

FEASIBILITY STUDY

Raleigh
Glenwood Avenue (US 70)
from
0.6 mile (1.0 km) West of SR 1876
to
0.5 mile (0.8 km) West of SR 1664
Wake County
U-2823

Prepared by
Program Development Branch
Division of Highways
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8/4/95
Date

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I. GENERAL DESCRIPTION

This preliminary study describes the proposed widening of Glenwood Avenue (US 70) in Wake County. The total project length is approximately 3.3 miles (5.3 km). The project location is shown on Figure 1.

The existing facility is a 4-lane divided shoulder section with a 30-foot (9.1-m) grass median. Two alternative cross-sections were studied.

Alternate 1 results in a 6-lane, median-divided facility with 10-foot (3.0-m) wide paved shoulders in the median and on the outside. The median will be 30 feet (9.1 m) wide. Alternate 1 includes right-of-way sufficient to build an 8-lane facility.

Alternate 2 results in a 8-lane, median-divided facility with 10-foot (3.0-m) wide paved shoulders in the median and on the outside. The median will be 30 feet (9.1 m) wide.

Both alternates include installation of a traffic signal at the Hilburn Road intersection, revision of the traffic signals at Lynn Road (SR 1827), Pinecrest Drive (SR 1835), and Ebenezer Church Road (SR 1647), and coordination and interconnection of these signals with the existing traffic signal at Duraleigh Road (SR 1664).

Generally, the project can be built within the existing right-of-way which is 180 feet (54.9 m) wide. However, significant right-of-way and/or construction easements will be required in some areas of cut and fill to construct Alternate 2; and significant, but less, right-of-way and/or construction easements will be required in some areas of cut and fill to construct Alternate 1.

No residential or business relocations are anticipated due to either alternate for this project.

The total cost including construction and right-of-way for Alternate 1 is estimated to be \$14,700,000 and for Alternate 2, the estimated cost is \$17,300,000.

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 needs, recommend a treatment including costs, and identify potential problem areas that 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 on Glenwood Avenue. The project was requested by the City of Raleigh. The proposed improvements are consistent with the recommendations contained in US 70 Corridor Study, prepared for the US 70 Corridor Study Steering Committee.

Existing Glenwood Avenue is designated a Major Thoroughfare on the Raleigh Thoroughfare Plan. Glenwood Avenue, within these project limits, is classified as an Urban Other Principal Arterial in the North Carolina Statewide Functional Classification System.

Land use along the project corridor is mostly commercial. Development consists of a mix of retail and service businesses, and some multi-family residential areas. The project corridor connects Raleigh and Durham, and is in close proximity to the Raleigh-Durham International Airport. The corridor appears to be experiencing rapid growth with respect to both commercial and residential development.

Existing Glenwood Avenue is generally a 2-way, 4-lane median dividend shoulder section. At major intersections exclusive turn lanes have been provided.

The intersections with Lynn Road, Pinecrest Drive, and Ebenezer Church Road are signalized, and will require traffic signal revisions.

Traffic volume estimates for Glenwood Avenue for the years 1994 and 2015 are 33,000 vehicles per day (vpd), and 66,000 vpd respectively. The Level of Service (LOS), for the existing facility, and for the two alternate cross-sections is shown below in Table 1 for both existing and projected traffic volumes.

TABLE 1. LEVEL OF SERVICE		
CROSS-SECTION	1994 TRAFFIC	2015 TRAFFIC
4-lane (exist.)	D	F
Alternate 1 6 lanes	B	F
Alternate 2 8 lanes	A	D

During the three year period beginning 1/01/92, and ending 12/31/94, there were 134 accidents reported on Glenwood Avenue within the project limits. This resulted in a total accident rate of 121 accidents per 100 million vehicle miles (ACC/100MVM). This compares with the statewide average of 252 ACC/100MVM for all Urban US routes, in North Carolina, for 1993.

There were no fatal accidents reported, however, 56 accidents resulted in 90 injured persons. The most prevalent type accidents were Rear-end (54%), Animal (13%) and Angle (10%). The proposed wider cross-section and interconnected traffic signals will reduce the potential for the Rear-end and Angle type accidents.

III. ALTERNATIVES CONSIDERED

The existing facility is a 4-lane divided shoulder section with a 30-foot (9.1-m) wide grass median. Two alternative cross-sections were studied.

Alternate 1 results in a 6-lane, median-divided facility with 10-foot (3.0-m) wide paved shoulders in the median and on the outside. The median will be 30 feet (9.1 m) wide. Alternate 1 includes right-of-way sufficient to build an 8-lane facility.

Alternate 2 results in a 8-lane, median-divided facility with 10-foot (3.0-m) wide paved shoulders in the median and on the outside. The median will be 30 feet (9.1 m) wide.

Both alternates include installation of a traffic signal at the Hilburn Road intersection, revision of the traffic signals at Lynn Road (SR 1827), Pinecrest Drive (SR 1835), and Ebenezer Church Road (SR 1647), and coordination and interconnection of these signals with the existing traffic signal at Duraleigh Road (SR 1664).

Generally, the project can be built within the existing right-of-way which is 180 feet (54.9 m) wide. However, significant right-of-way and/or construction easements will be required in some areas of cut and fill to construct Alternate 2; and significant, but less, right-of-way and/or construction easements will be required in some areas of cut and fill to construct Alternate 1.

No residential or business relocations are anticipated due to either alternate for this project.

The major features and total cost including construction and right-of-way for Alternate 1 and Alternate 2 are summarized below.

Alternate 1.

- A. Widen the existing 4-lane facility to a 6-lane facility with 10-foot (3.0-m) paved shoulders in the median and on the outside. The existing pavement will be resurfaced.
- B. Signalize the Hilburn Road intersection, revise the signals at Lynn Road, Pinecrest Drive, and Ebenezer Church Road, and interconnect these signals.
- C. Purchase right-of-way for an 8-lane facility. It is felt that relatively little right-of-way will be required for a 6-lane facility.

Construction Cost.....	\$13,100,000
Right-of-way Cost.....	1,600,000
Total Cost.....	14,700,000

Alternate 2.

- A. Widen the existing 4-lane facility to a 8-lane facility with 10-foot (3.0-m) paved shoulders in the median and on the outside. The existing pavement will be resurfaced.
- B. Signalize the Hilburn Road intersection, revise the signals at Lynn Road, Pinecrest Drive, and Ebenezer Church Road, and interconnect these signals.

Construction Cost.....	\$15,700,000
Right-of-way Cost (Same as Alt. 1)	1,600,000
Total Cost.....	\$17,300,000

IV. OTHER COMMENTS

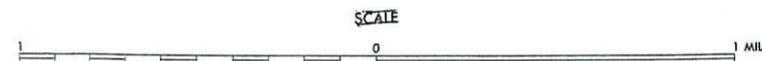
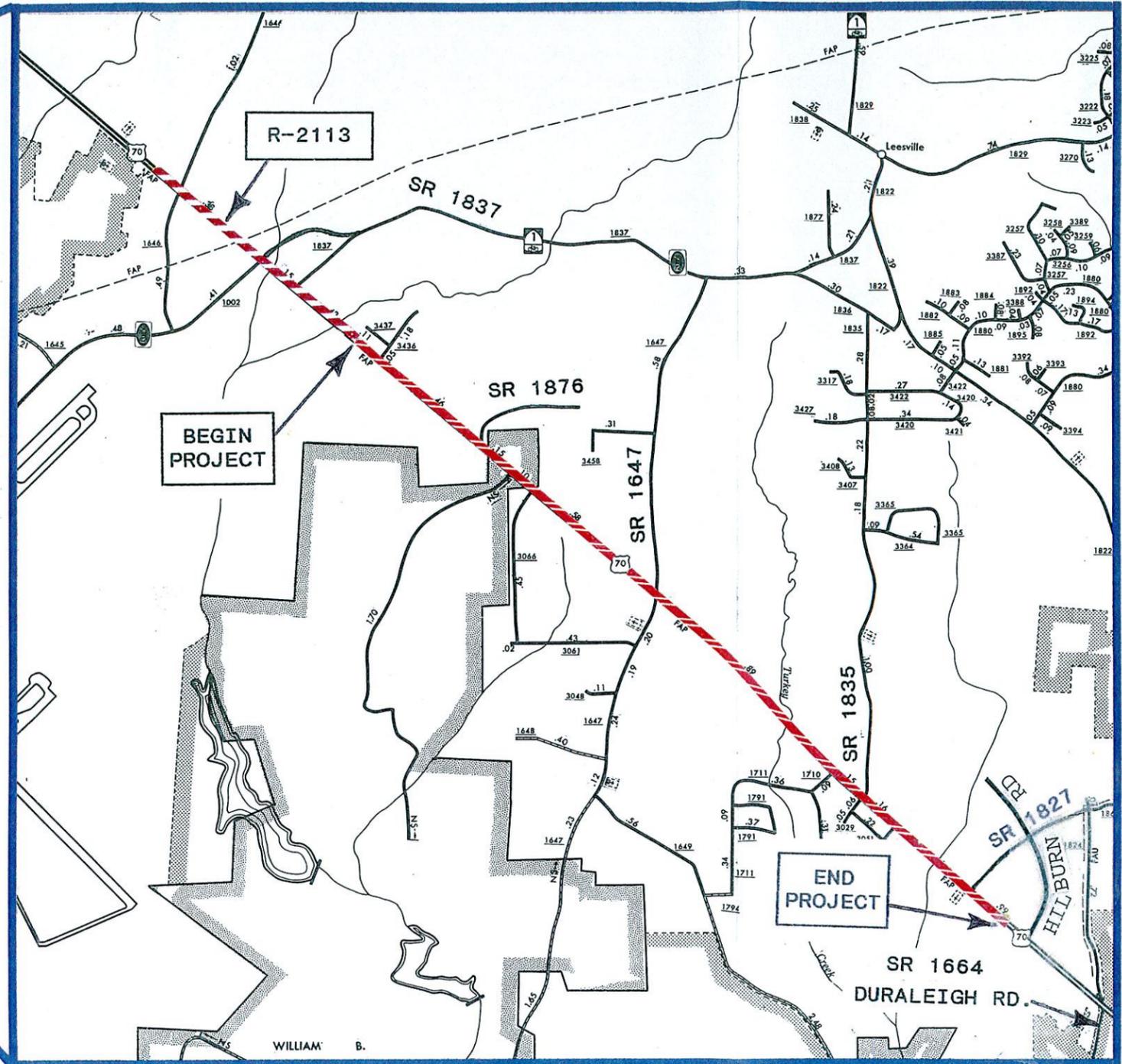
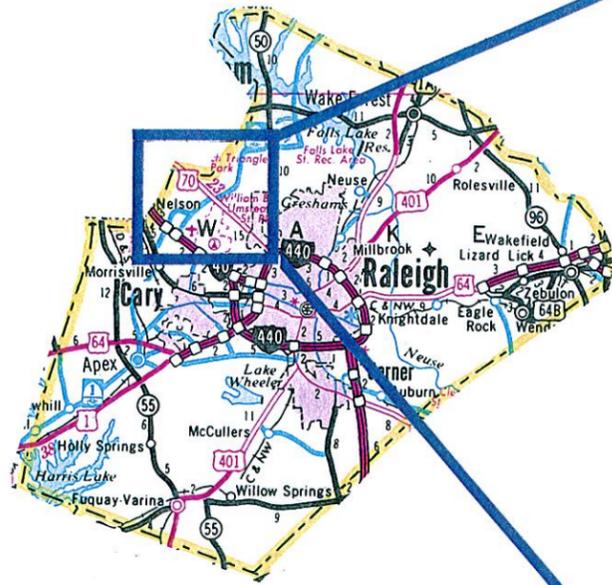
An environmental screening was not conducted for this study. This project will cross some wetlands. No historic properties or endangered species are anticipated. An Environmental Assessment will likely be required.

Cable guide median barrier is estimated to cost \$300,000 for either alternate. This is not included in the above project estimates.

Concrete median barrier including crash attenuators is estimated to \$900,000 for either alternate. This is not included in the above project estimates.

Providing 4-foot (1.2-m) paved shoulders in the median is estimated to be \$600,000 less costly than 10-foot (3.0-m) paved shoulders as estimated in the above project costs.

The above project cost estimates include resurfacing the existing travel lanes. This does not include rubblizing or otherwise rehabilitating the existing pavement.

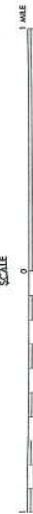
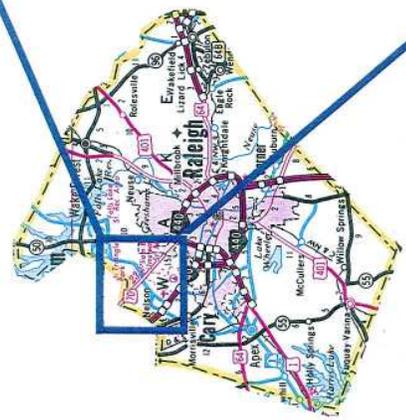
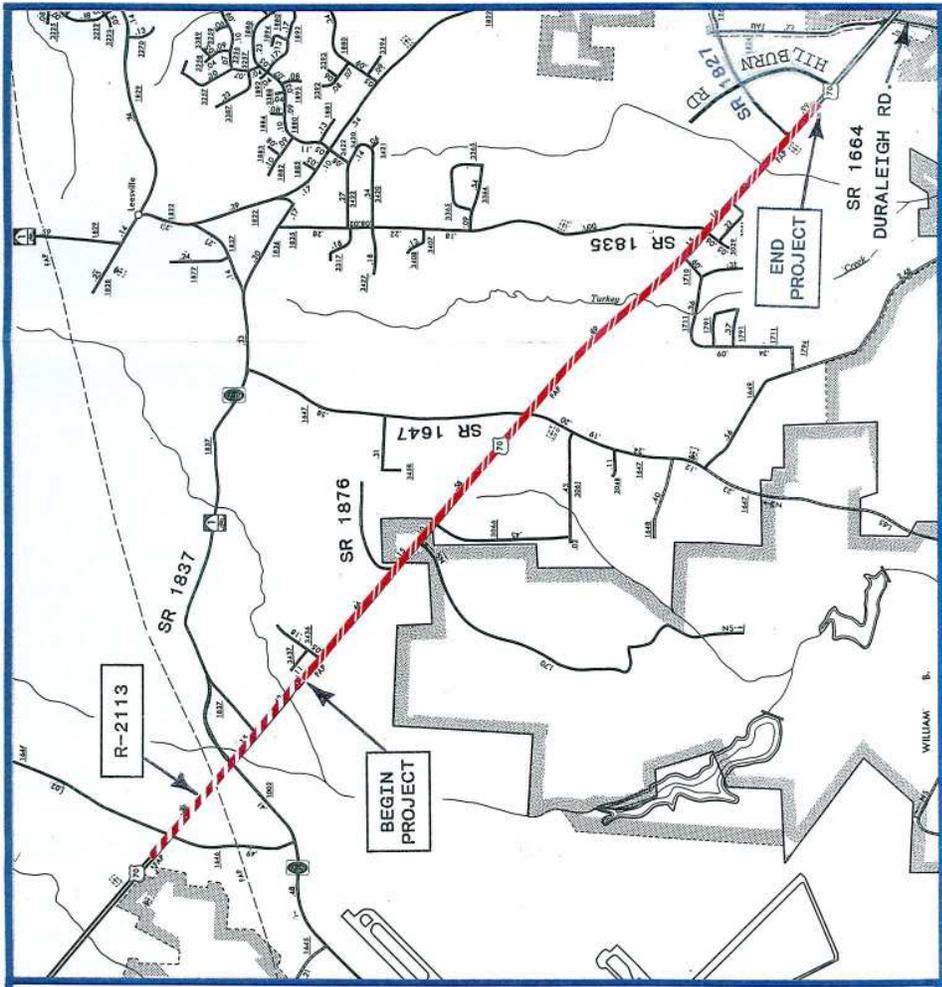


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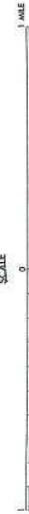
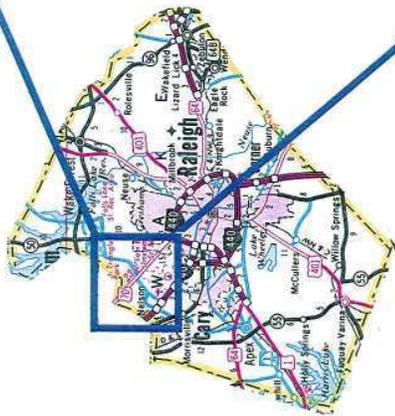
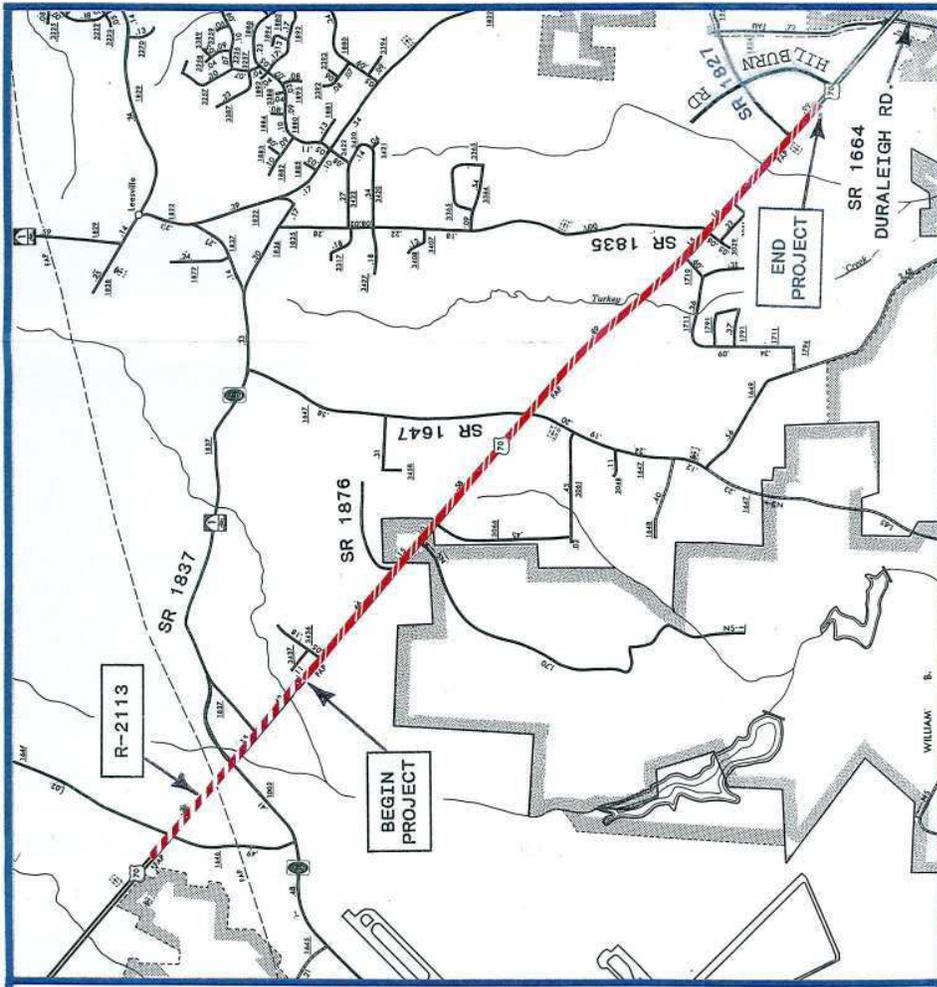
FIGURE 1. LOCATION MAP

US 70
FROM 0.6 MILES W. OF SR 1876
TO 0.5 MILES W. OF SR 1664
RALEIGH, WAKE COUNTY

U-2823 DIV. 5 FIGURE 1



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FIGURE 1. LOCATION MAP
US 70 FROM 0.6 MILES W. OF SR 1876 TO 0.5 MILES W. OF SR 1664 RALEIGH, WAKE COUNTY
U-2823 DIV. 5 FIGURE 1



SCALE

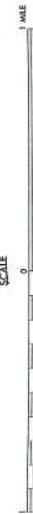
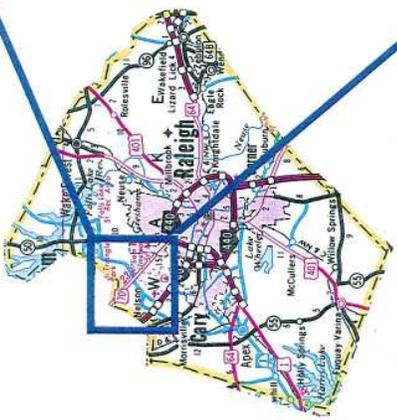
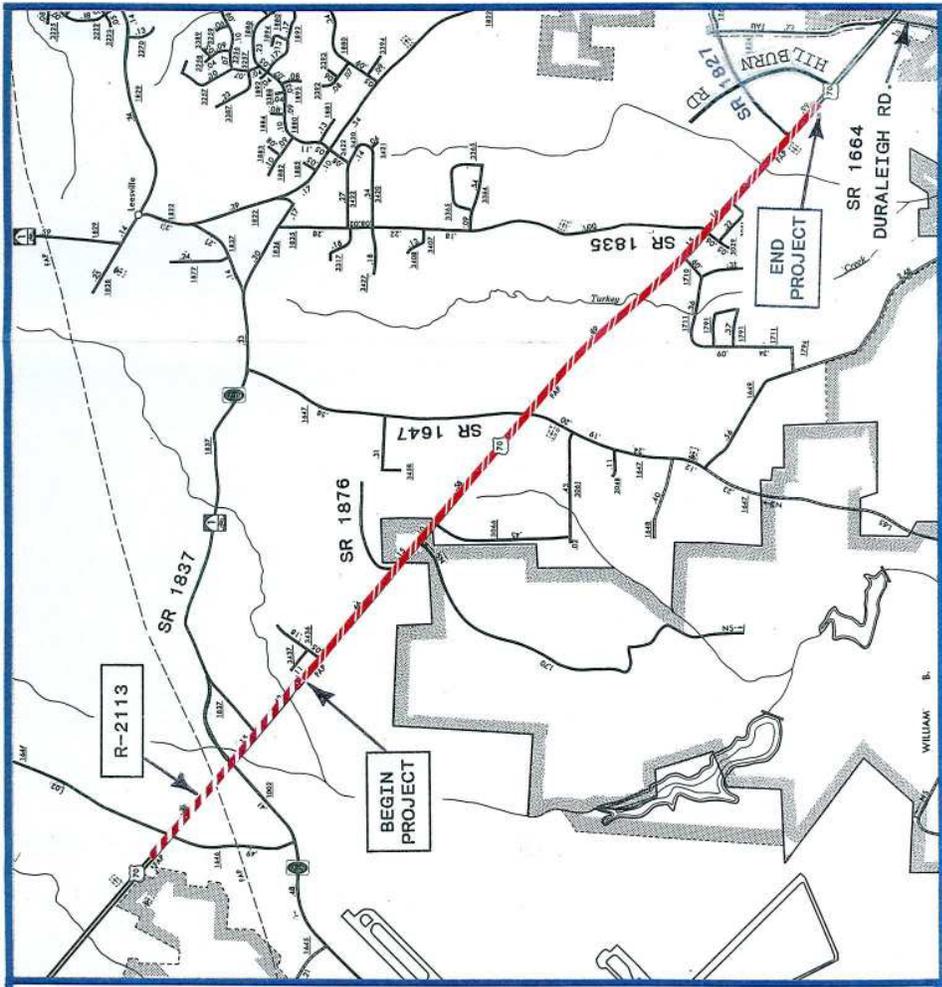
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FROM 0.6 MILES W. OF SR 1876
TO 0.5 MILES W. OF SR 1664
RALEIGH, WAKE COUNTY

U-2823 DIV. 5 FIGURE 1





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