



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JAMES B. HUNT JR.
GOVERNOR

E. NORRIS TOLSON
SECRETARY

March 31, 1998

MEMORANDUM TO: Mr. G. R. Kindley, Member, Board of Transportation
Mr. W. F. Rosser, P.E. Division Engineer, Division 8
Mr. David D. King
Mr. W. H. Webb, P.E.
Mr. J. M. Lynch, P.E. (6) Attention: Roberto Canales, P.E.
Congestion Management Engineer
Mr. J. B. Williamson
Mr. H. F. Vick, P.E. (2)
Mr. R. L. Hill, P.E.
Mr. G. T. Shearin, P.E.
Mr. M. R. Poole, P.E.
Mr. A. L. Avant (2)
Mr. J. D. Lane
Mr. T. A. Peoples, P.E.
Mr. David Smith, P.E.

FROM:

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

SUBJECT:

Feasibility Study # U-3818, Rockingham, Widening of Long Drive (SR 1646 & SR 1650) from Scaleybark Road to Washington Street (SR 1643), Richmond County.

Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded. A copy of our report is attached for your information.

DGM/joa

Attachment

cc: Mr. L. A. Sanderson, P.E.
Mr. D. R. Morton, P.E.
Mr. W. J. Watson, P.E.



FEASIBILITY STUDY

Rockingham

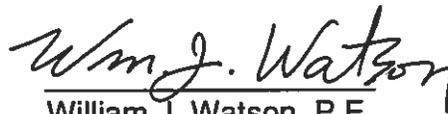
**Widening of Long Drive (SR 1650 & SR 1646)
from Scaleybark Road to Washington Street (SR 1643)**

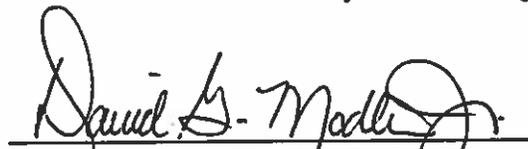
Richmond County

Division 8

U-3818

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


William J. Watson, P.E.
Feasibility Studies Engineer


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

2/26/98
Date

Rockingham
Widening of Long Drive (SR 1646 & SR 1650)
from Scaleybark Road to Washington Street (SR 1643)
Richmond County
U-3818

I. General Description

This preliminary study describes the proposed widening of Long Drive in Rockingham. The project location is shown on Figure 1.

The studied cross-section, between Scaleybark Road and Oak Avenue, is a 3-lane curb-and-gutter section, 40 feet (12.2 m) wide from face-to-face of curbs, with 10-foot (3.0-m) wide berms. The recommended right-of-way width for this section is 80 feet (24.4 m), and the length of widening for this section is approximately 0.3 mile (0.5 km).

The studied cross-section, between Oak Avenue and Washington Street, is a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs, with 10-foot (3.0-m) berms. The recommended right-of-way width for this section is 100 feet (30.5 m), and the length of widening for this section is approximately 1.3 miles (2.1 km). The total length of the studied widening on Long Drive is approximately 1.6 miles (2.6 km).

The studied improvements include widening Rockingham Road (SR 1648) for approximately 1,200 feet (366 m), and relocating and widening County Home Road (SR 1624) for approximately 600 feet (183 m). The studied cross-section for these improvements is a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs, with 10-foot (3.0-m) berms. The recommended right-of-way width for these sections is 100 feet (30.5 m).

Also, the existing traffic signals at US 74, Rockingham Road, County Home Road, and Washington Street will require revisions.

Five residential and 3 business relocations are anticipated due to this project. The total project cost including construction and right of way is estimated to be \$12,600,000 as follows:

Right-of-Way.....	\$ 6,800,000
Construction.....	<u>5,800,000</u>
Total Cost	\$12,600,000

This study is the initial step in the planning and design process 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 may require consideration in the planning and design phases.

II. Need for the Project

The purpose of this project is to increase the traffic carrying capacity and safety of Long Drive in Rockingham. The project was requested by the Town of Rockingham. Long Drive is a Major Thoroughfare on the Rockingham Thoroughfare Plan and is an Urban Minor Arterial in the North Carolina Statewide Functional Classification System.

Land use in the project corridor south of US 74 is a mix of single family and multi-family residential development. North of US 74, there is moderate to heavy development of office, institutional and commercial uses.

Long Drive between Scaleybark Road and Oak Avenue is a 2-lane, shoulder section, and between Oak Avenue and Washington Street the existing cross-section varies between a 2-lane section and a 3-lane section, with curb-and-gutter in some locations and shoulder sections in some locations. The existing right-of-way width appears to be 60 feet (18.3 m).

The CSX Railroad crosses Long Drive, at grade, approximately 800 feet south of Scaleybark Road. There are 25 trains per day reported on this track at a maximum speed of 40 mph. The exposure index for this crossing is 250,000. The exposure index is the product of the number of trains per day and the design year traffic volume. An exposure index of 30,000 or more in an urban area merits consideration of a grade separation.

Traffic volume estimates for Long Drive, south of US 74, for the years 1997 and 2020 are 6,400 vehicles per day (vpd) and 10,000 vpd respectively. The Level of Service (LOS) without the proposed improvements is estimated to be LOS C in 1997 and LOS D in 2020. With the proposed improvements the estimated LOS is LOS B in 1997 and LOS C in 2020.

Traffic volume estimates for Long Drive, north of US 74, for the years 1997 and 2020 are 17,000 vehicles per day (vpd) and 26,000 vpd respectively. The Level of Service (LOS) without the proposed improvements is estimated to be LOS D in 1997 and LOS E in 2020. With the proposed improvements the estimated LOS is LOS B in 1997 and LOS D in 2020.

During the three-year period beginning February 1, 1994, and ending January 31, 1997, there were 142 accidents reported on Long Drive within the

project limits. This resulted in a total accident rate of 877 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 was no fatal accident reported, and 72 accidents resulted in 150 non-fatal injuries. The most prevalent type accidents were Rear End (35%), Angle (32%), and Left-Turn (22%). The proposed wider cross-section with a center turn lane would reduce the potential for these type accidents.

III Recommendations

It is recommended to widen Long Drive in Rockingham. The project location is shown on Figure 1.

The studied cross-section, between Scaleybark Road and Oak Avenue, is a 3-lane curb-and-gutter section, 40 feet (12.2 m) wide from face-to-face of curbs, with 10-foot (3.0-m) wide berms. The recommended right-of-way width for this section is 80 feet (24.4 m), and the length of widening for this section is approximately 0.3 mile (0.5 km).

The studied cross-section, between Oak Avenue and Washington Street, is a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs, with 10-foot (3.0-m) berms. The recommended right-of-way width for this section is 100 feet (30.5 m), and the length of widening for this section is approximately 1.3 miles (2.1 km). The total length of the studied widening on Long Drive is approximately 1.6 miles (2.6 km).

The studied improvements include widening Rockingham Road (SR 1648) for approximately 1,200 feet (366 m), and relocating and widening County Home Road (SR 1624) for approximately 600 feet (183 m). The studied cross-section for these improvements is a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs, with 10-foot (3.0-m) berms. The recommended right-of-way width for these sections is 100 feet (30.5 m).

Also, the existing traffic signals at US 74, Rockingham Road, County Home Road, and Washington Street will require revisions.

Five residential and 3 business relocations are anticipated due to this project. The total project cost including construction and right of way is estimated to be \$12,600,000 as follows:

Right-of-Way.....	\$ 6,800,000
Construction.....	<u>5,800,000</u>
Total	\$12,600,000

Additionally, a cost estimate was made for widening Long Drive between Washington Street and US 1, a distance of approximately 0.2 mi (0.3 km). The cross-section estimated was a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs, with 10-foot (3.0-m) wide berms. The recommended right-of-way width is 100 feet (30.5 m). The cost for this widening including right-of-way and construction is estimated to be \$1,800,000 as follows:

Right-of-Way.....	\$ 1,000,000
Construction.....	<u>800,000</u>
Total Cost	\$ 1,800,000

The total cost of all studied improvements is estimated to be \$14,400,000 as follows:

Right-of-Way.....	\$ 7,800,000
Construction.....	<u>6,600,000</u>
Total Cost	\$14,400,000

Given the high cost of improving Long Drive to a 5-lane section, consideration could be given to implementing the connector between SR 1645 and SR 1641 as shown on the Rockingham Thoroughfare Plan (See Figure 1). The estimated cost of this connector as a 2-lane shoulder section is estimated to be \$4,000,000 as follows:

Right-of-Way.....	\$ 1,250,000
Construction.....	<u>2,750,000</u>
Total Cost	\$ 4,000,000

One business and no residential relocations are expected due to construction of this connector. The connector is expected to remove approximately 6,000 vpd from Long Drive in the design year.

IV. Other Comments

An environmental screening was not conducted for this study. No historic properties, recreation areas, wetlands or endangered species have been identified in the project corridor. Hanna Picket Mill #1, located immediately south of the intersection of Long Drive (SR 1646) and Mill Road (SR 1903) is on the National Register of Historic Places.

