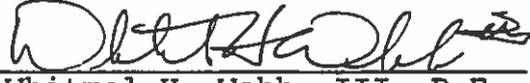


FEASIBILITY STUDY

Angier
Intersection of
NC 210 and NC 55
Harnett County
R-2804

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


W. J. Watson, P.E.
Highway Planning Engineer


Whitmel H. Webb, III, P.E.
Head of Feasibility Studies

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Date

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I. GENERAL DESCRIPTION

This preliminary study describes proposed improvements to the intersection of NC 210 and NC 55 in Angier. For a location map please see Figure 1. It is proposed to widen NC 55 both north and south of the intersection in order to establish an exclusive left turn lane on each NC 55 approach. Further, it is proposed to widen NC 210 west of the intersection in order to lengthen the existing exclusive right turn lane. The lengthened lane will then be marked for, and function as, a combination left-thru-right turn lane. The curb radii in the northeast and northwest quadrants will be increased to facilitate right turning traffic from the NC 55 southbound approach and from the NC 210 westbound approach. The proposed intersection is shown as Figure 2.

The existing two phase, actuated traffic signal will be replaced with a four phase, fully actuated traffic signal. The proposed signal phasing provides protected left turn phases for NC 55 and NC 210 traffic and is shown on Figure 2.

No residential and no business relocatees are expected on this project. The total estimated cost including construction and right of way is \$ 210,000.

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 problem, evaluate treatment alternatives including costs, and identify potential problem areas that require consideration in the planning and construction stages.

II. NEED FOR PROJECT

The purpose of these improvements is to improve the capacity and accident experience of the intersection of NC 210 and NC 55 in Angier. This project was requested by the Town of Angier and should improve traffic flow and congestion during peak traffic periods.

The north and south legs on NC 55 are 48 feet wide from face to face of curbs, and each provides two 12 foot wide travel lanes in each direction. No parking is allowed on NC 55.

The east leg on NC 210 is 48 feet wide from face to face of curbs and parallel parking is allowed on the south side of this leg. One eastbound travel lane and two westbound travel lanes are provided.

The west leg on NC 210 is generally a 26 foot wide pavement with one travel lane in each direction. At the intersection, the eastbound approach has been widened to provide two lanes: a combination thru-left turn lane and an exclusive right turn lane. The exclusive right turn lane is approximately 50 feet long.

Development in each quadrant of the intersection is commercial, however the auto service station building in the northwest quadrant and the retail store building in the northeast quadrant are currently vacant. Test wells are now being employed on the site of the vacant service station to determine if there is contamination from underground storage tanks. There is a restaurant parking lot in the southeast quadrant. In the southwest quadrant there is a full service, auto service station in operation.

The estimated 1992 and 2002 peak hour turning movement traffic counts are shown in Tables 1 and 2 below. Based on 1992 traffic counts, existing signal phasing, and lane configuration, this intersection is operating at Level of Service (LOS) C. Based on traffic estimates for the design year (2002), the capacity of the intersection will be exceeded (LOS F) unless the proposed improvements are implemented. With the proposed improvements, a LOS B will be attained based on 1992 traffic volumes and a LOS C will prevail through the 2002 design year.

TABLE 1. 1992 PEAK HOUR TURNING MOVEMENTS (Vehicles Per Hour)			
	Left	Thru	Right
Northbound NC 55	13	259	24
Southbound NC 55	66	445	265
Eastbound NC 210	118	101	17
Westbound NC 210	75	81	68

TABLE 2. 2002 PEAK HOUR TURNING MOVEMENTS (Vehicles Per Hour)			
	Left	Thru	Right
Northbound NC 55	18	363	33
Southbound NC 55	93	624	372
Eastbound NC 210	165	141	24
Westbound NC 210	105	114	96

During the period from October 1, 1989 to September 30, 1992 there were a total of 18 accidents reported at this intersection. There were no fatal accidents reported, however, five accidents resulted in 15 persons being injured. Twelve accidents involved vehicles attempting left turns. Of the left turn accidents, five involved turns from southbound NC 55, four involved turns from northbound NC 55, and three involved turns from eastbound NC 210. There were five rear-end accidents and one angle accident reported. The exclusive left turn lanes and signal phases proposed will reduce the accident potential at this intersection.

III. RECOMMENDATIONS

It is recommended to improve the intersection of NC 210 and NC 55 in Angier by widening both roads and making revisions in the traffic signal phasing. It is recommended to widen NC 55 both north and south of the intersection in order to establish an exclusive left turn lane on each NC 55 approach. NC 55 is to be widened approximately six feet on each side, and the full width of widening should extend approximately 200 feet both north and south of the intersection. Further, it is recommended to widen NC 210 west of the intersection in order to lengthen, by approximately 150 feet, the existing 12 foot wide exclusive right turn lane. The lengthened lane will then be marked for, and function as, a combination left-thru-right turn lane. The curb radii in the northeast and northwest quadrants will be increased to approximately 70 feet and 90 feet respectively in order to facilitate right turning traffic from the NC 55 southbound approach and from the NC 210 westbound approach. The recommended intersection is shown as Figure 2.

The existing two phase, actuated traffic signal, will be replaced with a four phase, fully actuated traffic signal. The recommended signal phasing provides protected left turn phases for NC 55 and NC 210 traffic and is shown on Figure 2.

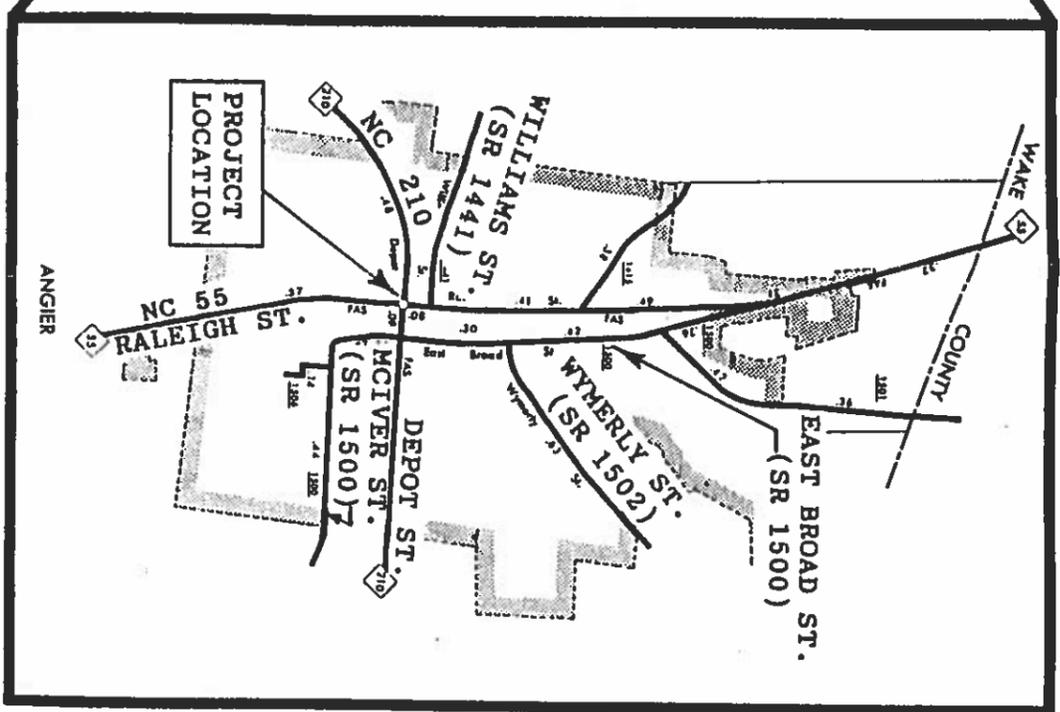
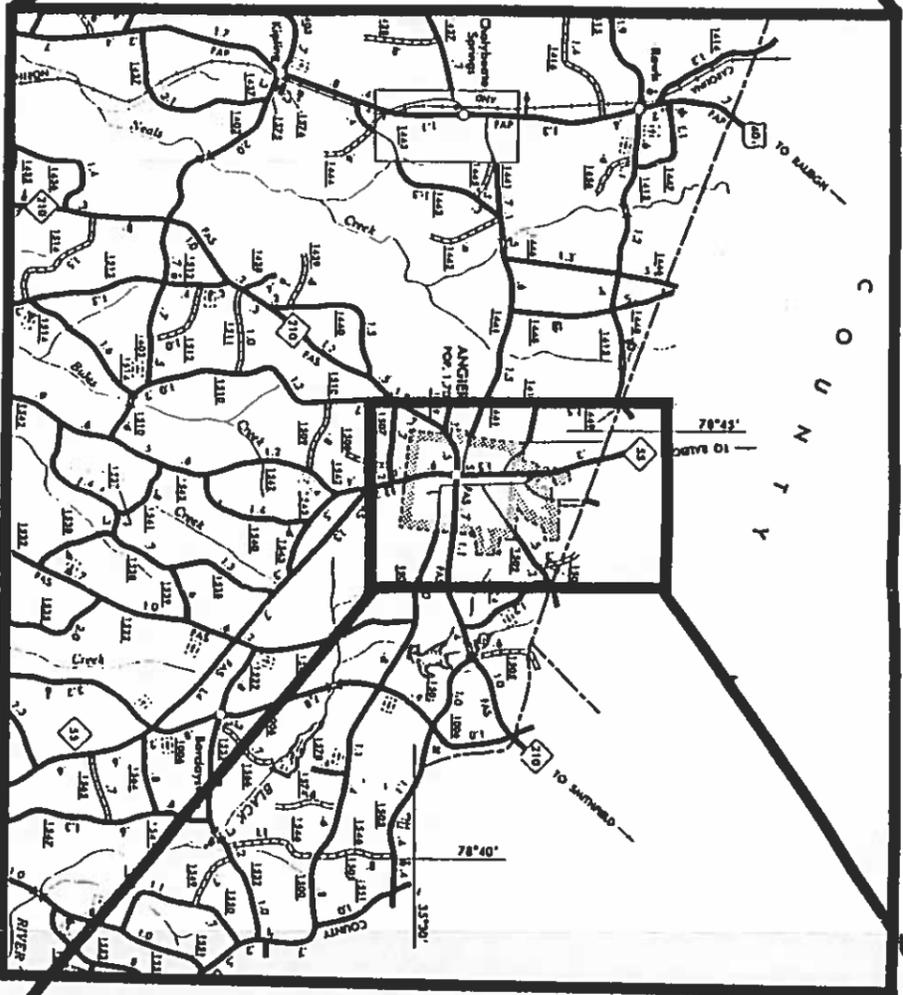
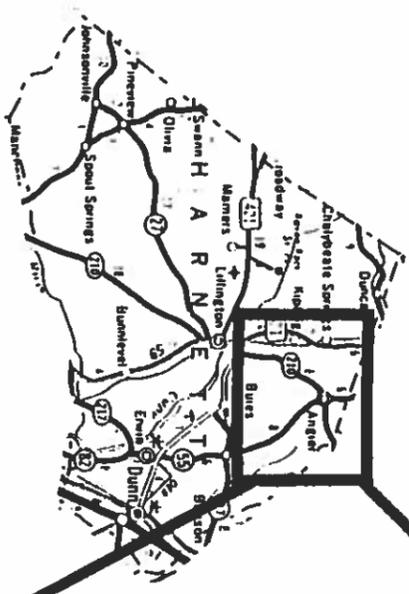
No residential and no business relocatees are expected on this project. The total estimated cost including construction and right of way is \$ 210,000, as follows:

Construction	\$ 150,000
Right of Way	60,000
Total Cost	210,000

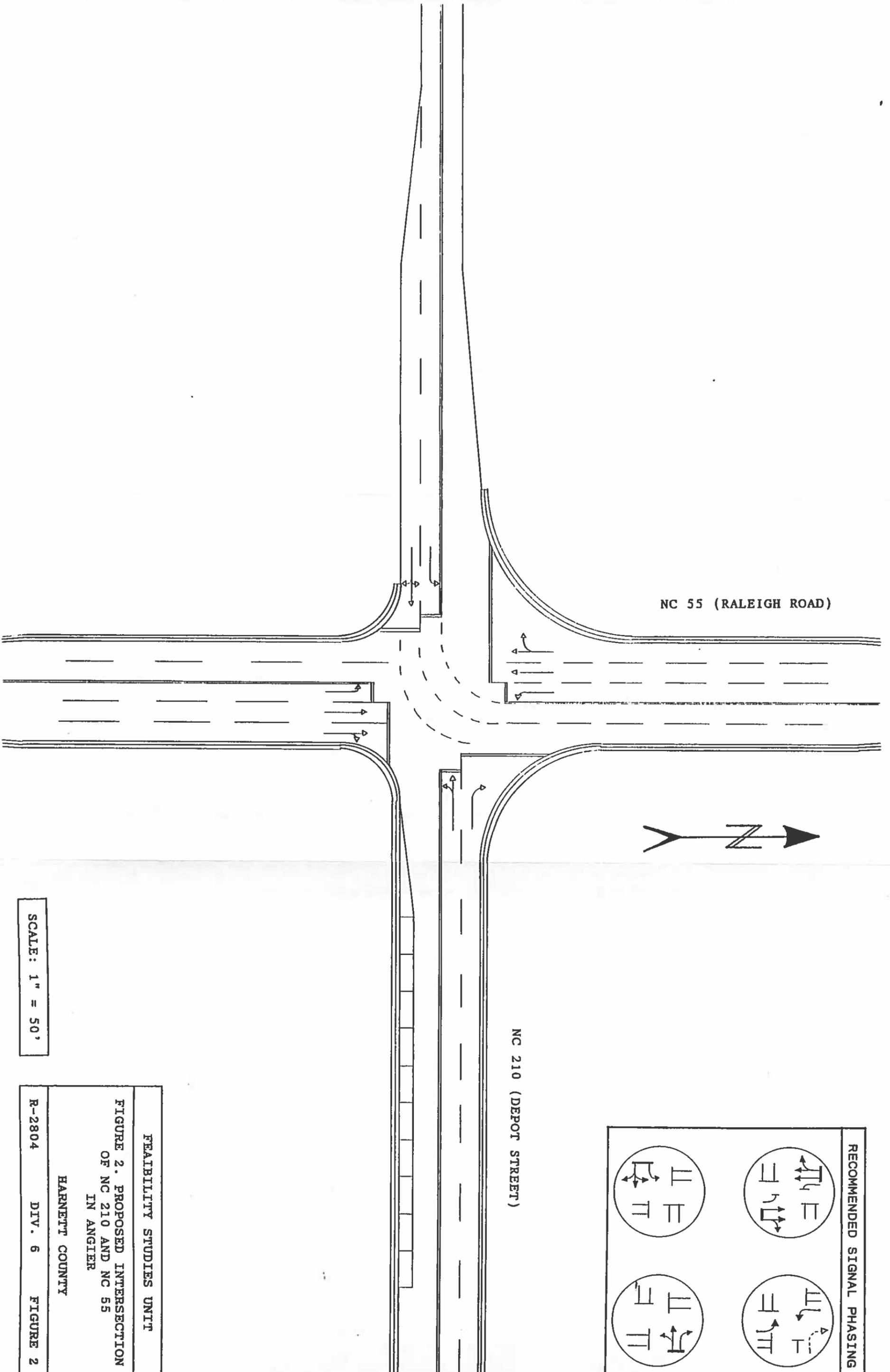
IV. OTHER COMMENTS

An environmental screening was not conducted for this project.

The proposed improvements follow, generally, suggestions made by the Division Traffic Engineer. They do, however, differ from the Division Engineer's suggestions in that an exclusive southbound right turn lane is not provided on NC 55, the east leg on NC 210 is not widened, and the west leg on NC 210 is widened by 12 feet rather than 24 feet. It is estimated that these widenings would cost an additional \$210,000 in construction and right of way, and will not add significant intersection capacity; therefore, they were not included in the recommendations.

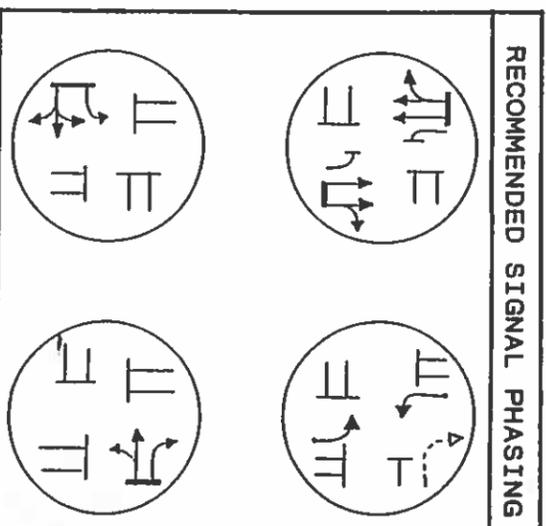


FEASIBILITY STUDIES UNIT	
FIGURE 1. LOCATION MAP	
INTERSECTION OF NC 210 AND NC 55 ANGIER HARNETT COUNTY	
R-2804	DIV. 6
FIGURE 1	



NC 55 (RALEIGH ROAD)

NC 210 (DEPOT STREET)



SCALE: 1" = 50'

FEASIBILITY STUDIES UNIT
 FIGURE 2. PROPOSED INTERSECTION
 OF NC 210 AND NC 55
 IN ANGLIER
 HARNETT COUNTY

R-2804 DIV. 6 FIGURE 2

