

FEASIBILITY STUDY

**Charlotte
Intersection of
South Boulevard (US 521)
and
Woodlawn Road (SR 3814)
Mecklenburg County
U-2100**

**Prepared by
Program Development Branch
Division of Highways
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Date

Intersection of
South Boulevard (US 521)
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Mecklenburg County
U-2100

I. General Description

This feasibility study describes proposed improvements at the intersection of South Boulevard (US 521) and Woodlawn Road (SR 3814) in Charlotte, Mecklenburg County. The improvements include widening each leg of the intersection and closing Connecting Road at its intersection with Woodlawn Road. The project location is shown on Figure 1. The existing lane configuration at the intersection is shown on Figure 2. The proposed widening is shown on Figure 3, and the proposed lane configuration at the intersection is shown on Figure 4. Additional right-of-way will be required; however, it is not anticipated that any residences or businesses will be relocated. The total cost including construction and right-of-way is estimated to be \$ 2,985,000.

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 proposed project 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 increase the traffic carrying capacity and safety of the subject intersection.

In the North Carolina Functional Classification System, South Boulevard is classified as a Principal Arterial south of the intersection and as a Minor Arterial north of the intersection. Woodlawn Road is classified as a Principal Arterial west of the intersection and as a Minor Arterial east of the intersection. On the Charlotte-Mecklenburg Thoroughfare Plan, both roadways are classified as Major Thoroughfares.

South Boulevard is generally a 4-lane, 54-foot (16.5-m) wide (face-to-face of curbs) roadway which has been widened at the intersection to facilitate turning movements. Woodlawn Road is generally a 4-lane, 48-foot (14.6-m) wide (face-to-face of curbs) roadway on the east side of the intersection and a 55-foot (16.8-m) wide (face-to-face of curbs) roadway on the west side of the intersection. The westbound approach of Woodlawn Road has been widened to facilitate turning movements. Each leg of the intersection includes a through/right turn lane, a through lane, a left turn lane, and two

lanes exiting the intersection. Please see Figure 2 for a sketch of the existing intersection and lane configurations.

All four quadrants of the intersection are heavily developed commercially. Please see Figure 2 for a sketch of the existing intersection. East of the intersection, Woodlawn Road is heavily developed residentially.

The existing right-of-way appears to be to the back of the curb in all four quadrants. Sidewalks are also present in each quadrant.

The 1994 and 2010 peak hour turning movement traffic counts are shown on Figure 5. Based on the 1994 counts, the intersection is estimated to be operating at a Level of Service F. With the proposed improvements, the Level of Service will improve to Level D, and will reach a level F by the 2010 design year.

During the period from July 1, 1991, through June 30, 1994, there were 131 accidents reported at this intersection. None of the accidents resulted in a fatal injuries; however, 48 of the accidents resulted in 81 non-fatal injuries. The most prevalent type accidents were Rear-end (50%), Angle (13%), and Sideswipe (9%). The proposed improvements should lessen the congestion at this intersection, and reduce the potential for these type accidents.

III. Recommendations

It is recommended to widen each leg of the intersection of South Boulevard (US 521) and Woodlawn Road (SR 3814) as follows:

1. The north leg on South Boulevard will be widened to provide an eight lane, curb and gutter cross-section that will be 88 feet (26.8 m) wide from face-to-face of curbs. There will be two left-turn lanes, two through lanes, one combination through/right-turn lane, and 3 lanes exiting the intersection. This cross section will extend approximately 350 feet (106.7 m) north of the intersection from which point it will taper to approximately 490 feet (149.4 m) north of the intersection to meet the existing 4-lane curb and gutter cross section. The widening is shown on Figure 3 and the lane use is shown on Figure 4.
2. The south leg on South Boulevard will also be widened to provide an eight lane, curb and gutter cross-section that will be 88 feet (26.8 m) wide from face-to-face of curbs. There will be two left-turn lanes, two through lanes, one combination through/right-turn lane, and 3 lanes exiting the intersection. This cross section will extend approximately 270 feet (82.3 m) south of the intersection from which point it will taper to approximately 450 feet (137.2 m) south of the intersection to meet the existing 4-lane curb and gutter cross section. At the entrance to the shopping center in the southwest quadrant, the outside exit lane will become a right-turn lane into the shopping center. This entrance is located approximately 520 feet (158.6 m) south of

the intersection. A new traffic signal will be installed at Inwood Drive and a retaining wall will be constructed on the east side. The widening is shown on Figure 3 and the lane use is shown on Figure 4.

3. The east leg on Woodlawn Drive will be widened to provide an eight lane, curb and gutter cross-section that will be 88 feet (26.8 m) wide from face-to-face of curbs. There will be two left-turn lanes, two through lanes, one combination through/right-turn lane, and 3 lanes exiting the intersection. This cross section will extend approximately 250 feet (76.2 m) east of the intersection from which point the exit lanes will begin to taper to approximately 390 feet (118.9 m) east of the intersection to meet the existing 4-lane curb and gutter cross section. The outside exit lane will become a right-turn lane onto Gilmore Drive. The north side of the leg will begin to taper approximately 390 feet (118.9 m) east of the intersection to meet the existing 4-lane curb and gutter section at approximately 820 feet (250.1 m) east of the intersection. Existing Connecting Road will be closed at Woodlawn Road and a cul-de-sac constructed. The widening is shown on Figure 3 and the lane use is shown on Figure 4.

4. The west leg on Woodlawn Drive will be widened to provide a nine lane, curb and gutter cross-section that will be 99 feet (30.2 m) wide from face-to-face of curbs. There will be two left-turn lanes, two through lanes, one combination through/right-turn lane, one right-turn lane, and 3 lanes exiting the intersection. This cross section will extend approximately 310 feet (94.5 m) west of the intersection from which point the approach lanes will taper to a 6-lane section with a painted island at approximately 490 feet (149.4 m) west of the intersection. The 6-lane section will taper to meet the existing 5-lane curb and gutter section at approximately 950 feet (289.7 m) west of the intersection. The outside exit lane will transition to an exclusive right-turn lane onto Sterling Drive. A retaining wall will be constructed on the south side of the roadway. The widening is shown on Figure 3 and the lane use is shown on Figure 4.

5. The existing traffic signal will be upgraded.

The total estimated cost including construction and right-of-way is \$ 2,985,000 as follows:

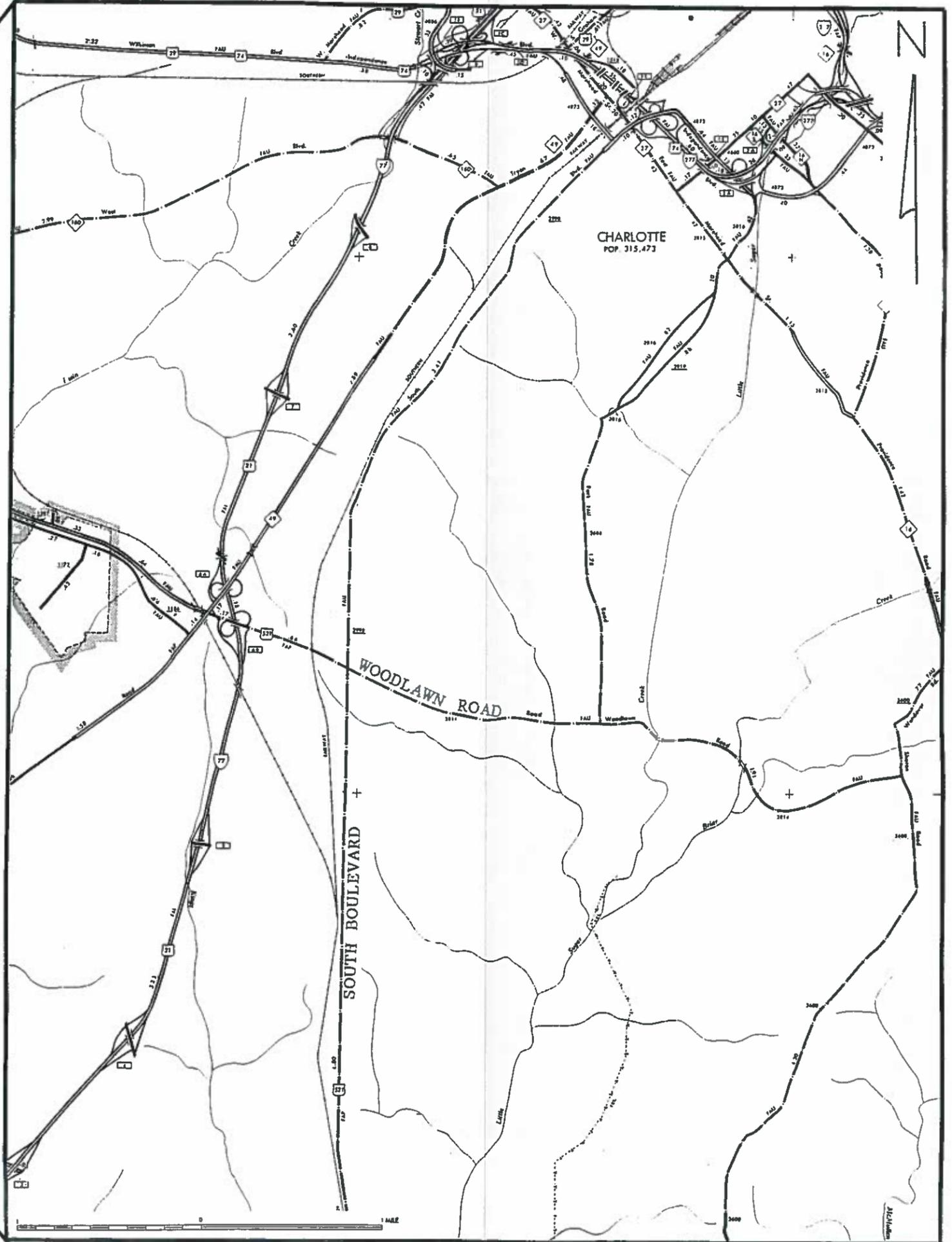
Construction	\$ 1,000,000
Right-of-Way	1,985,000
Total Cost	\$ 2,985,000

V. Other Comments

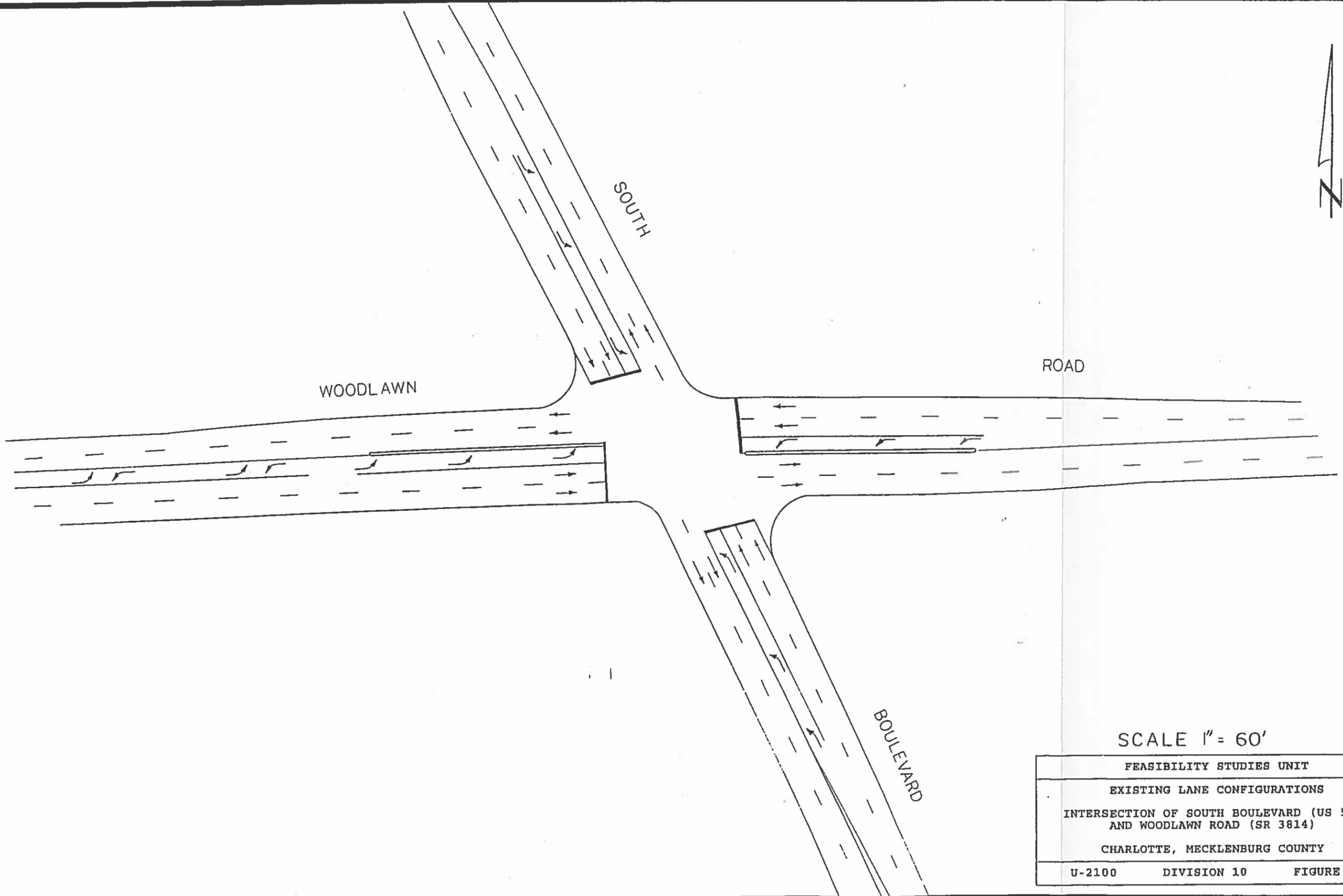
An environmental screening was not conducted for this study.

The Charlotte-Mecklenburg Metropolitan Planning Organization has determined this project to be its highest ranked intersection improvement involving a numbered route and another State Road. Also, these intersection improvements will generate significant reductions in hydrocarbons, carbon monoxide, and nitrous oxides.

The proposed project includes 11-foot (3.3-m) wide lanes. Standard lane width is 12 feet (3.6 m). To utilize lanes wider than 11 feet (3.3 m) would entail acquisition of a greater amount of already very expensive right-of-way and possibly create a situation of relocation of businesses.

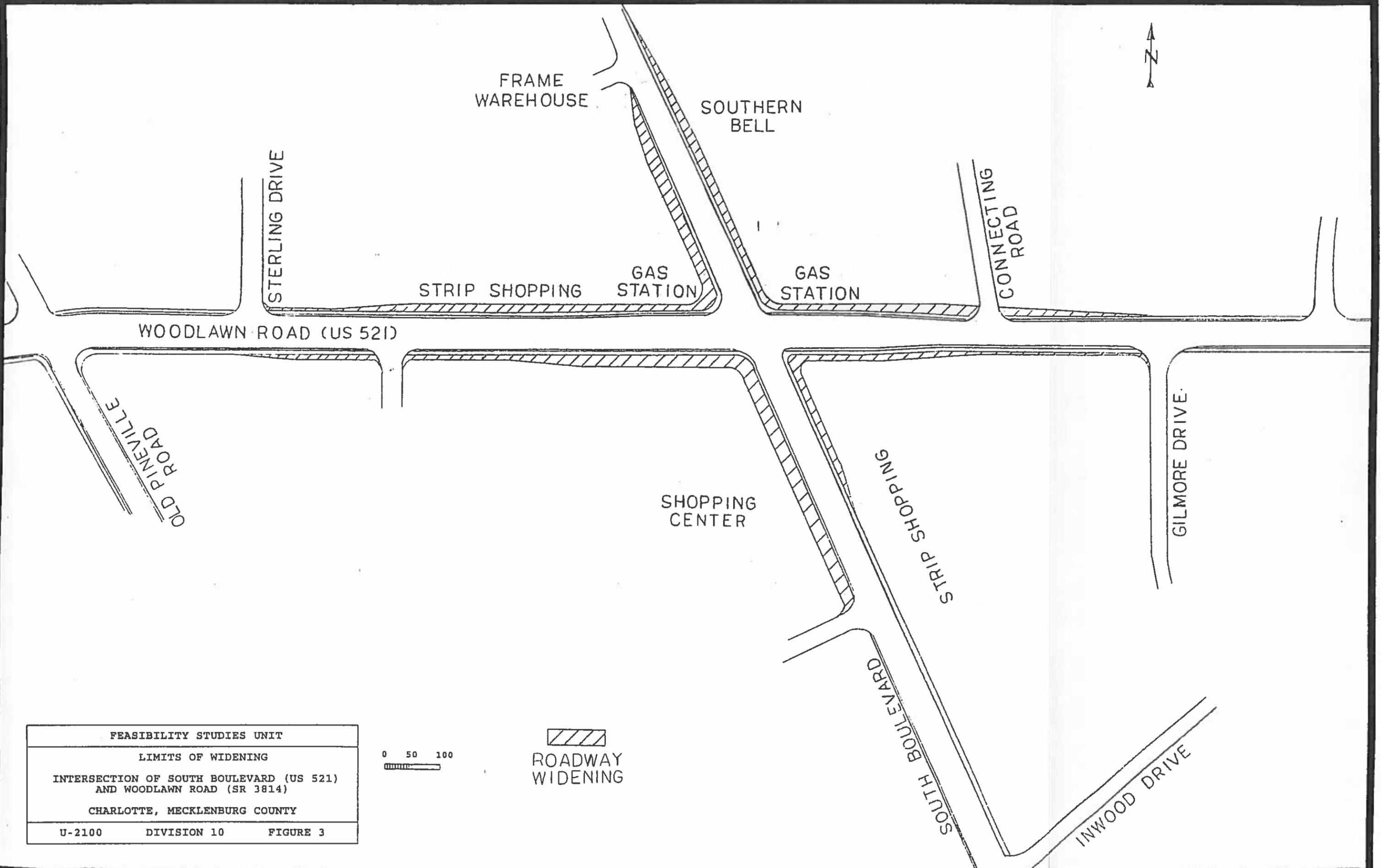


FEASIBILITY STUDIES UNIT		
PROJECT LOCATION		
INTERSECTION OF SOUTH BOULEVARD (US 521) AND WOODLAWN ROAD (SR 3814)		
CHARLOTTE, MECKLENBURG COUNTY		
U-2100	DIVISION 10	FIGURE 1



SCALE 1" = 60'

FEASIBILITY STUDIES UNIT		
EXISTING LANE CONFIGURATIONS		
INTERSECTION OF SOUTH BOULEVARD (US 521) AND WOODLAWN ROAD (SR 3814)		
CHARLOTTE, MECKLENBURG COUNTY		
U-2100	DIVISION 10	FIGURE 2



FRAME WAREHOUSE

SOUTHERN BELL

STERLING DRIVE

STRIP SHOPPING

GAS STATION

GAS STATION

CONNECTING ROAD

WOODLAWN ROAD (US 521)

OLD PINEVILLE ROAD

SHOPPING CENTER

STRIP SHOPPING

GILMORE DRIVE

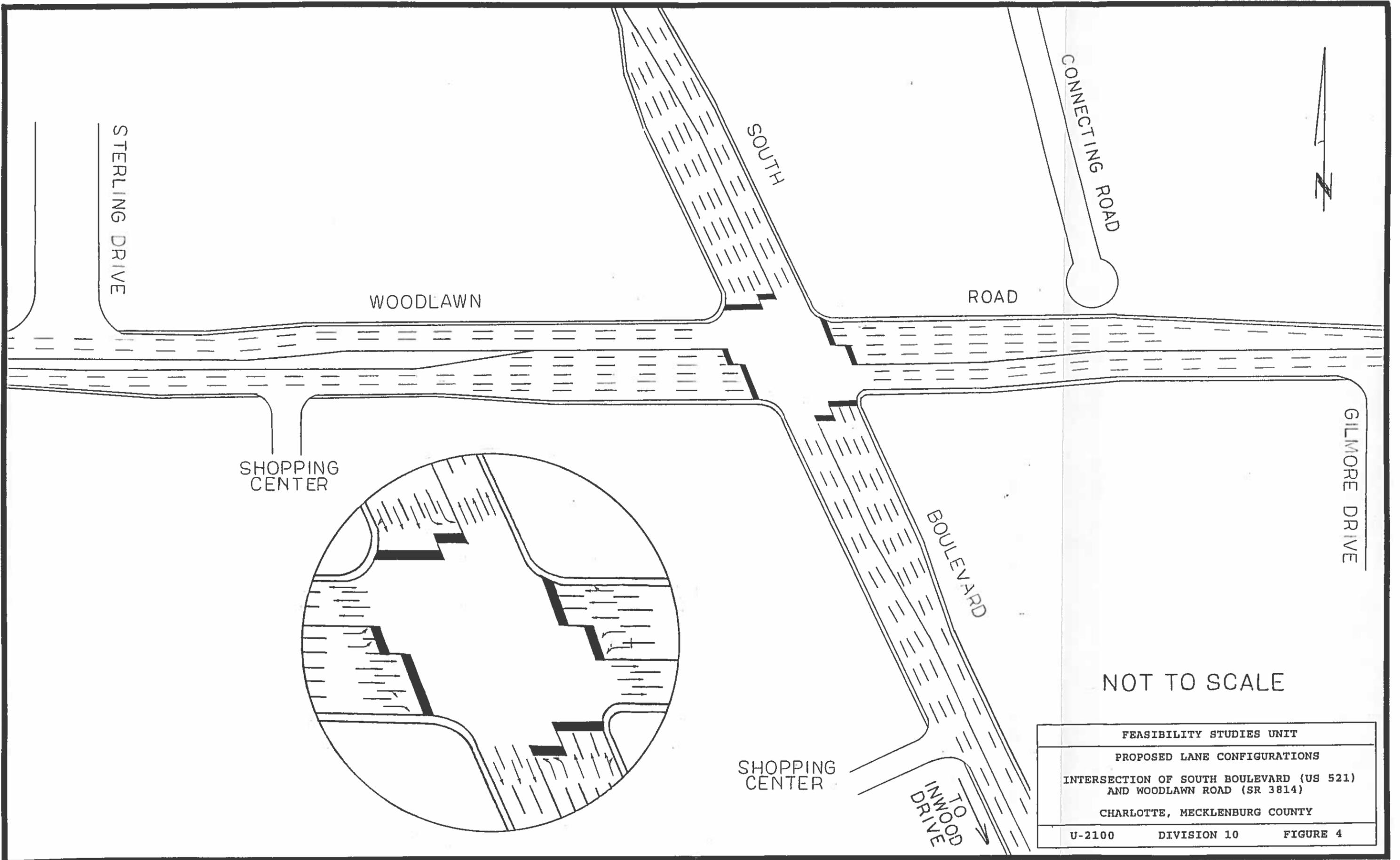
SOUTH BOULEVARD

INWOOD DRIVE

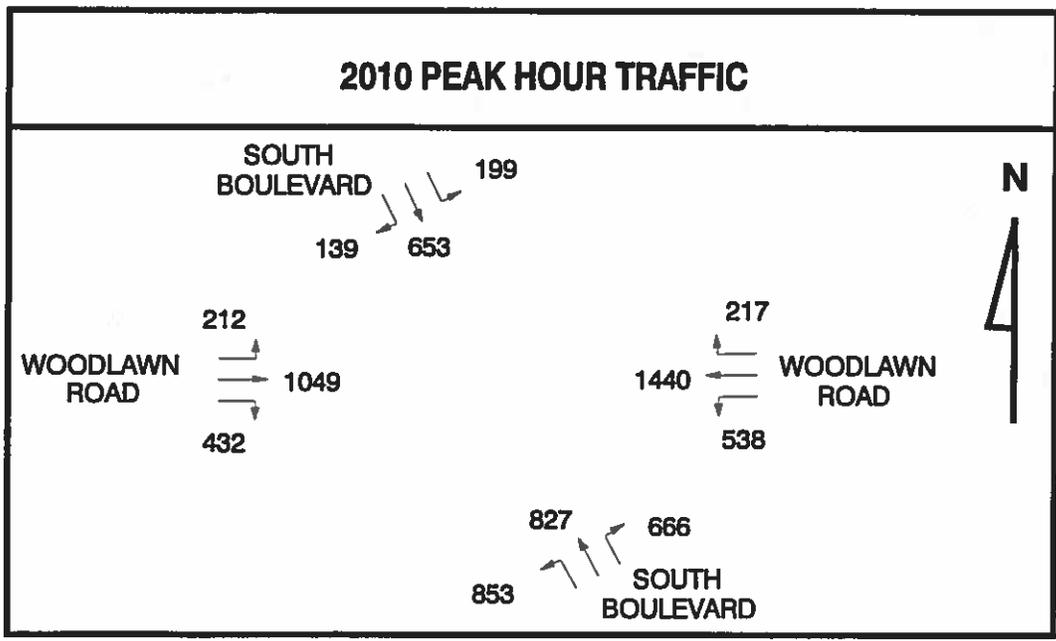
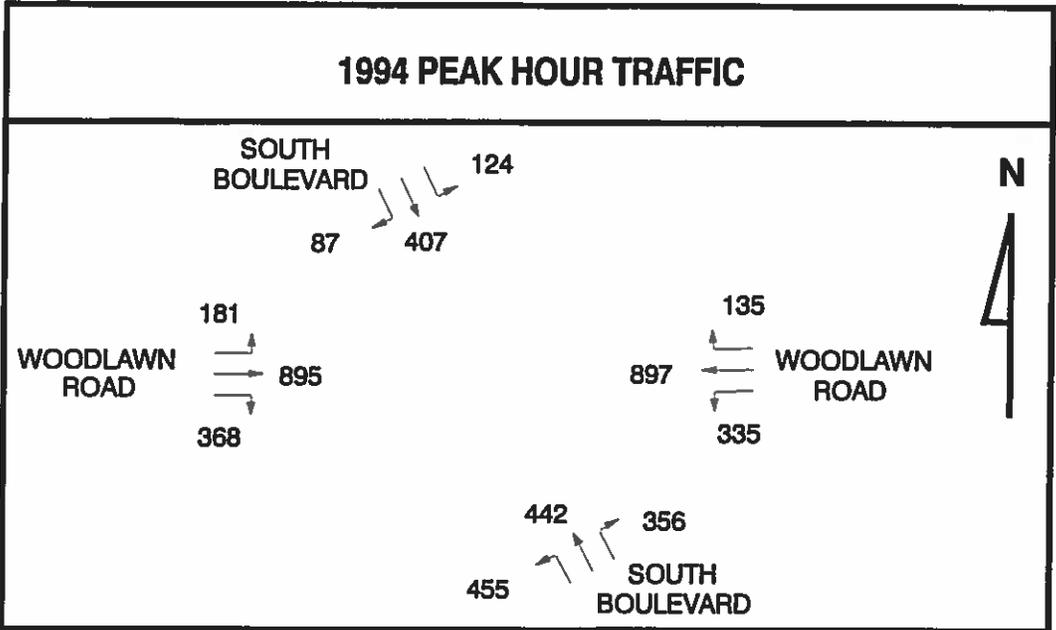
FEASIBILITY STUDIES UNIT		
LIMITS OF WIDENING		
INTERSECTION OF SOUTH BOULEVARD (US 521) AND WOODLAWN ROAD (SR 3814)		
CHARLOTTE, MECKLENBURG COUNTY		
U-2100	DIVISION 10	FIGURE 3



 ROADWAY WIDENING



FEASIBILITY STUDIES UNIT		
PROPOSED LANE CONFIGURATIONS		
INTERSECTION OF SOUTH BOULEVARD (US 521) AND WOODLAWN ROAD (SR 3814)		
CHARLOTTE, MECKLENBURG COUNTY		
U-2100	DIVISION 10	FIGURE 4



FEASIBILITY STUDIES UNIT

1994 & 2010 TRAFFIC VOLUMES

**INTERSECTION OF SOUTH BOULEVARD (US 521)
AND WOODLAWN ROAD (SR 3814)**

CHARLOTTE, MECKLENBURG COUNTY

U-2100 DIVISION 10 FIGURE 5