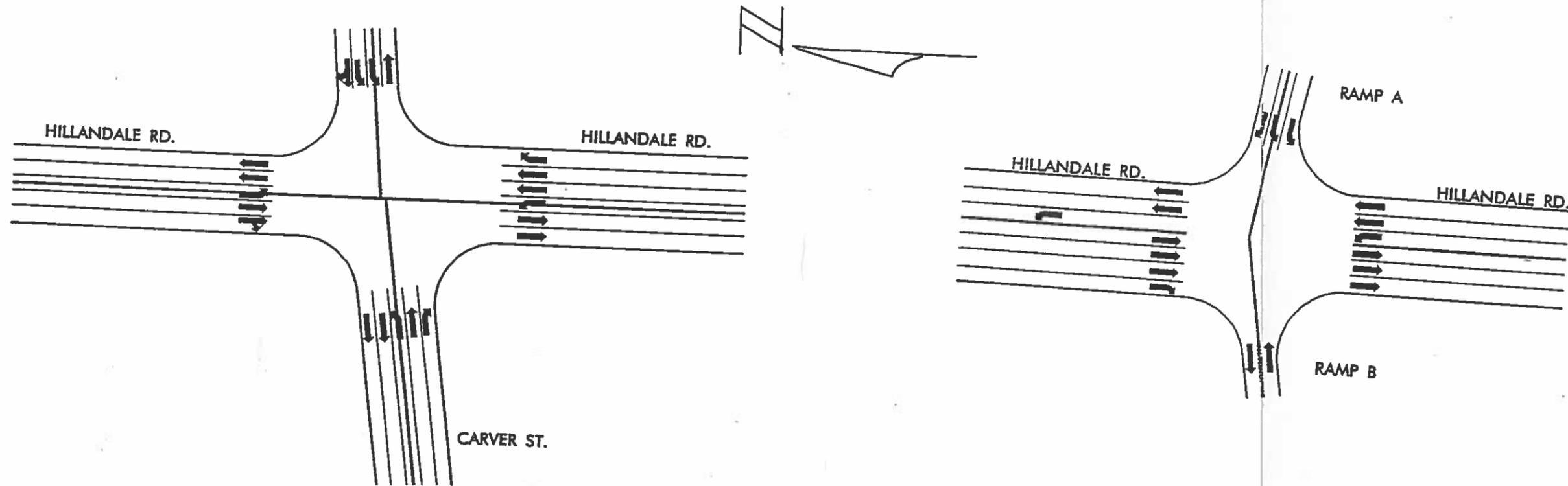
NC DEPARTMENT OF TRANSPORTATION
FEASIBILITY STUDIES UNIT

U-3804
Hillandale Road from I-85 to Carver
Avenue

Durham
Durham County

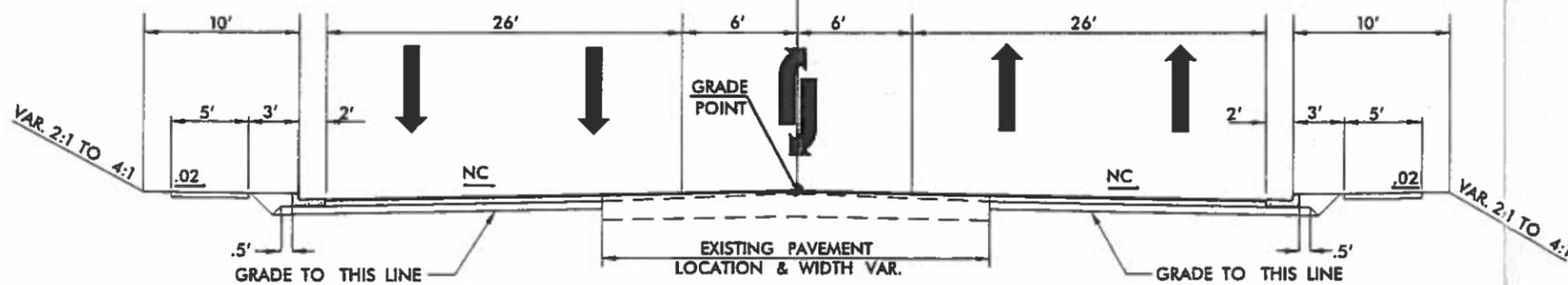
DIVISION 5

FIGURE 1



U-3804

CL- HILLANDALE



TYPICAL SECTION NO. 1

North Carolina Department of Transportation Program Development Branch	
U-3804	
Typical Section and Lane Use at Intersections	
Durham, Durham County	
DIVISION 5	FIGURE 2