

Mr. David W. Conner



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT, JR.  
GOVERNOR

DIVISION OF HIGHWAYS  
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

R. SAMUEL HUNT III  
SECRETARY

August 8, 1994

MEMORANDUM TO: Mr. Peter Pappas, Member, Board of Transportation  
Mr. Frank Emory, Jr., Member, Board of Transportation  
Mr. B. G. Payne, P.E., Division Engineer, Division 10  
Mr. C. W. Leggett, P.E.  
Mr. W. H. Webb, P.E.  
Mr. J. M. Lynch, P.E.  
Mr. J. B. Williamson  
Mr. H. F. Vick, P.E. (2)  
Mr. D. R. Morton, 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. L. K. Barger, P.E.

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

A handwritten signature in black ink that reads "David G. Modlin".

SUBJECT: Feasibility Study: FS# 59-94-005, Charlotte, Freedom Drive  
(NC 27) from Bradford Road to Old Mount Holly Road,  
Mecklenburg 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: Dr. L. R. Goode, P.E.  
Mr. B. G. Jenkins, P.E.  
Mr. David W. Conner




FEASIBILITY STUDY

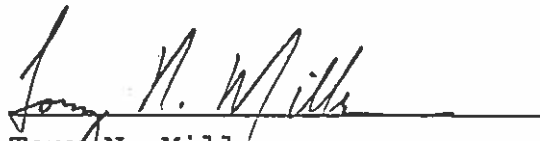
Charlotte  
Freedom Drive (NC 27)  
from Bradford Road to Old Mount Holly Road  
Mecklenburg County

FS 59-94-005

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



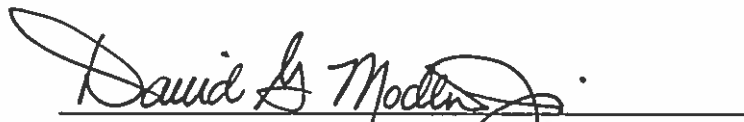
David W. Conner  
Highway Planning Engineer



Tony N. Miller  
Highway Engineering Associate

8/4/94

Date



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

Charlotte  
Freedom Drive (NC 27)  
From Bradford Road to Old Mount Holly Road  
Mecklenburg County  
FS 59-94-005

I. GENERAL DESCRIPTION

This is a feasibility study for widening Freedom Drive (NC 27) in Charlotte. It is recommended that Freedom Drive be widened from Bradford Road to Old Mount Holly Road, a distance of approximately 3.0 miles (4.8 km). It is also recommended that improvements be made to the intersection of Freedom Drive with Little Rock Road (SR 1641). Please see Figure 1 for the project location.

The recommended cross section for Freedom Drive is a 5-lane curb-and-gutter section with two travel lanes in each direction and a center turn lane. The section will be 64 feet (19.5 m) wide from face-to-face of curbs with 8-foot (2.4-m) wide berms. The proposed widening will require a 100-foot (30.5-m) wide right-of-way for the entire project length.

It is also recommended that a cul-de-sac be constructed on Little Rock Road approximately 500 feet (152.4 m) southwest of it's intersection with Freedom Drive and that a new connector be constructed from Little Rock Road to Freedom Drive. Please see Figure 1 for the location of the connector and the cul-de-sac.

It is estimated that there will be 2 residences and 1 business relocated due to this project.

The total estimated cost including construction and right-of-way is estimated to be \$ 8,054,000.

This study is the initial step in the planning and design process for the project and is not 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 problems 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 Freedom Drive. This project is strongly endorsed by City of Charlotte and is ranked number 4 among major roadway needs in the Charlotte 2005 Transportation Plan.

Freedom Drive is classified as a Major Thoroughfare on the Charlotte Thoroughfare Plan and as a Principal Arterial on the Statewide Functional Classification System.

Development on Freedom Drive is a mix of medium density residential, light density institutional, and heavy density commercial. From the south terminal to the north terminal, the area is generally developed with residences, a private school, a cemetery, and three churches. A shopping center is located in the southwest quadrant of the intersection of Freedom Drive and Moore's Chapel Road and the north terminal is heavily developed with petroleum storage and sales facilities.

Between the project terminals, Freedom Drive is generally a 28-foot (8.5-m) wide, 2-lane section with 2-foot (0.6-m) wide paved shoulders on a 50-foot (15.2-m) wide right-of-way. The roadway has been widened at Toddville Road to facilitate turning movements. The intersections with Toddville Road, Moore's Chapel Road, and Old Mount Holly Road are signalized.

There is one bridge located within the project limits. Bridge #66, which carries Freedom Drive over CSX Railroad, is located approximately 0.5 miles (0.8 km) southeast of Mount Holly Road. It is 127 feet (38.7 m) long and has a clear deck width of 31.5 feet (9.6 m). The bridge was built in 1963 and has a sufficiency rating of 52.6 out of a possible 100 points.

From I-85 to the south project terminal, Freedom Drive is being widened as part of Project I-301. Upon completion of construction, this segment of roadway will be a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs.

At the north project terminal, Old Mount Holly Road is a 2-lane roadway with a pavement width which varies from 24 feet (7.3 m) to 26 feet (7.9 m).

The Average Daily Traffic (ADT) on Freedom Drive is estimated to be 12,000 vehicles per day (vpd) and 21,500 vpd for the years 1994 and 2014 respectively.

Freedom Drive is currently operating at a Level of Service (LOS) D based on 1994 traffic estimates. If no improvements are made, it is estimated that it will reach a LOS E by the design year. With the recommended improvements, it is estimated that Freedom Drive will operate at a LOS B through the design year.

During the period from November 1, 1990, through October 31, 1993, there were 235 accidents reported on Freedom Drive from Bradford Road to Old Mount Holly Road. This resulted in an accident rate of 386.6 accidents per 100 million vehicle miles (Acc/100 MVM), compared to a statewide average of 285.9 Acc/100 MVM for all urban NC routes in 1993. There were no fatalities reported during the period, but 103 of the accidents resulted in injuries. The most common types of accidents were rear-end (46%), left turn (18%), and angle (11%). The recommended cross section will offer the potential for reduction of these types of accidents.

### III. RECOMMENDATIONS

It is recommended that Freedom Drive be widened from Bradford Road to Old Mount Holly Road, a distance of approximately 3.0 miles (4.8 km). Please see Figure 1 for the project location.

The recommended cross section is a 5-lane curb-and-gutter section with two travel lanes in each direction and a center turn lane. The section is 64 feet (19.5 m) wide from face-to-face of curbs with 8-foot (2.4-m) wide berms. The widening should generally be symmetrical about the centerline of the existing highway and will require a 100-foot (30.5-m) wide right-of-way for the entire project length.

Also, as shown on Figure 1, it is recommended to improve the intersection of Freedom Drive with Little Rock Road (SR 1641). These improvements will include:

1. Construction of a cul-de-sac on Little Rock Road. A new entrance to the shopping center, located in the southwest quadrant of the existing intersection, will

be constructed from the cul-de-sac. The existing entrance to the shopping center off of Moore's Chapel Road will be maintained.

2. Removal of a section of pavement between the cul-de-sac and the existing intersection.
3. Construction of a new connector from Little Rock Road to Freedom Drive. The new connector should intersect Freedom Drive at approximately 0.2 miles (0.3 km) south of Moore's Chapel Road and should be a 2-lane curb-and-gutter section. The connector will be 28 feet (8.5 m) wide from face-to-face of curbs with 8-foot (2.4-m) wide berms. This segment of roadway will eventually tie into and become part of the Northwest Circumferential proposed for construction by the City of Charlotte within this project's planning period.

Also included as part of this project is replacement of Bridge #66 over CSX Railroad. This bridge should be replaced with a new bridge with a clear deck width of 64 feet (19.5 m).

At the south project terminal, the roadway should tie into the 5-lane section presently under construction as part of Project I-301.

At the north project terminal (Old Mount Holly Road), the south leg of the intersection should include a right-turn lane, a northbound through lane, a left-turn lane, and 2 lanes exiting the intersection.

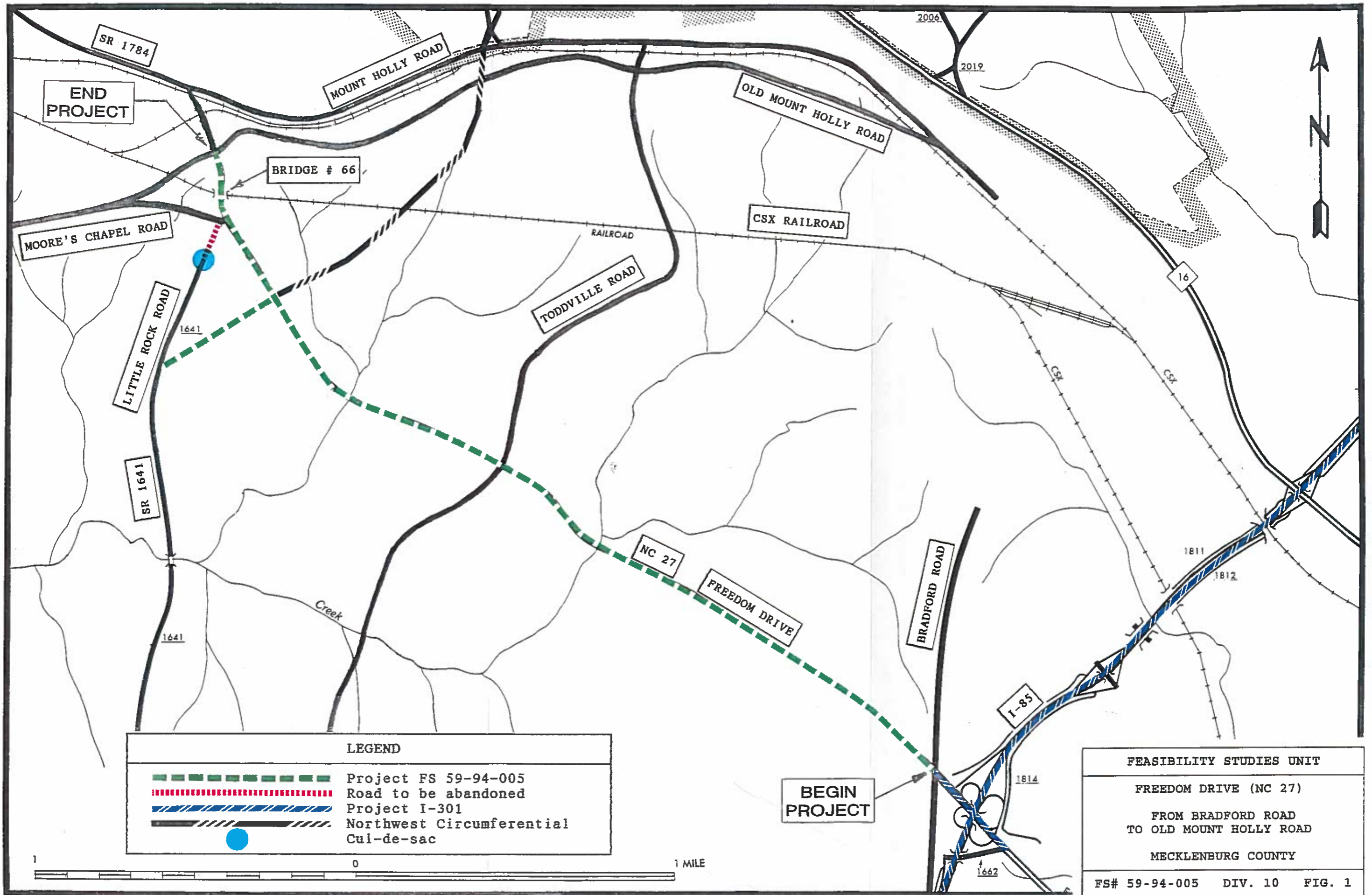
Upgraded traffic signals may be required at the intersections of Freedom Drive with Toddville Road, Moore's Chapel Road, and Old Mount Holly Road.

It is estimated that there will be 2 residences and 1 business relocated as a result of this project. The total project cost is \$ 8,540,000 estimated as follows:

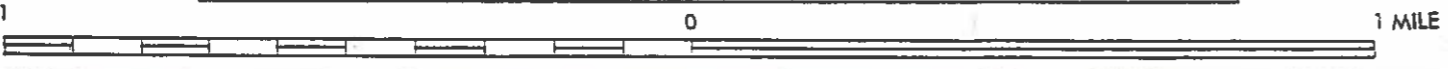
Right-of-Way	\$ 2,436,000
Construction	\$ 5,618,000
Total Project Cost	\$ 8,054,000

#### IV. OTHER COMMENTS AND CONCERNS

An ecological screening was not conducted for this study. A preliminary historical screening did not identify any sites on or eligible for the National Register of Historical Places. Due to a 100 year flood boundary at Paw Creek, a Corps of Engineers, Section 401 Individual Permit may be required.



LEGEND	
	Project FS 59-94-005
	Road to be abandoned
	Project I-301
	Northwest Circumferential Cul-de-sac



FEASIBILITY STUDIES UNIT

FREEDOM DRIVE (NC 27)

FROM BRADFORD ROAD  
TO OLD MOUNT HOLLY ROAD

MECKLENBURG COUNTY

FS# 59-94-005 DIV. 10 FIG. 1