FEASIBILITY STUDY

SR 2028 (T. W. Alexander Drive)

from SR 1121 (Cornwallis Road) to SR 1959 (Miami Boulevard)

Durham County

U-3309

Prepared by
Program Development Branch
Division of Highways
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6/27/95

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I. ALTERNATES STUDIED

It is recommended that SR 2028 (T. W. Alexander Drive) be widened to multi-lanes, from SR 1121 (Cornwallis Road) to SR 1959 (Miami Boulevard) in the Research Triangle Park and Durham, in Durham County (See Figure 1). The studied corridor is approximately 1.7 miles (2.7 kilometers) in length. Widening SR 2028 is expected to increase safety and reduce congestion along the project corridor.

Two typical sections were studied: (1) a four-lane, divided roadway with a 30-foot (9.1-meter) wide raised, grass median and 10-foot (3.0-meter) wide outside shoulders, including a 2-foot (0.6-meter) wide paved shoulder; and (2) a five-lane, 60-foot (18.3-meter) wide roadway with 10-foot (3.0-meter) wide paved shoulders. Both typical sections would utilize the existing 150-foot (45.7-meter) wide right-of-way with partial access control. Shoulders are preferred on the outside lanes of each typical section, instead of curb and gutter, to accommodate bicyclists and to be consistent with the existing typical sections in the Research Triangle Park. The lake in front of Dupont Electronics would be partially filled in by the roadway widening. A wall of gabions or other suitable material would be used to stabilize the embankment adjacent to the lake. The four-lane divided typical section would be consistent with the existing typical section on SR 2028, south of SR 1121 and east of SR 1959; however, it is not the policy of The North Carolina Department of Transportation to construct this type of typical section. The studied four-lane typical section can be provided if the cost difference is paid by others, including construction, right-of-way, and maintenance of the grass median. The following table is an estimate of the cost for each typical section:

	Four-Lane Divided Typical Section	Five-Lane Typical Section
Construction	$ 2,100,000	$ 2,000,000
Right-of-Way	$ 1,500,000	$ 1,500,000
Project Total	$ 3,600,000	$ 3,500,000

Although the preliminary cost estimate for the four-lane divided typical section exceeds the cost of the five-lane typical section, the cost difference would be based on the final plans. Also, maintenance of the grass median would still be the responsibility of others. Repairs and extension of the asphalt pedestrian/ jogging trail would be the responsibility of the owner of the trail. This cost is estimated to be $33,000.

This study is not a detailed planning/environmental investigation. A feasibility study presents studied cross-sections for improvements, general corridors of improvements, and estimated costs of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues that deserve consideration in the planning and construction stages.

II. EXISTING CONDITIONS

SR 2028 is classified as a collector on the Statewide Functional Classification System and a minor arterial on the Durham Thoroughfare Plan. The studied corridor serves an office park. This study begins approximately 200 feet (61.0 meters) north of SR 1121 on SR 2028. South of this location, SR 2028 is a four-lane divided roadway with a 30-foot (9.1-meter) wide raised, concrete or grass median. The study ends at the intersection of SR 1959. East of this end point, SR 2028 is a four-lane divided roadway with a 30-foot (9.1-meter) wide raised, grass median. Between the project terminals, SR 2028 is mainly a two-lane, 26-foot (7.9-meter) roadway with 8 to 20-foot (2.4 to 6.1-meter) wide shoulders. Between the NC 147 ramps, SR 2028 is a six-lane, divided roadway with a raised, 4-foot (1.2-meter) wide concrete median, and 8-foot (2.4-meter) wide outside shoulders. Bridge Number 202 carries SR 2028 over NC 147. From approximately 450 feet (137.2 meters) west of SR 1959 to SR 1959, SR 2028 widens to a four-lane, 60-foot (18.3-meter) wide roadway with 8-foot (2.4-meter) shoulders. There is a 8-foot (2.4-meter) wide asphalt pedestrian/ jogging trail mainly on the south side of SR 2028, between SR 1121 and the NC 147 interchange. The distance between the existing roadway and the existing trail varies.

The Bicycle Program and Research Triangle Park Foundation have requested a shoulder section on the outside lanes to accommodate increasing bicycle traffic through the project corridor.

Bridge Number 258 carries the Norfolk and Southern Railway over SR 2028, approximately 0.3 miles (0.5 kilometers) west of SR 1959. The track carries three trains per day at an average speed of 10 miles per hour. The

horizontal clearance between the two center spans is approximately 56.5 feet (17.2 meters) each.

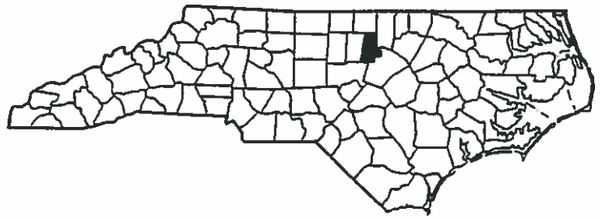
Between April, 1991, and March, 1994, there were 109 accidents along the studied corridor. This resulted in an accident rate of 433.7 accidents per 100 million vehicle miles(acc/100mvm), compared to a statewide average of 251.4 acc/100mvm for similar routes. The recommended improvements are expected to reduce the accident rate.

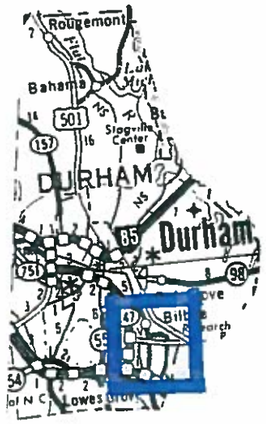
The estimated 1994 average daily traffic (ADT) on SR 2028 ranges from 11,000 vehicles per day (vpd) near SR 1121, to 16,100 vpd near SR 1959. In the design year 2020, the traffic volume is expected to range from 23,900 to 33,900 vpd, respectively. The existing SR 2028 operates at a level of service (LOS) E in 1994 and a LOS F in 2020. The recommended widening of SR 2028 would result in a LOS B, or better, in 1994 and a LOS D, or better, in the design year 2020.

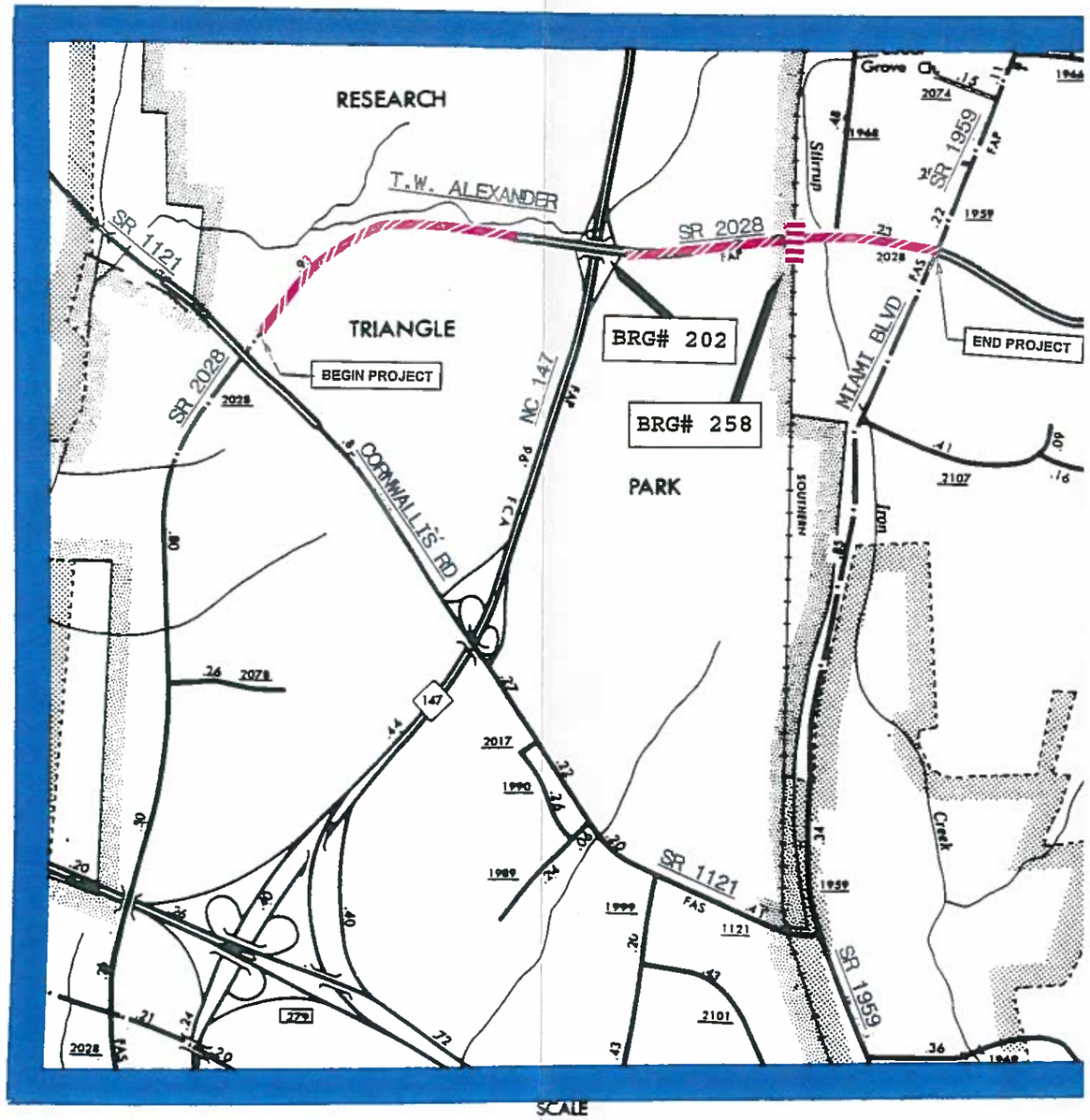
IV. OTHER COMMENTS AND CONCERNS

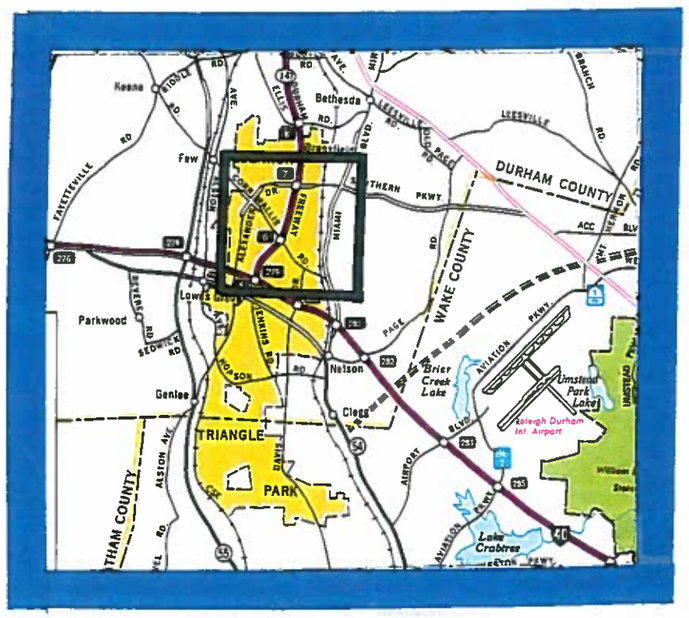
It is estimated that this project would not require any relocations.

No historical or architecturally significant sites are known to be impacted. It is not anticipated that any permits would be needed.









PROJECT LOCATION

FEASIBILITY STUDY UNIT
U-3309
RESEARCH TRIANGLE PARK
SR 2028 (T.W. Alexander) from SR 1121 (Cornwallis Rd) to SR 1959 (Miami Blvd)
Durham County
DIV 5 — FIGURE 1