

**FEASIBILITY STUDY**

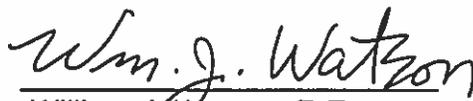
**Raleigh**

**Edwards Mill Road Extension  
from Western Boulevard to Trinity Road  
Wake County**

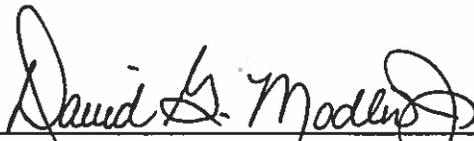
**Division 5**

**U-3817**

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



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2/26/98

Date

**Raleigh  
Edwards Mill Road Extension  
from Western Boulevard to Trinity Road  
Wake County**

**U-3817**

**I. General Description**

This preliminary study describes the proposed construction, on new location, of Edwards Mill Road Extension between Western Boulevard and Trinity Road in Raleigh. The project location is shown on Figure 1.

Near the south project terminus, the proposed improvements include widening approximately 2,200 feet (671 m) of Jones Franklin Road, relocating approximately 1,400 feet (427 m) of Buck Jones Road, relocating approximately 400 feet (122 m) of Wilmont Drive, widening approximately 1,400 feet (427 m) of eastbound Hillsborough Road, and converting eastbound Hillsborough Road to 2-way traffic operation. The recommended lane configuration in this area is shown on Figure 2.

A grade separation, approximately 1,200 feet (366 m) in length and tying to the proposed interchange at NC 54, beginning approximately 300 feet (91 m) north of Western Boulevard will be required to carry the project roadway over westbound Hillsborough Road, the CSX Railroad, and NC 54. A half-clover interchange is recommended at NC 54, with the ramps and loops on the north side of NC 54 in order to avoid conflict with the CSX Railroad. A schematic of the interchange is shown on Figure 3. A service road, approximately 800 feet (244 m) in length, on the south side of NC 54 in the vicinity of the interchange, is proposed in order to provide access for an industrial driveway. The project continues from the interchange, on new location, to the north terminus at Trinity Road.

The studied cross-section for Edwards Mill Road Extension between the interchange at NC 54 and Trinity Road is a 4-lane, median divided urban boulevard, 72 feet (21.9 m) wide from face-to-face of curbs with a 16-foot (4.9-m) wide median and berms 10 feet (3.0 m) wide. The cross-section width for Edwards Mill Road Extension will allow wide outside lanes to accommodate anticipated bicycle traffic. Edwards Mill Road Extension is shown on the Raleigh Bicycle Plan as a Primary Corridor.

The proposed grade separation/interchange structure is 100 feet (30.5 m) wide and will have a 5-foot (1.5-m) sidewalk on each side, 3 travel lanes in each direction (wide outside lane for bicycles), and a 14-foot (4.3 m) wide median. The additional lane in each direction are the acceleration and deceleration lanes for the proposed half-clover interchange.

There are anticipated to be 7 residential and no business relocations as a result of this project.

The total project cost including construction and right of way is estimated to be \$ 39,250,000 as follows:

|                    |                   |
|--------------------|-------------------|
| Right-of-Way ..... | \$ 6,950,000      |
| Construction ..... | <u>32,300,000</u> |
| Total Cost .....   | \$ 39,250,000     |

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 City of Raleigh requested this project through the Capital Area MPO. The purpose of this project is to enhance north-south traffic flow in western Raleigh. Edwards Mill Road Extension is a Major Thoroughfare on the Raleigh Thoroughfare Plan.

Development along the project corridor between Western Boulevard and the CSX Railroad is mostly dense commercial development. South of Western Boulevard along Jones Franklin Road, development is mainly single family residential. Between NC 54 and Trinity Road there is a large undeveloped tract owned by the North Carolina Department of Agriculture (State Fairgrounds) and a tract being developed as a single family residential subdivision near Trinity Road. The developer of this subdivision has dedicated right-of-way 110 feet (33.5 m) wide and the project alignment follows this dedication for approximately 2,000 feet (610 m) to the north terminus at Trinity Road.

Jones Franklin Road, Buck Jones Road, Wilmont Drive, southbound Hillsborough Road, and Trinity Road are all 2-lane shoulder sections with pavements approximately 24 feet (7.3 m) wide. NC 54 is a 4-lane median divided facility.

Traffic volumes for the project corridor for the years 1997 and 2020 are estimated to be 7,200 vehicles per day (vpd) and 13,100 vehicles per day respectively. Based on these volumes and with the proposed project, the Level of Service (LOS) is estimated to be LOS A in 1997 and LOS A in the 2020 design year.

### III. Recommendations

It is recommended to construct, on new location, Edwards Mill Road Extension between Western Boulevard and Trinity Road in Raleigh. The project location is shown on Figure 1.

Near the south project terminus, the proposed improvements include widening approximately 2,200 feet (671 m) of Jones Franklin Road, relocating approximately 1,400 feet (427 m) of Buck Jones Road, relocating approximately 400 feet (122 m) of Wilmont Drive, widening approximately 1,400 feet (427 m) of eastbound Hillsborough Road, and converting eastbound Hillsborough Road to 2-way traffic operation. The recommended lane configuration in this area is shown on Figure 2.

A grade separation, approximately 1,200 feet (366 m) in length and tying to the proposed interchange at NC 54, beginning approximately 300 feet (91 m) north of Western Boulevard will be required to carry the project roadway over westbound Hillsborough Road, the CSX Railroad, and NC 54. A half-clover interchange is recommended at NC 54, with the ramps and loops on the north side of NC 54 in order to avoid conflict with the CSX Railroad. A schematic of the interchange is shown on Figure 3. A service road, approximately 800 feet (244 m) in length on the south side of NC 54 in the vicinity of the interchange, is proposed in order to provide access for an industrial driveway. The project continues from the interchange, on new location, to the north terminus at Trinity Road.

The studied cross-section for Edwards Mill Road Extension between the interchange at NC 54 and Trinity Road is a 4-lane, median divided urban boulevard, 72 feet (21.9 m) wide from face-to-face of curbs with a 16-foot (4.9-m) wide median and berms 10 feet (3.0 m) wide. The cross-section width for Edwards Mill Road Extension will allow wide outside lanes to accommodate anticipated bicycle traffic. Edwards Mill Road Extension is shown on the Raleigh Bicycle Plan as a Primary Corridor.

The proposed grade separation/interchange structure is 100 feet (30.5 m) wide and will have a 5-foot (1.5-m) sidewalk on each side, 3 travel lanes in each direction (wide outside lane for bicycles), and a 14-foot (4.3 m) wide median. The additional lane in each direction are the acceleration and deceleration lanes for the proposed half-clover interchange.

The proposed service road on the south side of NC 54 is a 2-lane shoulder section which will require an additional 80 feet (24.4 m) of right-of-way on the south side of NC 54.

The studied cross-section for the south approach to the bridge is a 6-lane, median divided curb-and-gutter section, 90 feet (27.4 m) wide from face-to-face of curbs, with a 14-foot (4.3-m) wide median, wide outside lanes, and berms 10 feet (3.0 m) wide.

The studied cross-section for the widening on Jones Franklin Road between Western Boulevard to 400 feet (122 m) south of relocated Buck Jones Road is a 7-lane curb-and-gutter section, 88 feet (26.8 m) wide from face-to-face of curbs with 10-foot (3.0-m) wide berms. This cross section accommodates 2 through lanes, double left turn lanes and an exclusive right turn lane at the intersections with Western Boulevard and relocated Buck Jones Road. The recommended right-of-way width for this section is 110 feet (33.5 m). This section would taper to the existing 2-lane cross-section south of relocated Buck Jones Road.

The studied cross-section for the relocation of Buck Jones Road is a 3-lane curb-and-gutter section, 40 feet (12.2 m) wide from face-to-face of curbs which would be widened at the Jones Franklin Road intersection to a 6-lane curb-and-gutter section, 76 feet (23.2 m) wide from face-to-face of curbs to accommodate the required turn lanes. The studied cross-section for the relocation of Wilmont Drive is a 2-lane curb-and-gutter section, 28 feet (8.5 m) wide from face-to-face of curbs. The recommended right-of-way width for these relocations is 100 feet (30.5 m).

The studied cross-section for the widening of eastbound Hillsborough Road is a 5-lane curb-and-gutter section, 64 feet (19.5 m) wide from face-to-face of curbs with berms 10 feet (3.0 m) wide, and widened at the Jones Franklin Road intersection to a 7-lane curb-and-gutter section to provide 2 through lanes, double left turn lanes and an exclusive right turn lane. The recommended right-of-way width for this section is 100 feet (30.5 m).

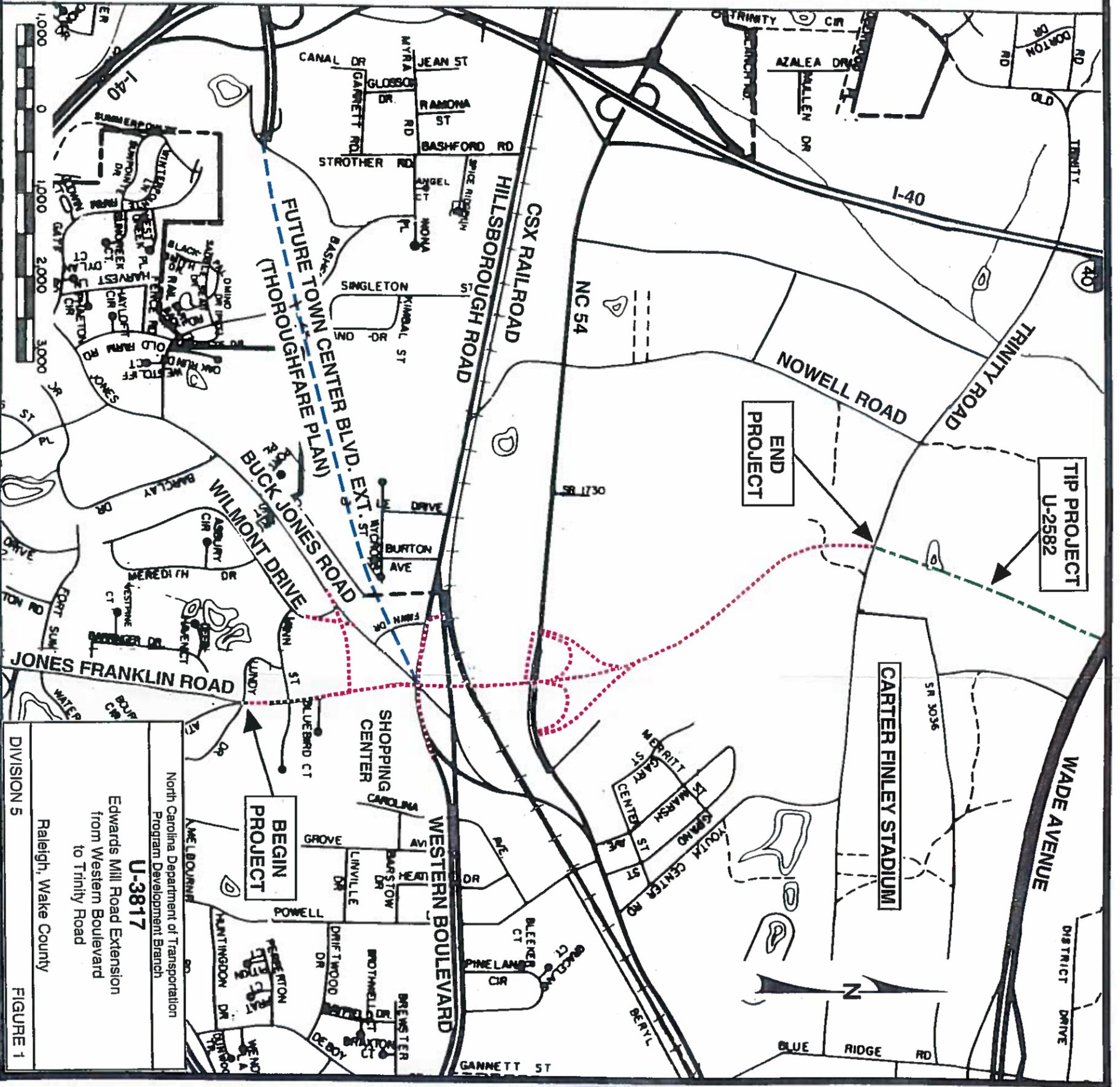
There are anticipated to be 7 residential and no business relocations as a result of this project.

The total project cost including construction and right of way is estimated to be \$ 39,250,000 as follows:

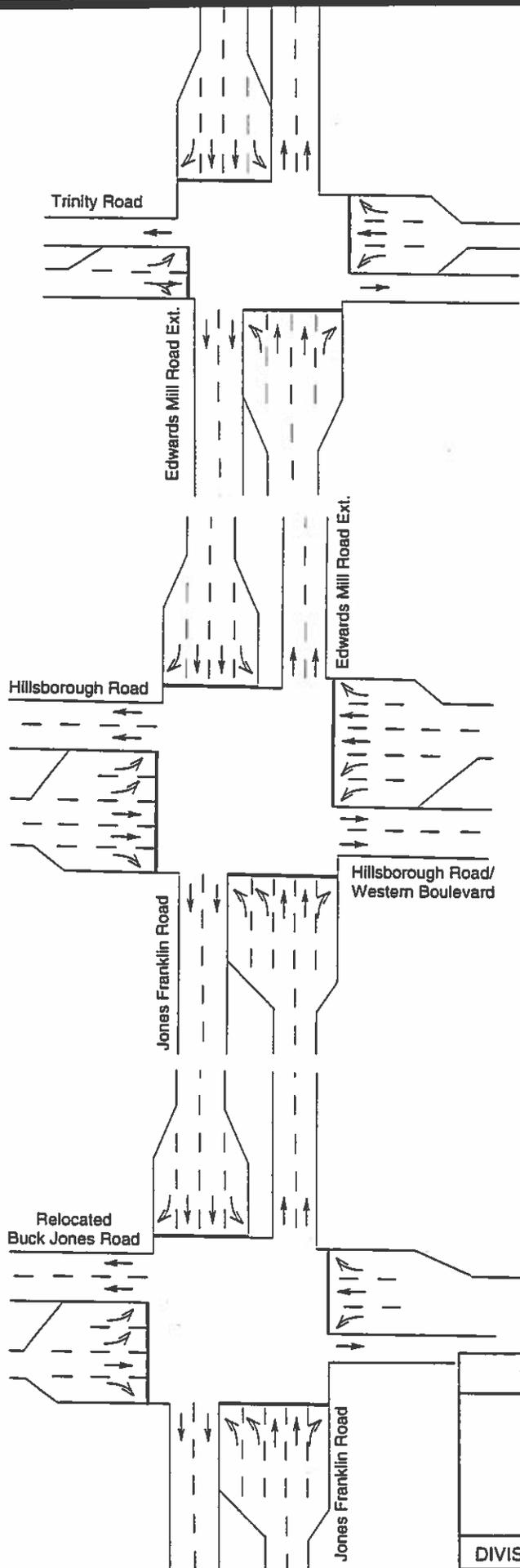
|              |       |                   |
|--------------|-------|-------------------|
| Right-of-Way | ..... | \$ 6,950,000      |
| Construction | ..... | <u>32,300,000</u> |
| Total Cost   | ..... | \$ 39,250,000     |

#### **IV. Other Comments**

An environmental screening was not conducted for this study. Approximately 10 acres of wetlands will be encountered in the area of the proposed NC 54 interchange. The cost for wetland mitigation has not been included in the above cost estimate. No threatened or endangered species or historic properties were identified in the project corridor. The Mount Vernon Goodwin School is on the State Study List and is east of the project corridor and separated from the corridor by two intervening properties.



North Carolina Department of Transportation  
 Program Development Branch  
**U-3817**  
 Edwards Mill Road Extension  
 from Western Boulevard  
 to Trinity Road  
 Raleigh, Wake County  
 DIVISION 5  
 FIGURE 1



**NOT TO SCALE**

North Carolina Department of Transportation  
Program Development Branch

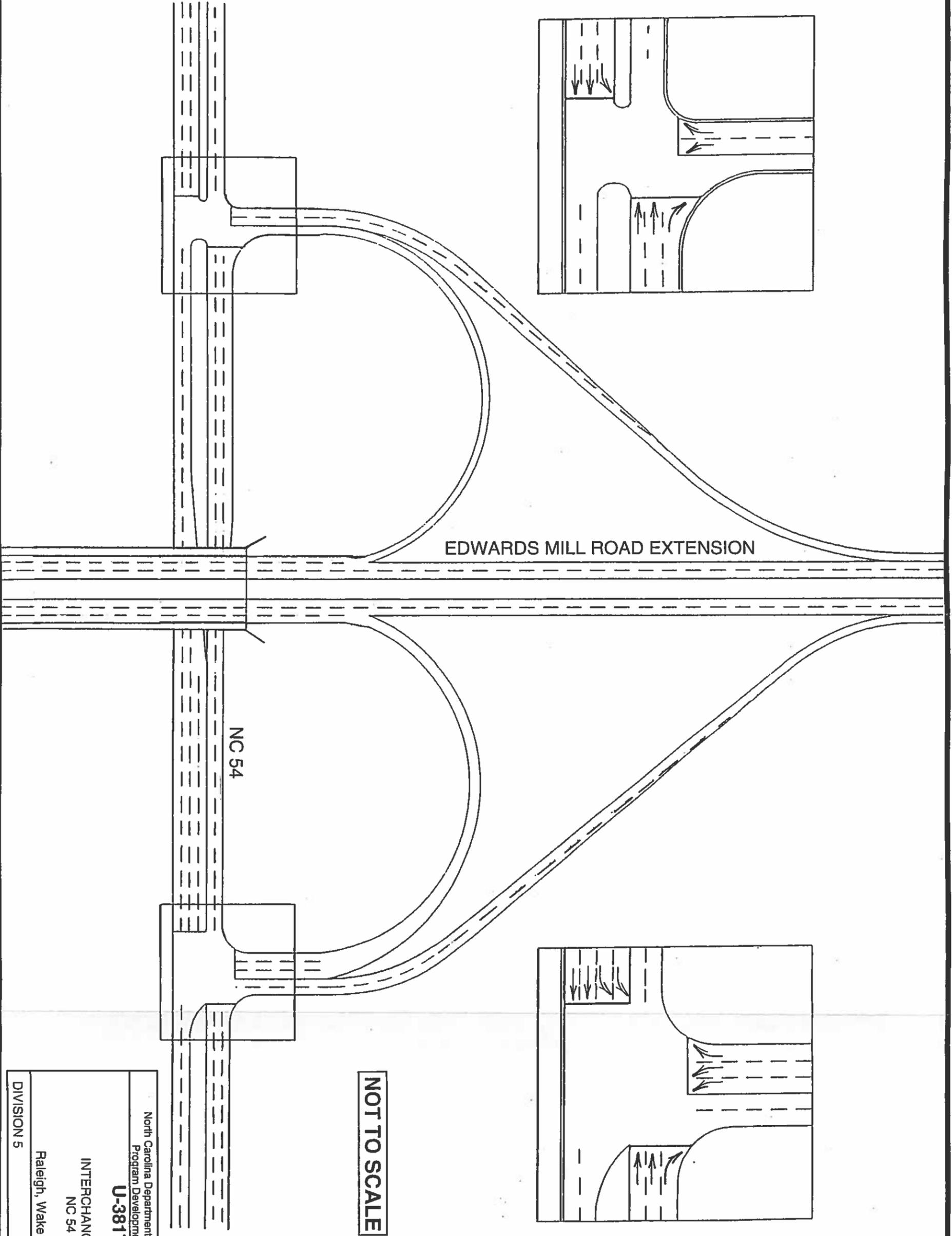
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LANE USE AT INTERSECTIONS

Raleigh, Wake County

DIVISION 5

FIGURE 2



EDWARDS MILL ROAD EXTENSION

NC 54

NOT TO SCALE

|   |
|---|
| North Carolina Department of Transportation<br>Program Development Branch |
| <b>U-3817</b>   |
| INTERCHANGE AT<br>NC 54   |
| Raleigh, Wake County  |
| DIVISION 5  |
| FIGURE 3  |