FEASIBILITY STUDY

Raleigh

Tryon Road (SR 1370)
From Lake Wheeler Road (SR 1009)
To US 70/401/NC 50
Wake County

Division 5

FS-9905E

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

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4/9/01
Date

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I. General Description

This feasibility study describes the widening of Tryon Road (SR 1370) from Lake Wheeler Road (SR 1009) to South Wilmington Street (US 70 / US 401 / NC 50), a distance of 1.9 miles (3.06 km). The project location is shown on Figure 1. Two alternative cross-sections were evaluated for the proposed widening. Under both alternatives, a section of Tryon Road between the Norfolk Southern Railroad and US 70/ US 401 / NC 50 will be realigned (See Figure 2). The recommended right-of-way width for both alternatives is 100 feet (30.5 m). The total cost for each of these alternatives, including construction and right-of-way, is as follows:

Alternative	*Cost*
1. Widen Tryon Road (SR 1370) to a four-lane divided curb and gutter section, 72 feet (22.0 m) wide face to face of curbs with a 16-foot (4.9-m) raised grass median.	$14,980,000 (Recommended)
2. Widen Tryon Road (SR 1370) to a five-lane curb and gutter section, 68 feet (20.7 m) wide face to face of curbs.	$13,030,000

Currently, Tryon Road has a great deal of undeveloped property within the project area. Even though it is more expensive than Alternate 2, it is felt that Alternate 1 will maintain the operational integrity of the proposed facility more efficiently because divided sections do not promote the strip type development and indiscriminant left turn movements normally associated with five-lane sections. However, it should be noted that five-lane sections are typically considered the standard cross-section in situations like this because of the maintenance problems associated with the raised narrow median. Therefore, the NCDOT may require maintenance agreements or commitments from the local authorities before the four-lane divided section can be provided.

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 to 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 Tryon Road (SR 1370) in Raleigh. The City of Raleigh supports this project.

Tryon Road (SR 1370) is designated as a major thoroughfare in the Capital Area MPO Thoroughfare Plan and as a minor urban arterial in the North Carolina Statewide Functional Classification System.

As it exists now, Tryon Road is mostly a two-lane, 24-foot (6.1-m) wide, shoulder section. There are existing traffic signals at the intersections with Lake Wheeler Road (SR 1009) and South Wilmington Street (US 70 / US 401 / NC 50). Development along the project is a mixture of residential, commercial, and developed land. It should be noted that the Raleigh Golf Association Golf Course is located on the south side of Tryon Road just west of the Norfolk Southern Railroad.

Currently, there is one existing structure within the project. Built in 1936, Bridge No 259 carries Tryon Road over the Norfolk Southern Railroad. This structure is 130 feet (39.6 m) long, has a clear roadway width of 24 feet (7.3 m) and a sufficiency rating of 33 out of 100 points.

The current year Average Daily Traffic (ADT) along Tryon Road (SR 1370) is estimated to be between 11,500 to 14,000 vehicles per day (vpd). For the design year 2025, the estimated traffic volumes on Tryon Road will range between 25,200 and 28,900 vpd. Truck traffic is estimated to make up eight percent of daily traffic.

Currently, this section of Tryon Road is operating at Level of Service (LOS) E. If no improvements are made, it is projected that the roadway will operate at LOS F in the 2025 design year. If Tryon Road is widened to a four-lane divided curb and gutter section or five-lane curb and gutter section, the facility should operate at a LOS C in the 2025 design year. However, the signalized intersections at Lake Wheeler Road and South Wilmington Street are expected to operate at a poor F LOS. Before these intersections can achieve an acceptable LOS major geometric improvements well beyond the scope of this project will be required.

During the three-year period from August 1996 through July 1999, there were 118 accidents reported on Tryon Road within the project limits. There were 83 injuries reported as a result of these accidents, including 3 fatality. The accident rate along Tryon Road within the project limits is 500.64 accidents per 100 million vehicle miles (acc/100mvm). This compares with the 1996 to 1998 statewide rate of 262.91 acc/100mvm for urban secondary 2-lane roadways.

III. Discussion of Alternatives / Recommendations

It is recommended to widen Tryon Road (SR 1370) to a multilane facility from Lake Wheeler Road (SR 1009) to South Wilmington Street (US 70-401 / NC 50). There are two cross-section alternatives currently being considered for this project. Alternate 1 is a four-lane, divided curb and gutter section, 72 feet (21.9 m) wide from face-to-face of curbs, with a 16-foot (4.9-m) raised grass median and 10-foot (3.0-m) berms. Alternate 2 is a five-lane curb and gutter section, 68 feet (20.7 m) wide face-to-face of curbs with 10-foot (3.0-m) berms. Both alternates have wide outside lanes to accommodate bicycle traffic, and replace the existing bridge over the Norfolk Southern Railroad. The recommended right-of-way width is 100 feet (30.5 m) wide, under both alternatives.

This project also includes the relocation of a section of Tryon Road (SR 1370) east of the Norfolk Southern Railroad (See Figure 2) in order to address the poor horizontal curvature of the existing facility. This realignment has been coordinated with representatives of the impacted properties, including the Norfolk Southern Railroad, and considers their future development plans for this area. However, it should be noted that this proposed realignment is very preliminary and subject to change based on later planning and design studies.

Alternate 1
(Recommended)

Alternate 1 is a four-lane, divided curb and gutter section, 72 feet (21.9 m) wide from face to face-of-curbs, with a 16-foot (4.9-m) wide raised grass median and 10-foot (3.0-m) berms. It is anticipated that no residences or businesses will be relocated due to the project. The total cost of the project is as follows:

Construction	$ 12,300,000
Right-of-way	$ 2,680,000
Total Cost	$ 14,980,000

Alternate 2

Alternate 2 is a five-lane, curb and gutter section, 68 feet (20.7 m) wide from face-to-face of curbs, with 10-foot (3.0-m) berms. It is anticipated that no residences or businesses will be relocated due to the project. The total cost of the project is as follows:

Construction	$ 10,350,000
Right-of-way	$ 2,680,000
Total Cost	$ 13,030,000

IV. Additional Comments

An environmental screening was not conducted for this study. However, there is a potentially historic property within the project limits listed on the State Study List of Historic Places. The Beta Sigma Phi Fraternity House (Carolina Pines Hotel) (WA 2467) is located on the north side of Tryon Road just west of the Norfolk Southern Railroad. In addition, the Raleigh Golf Association (RGA) golf course is located on the south side of Tryon Road just west of the railroad. While it is not considered historic, the golf course might be considered a public park and Section 4(f) of the Department of Transportation Act might apply if federal aid funds are utilized.

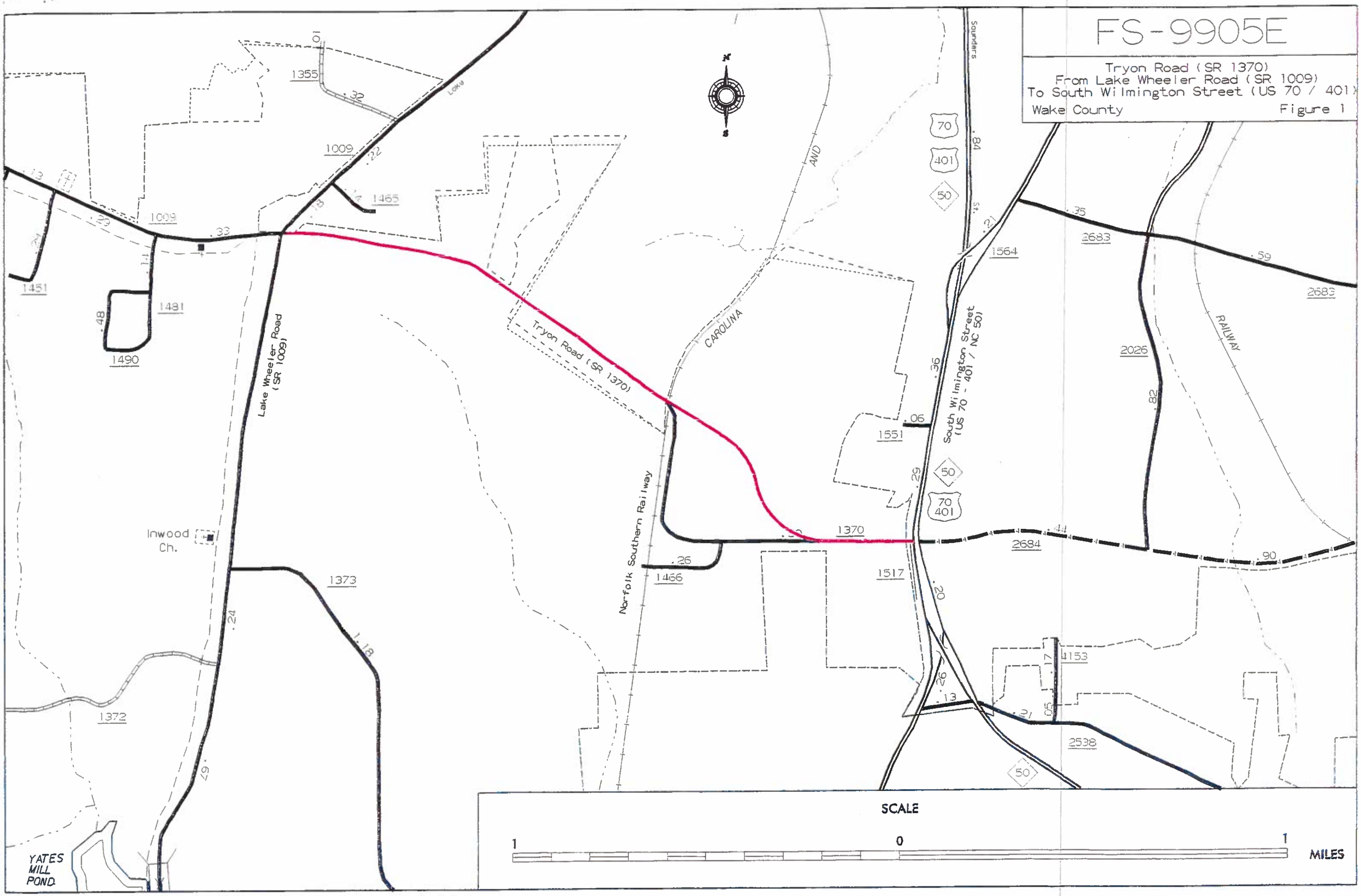
According to the NCDOT Division of Bicycle and Pedestrian Transportation, this section of Tryon Road corresponds to a primary bicycle corridor in the Raleigh City wide bicycle transportation network. Therefore, they have requested that bicycle accommodations be provided under this project. The recommended cross sections for this project include wide outside lanes for bicycle traffic. In addition, bicycle safe bridge railings should be utilized on the new bridge over the Norfolk Southern Railroad. In addition, RGA has two golf cart crossings on Tryon Road, which will require further investigation during the later planning, and design studies on this project.

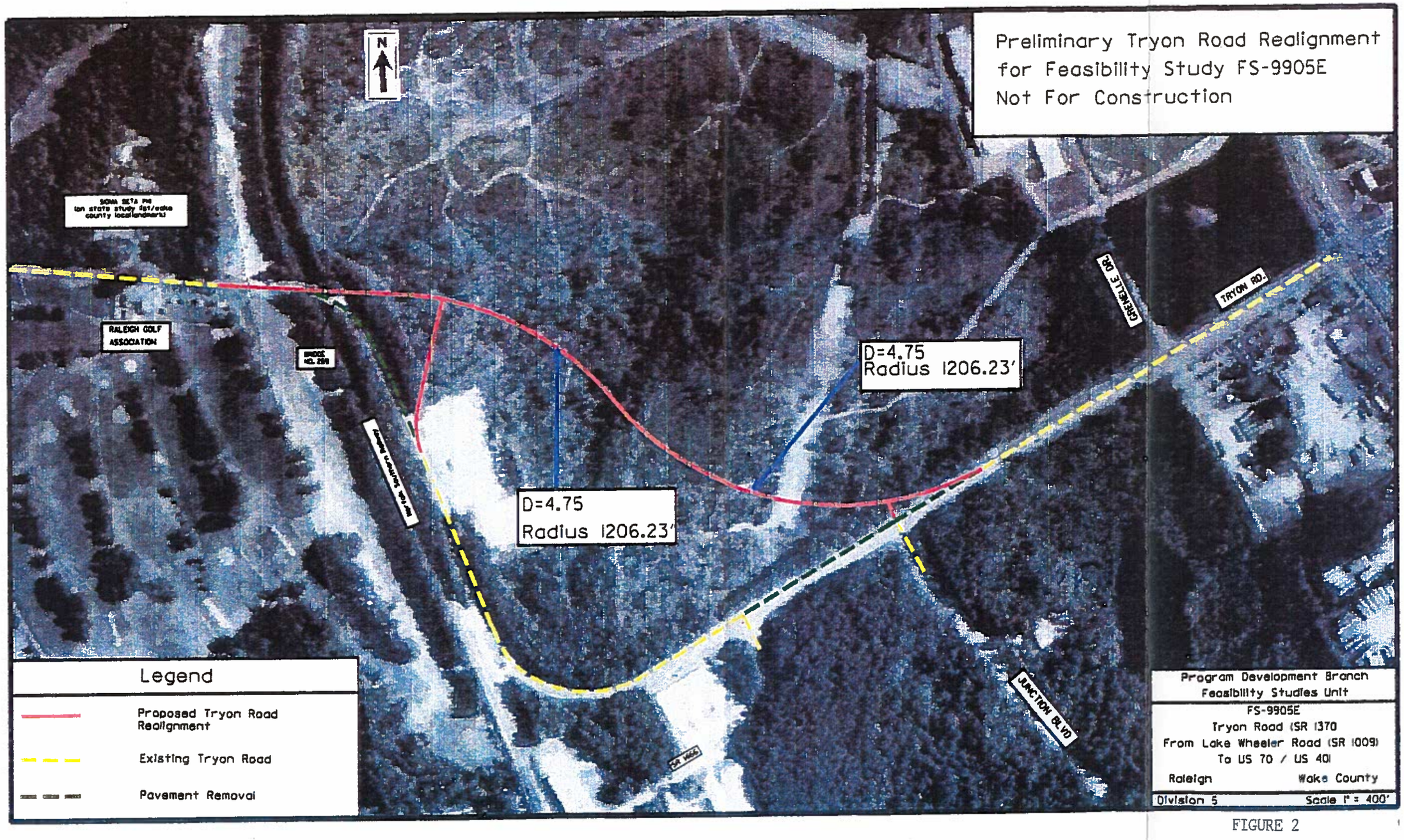
A transportation benefit analysis was also completed for this project. For the period between the current year and the 2025 design year, it is estimated that the total transportation benefits for the project are $77,570,000, which is an average of $3,102,800 per year. The total benefits include accident cost savings, time cost savings, and operating cost savings.

FS-9905E

Tryon Road (SR 1370)
From Lake Wheeler Road (SR 1009)
To South Wilmington Street (US 70 / 401)
Wake County

Figure 1




Preliminary Tryon Road Realignment
for Feasibility Study FS-9905E
Not For Construction
N
RALEIGH GOLF ASSOCIATION
D=4.75
Radius 1206.23'
D=4.75
Radius 1206.23'
TRYON RD.
JUNCTION BLVD
Legend
Proposed Tryon Road Realignment
Existing Tryon Road
Pavement Removal
Program Development Branch
Feasibility Studies Unit
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Tryon Road (SR 1370
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Scale 1" = 400'

FIGURE 2