

FEASIBILITY STUDY

Archdale/High Point  
Intersection of SR 1592 (Eden Terrace)  
And SR 1595 (Surrett Drive)  
Randolph County  
U-2702

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

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I. GENERAL DESCRIPTION

This is a feasibility study for Surrett Drive (SR 1595) and Eden Terrace (SR 1592) intersection improvements (See Figure 1). This intersection is at the Corporate Boundary of High Point and Archdale. High Point is west of the intersection and Archdale is to the east. A traffic signal is recommended at the Surrett Drive-Eden Terrace intersection with railroad preemption and railroad crossing signal with gates. An additional 12 foot wide left turn lane will be provided for each approach to the intersection. Surrett Drive will be widened on the west for a distance of 1600 feet and Eden Terrace will be widened on the north for 600 feet. Approximately 1.5 feet of pavement wedging is recommended on Surrett Drive to reduce an elevation difference with Eden Terrace. The total estimated cost for the improvements is \$665,000.

This is not an exhaustive environmental or design investigation but a preliminary study to define feasible project alternatives and determine estimated right-of-way and construction costs for these alternatives.

II. NEED FOR PROJECT

The purpose of this project is to improve traffic flow through the Surrett Drive and Eden Terrace intersection. This intersection is currently unsignalized. A traffic signal warrant study in June 1989 by the High Point Department of Transportation indicated that a traffic signal is warranted. In an evening peak hour traffic count taken May 28, 1991, left turn movements accounted for 27% of traffic from southbound Surrett Drive to Eden Terrace. Improvements for the Surrett Drive-Eden Terrace intersection were requested by the Cities of High Point and Archdale.

Surrett Drive at this location is classified as a Urban Minor Arterial in the Statewide Functional Classification System. It is also a part of the Federal Aid Urban system (5696). The High Point Urban Area Thoroughfare Plan of May 30, 1989 shows both Surrett Drive and Eden Terrace as major thoroughfares. Land use is primarily commercial/industrial at this location. Since the Surrett Drive-Eden Terrace intersection is at the Corporate Boundary of High Point and Archdale, the growth of both cities has contributed to the increased activity at this intersection.

Existing right-of-way for Surrett Drive and Eden Terrace is 60 feet. Surrett Drive is presently a 24-foot pavement section with curb and gutter on the western side and a 2 foot shoulder on the eastern side. The eastern side is abutted by Norfolk Southern

Railway tracks parallel to Surrett Drive. A railroad spur crosses Surrett Drive approximately 140 feet south of the Eden Terrace intersection.

Eden Terrace is an 18-foot pavement section with 2-foot wide unpaved shoulders on the eastern approach of the Surrett Drive-Eden Terrace intersection. On the western approach of the Surrett Drive-Eden Terrace intersection, Corporation Drive is a 48 foot curb and gutter section on a 64 foot wide right-of-way.

The evening peak hour counts taken by the city were used to analyze the intersection. The average daily traffic on Surrett Drive is estimated to be 12,000 vehicles per day (vpd) in 1991 and volumes are projected to reach 24,000 vpd by the year 2011. Along Eden Terrace (the eastern approach to the intersection), traffic volumes are estimated to be 3100 vpd in 1991 and are projected to reach 6200 vpd by the year 2011. As an unsignalized intersection, Eden Terrace presently has a Level of Service E for vehicles turning left and Level of Service D for vehicles continuing straight. With the recommended improvements, capacity analysis indicates Surrett Drive-Eden Terrace intersection will attain an overall Level of Service B for 1991 traffic volumes.

Capacity analysis was performed on the Surrett Drive-Eden Terrace intersection to measure performance over a 20 year design life. A Level of Service E was calculated for the projected 2011 traffic volumes with the intersection improvements consisting of a signal and left turn lanes on all approaches.

An accident analysis was performed for the Surrett Drive-Eden Terrace intersection. The records reveal 12 accidents reported during the past 3 year period in the vicinity of the intersection. The low number of accidents is due to the 6.9 percent cross-street traffic from Eden Terrace and Corporation Drive over Surrett Drive. According to NCDOT's Traffic Accident Analysis Manual, a relatively safe intersection has less than 10 percent cross-street traffic. Approximately 42% of the accidents were listed as a "rear-end slow or stop" condition and another 25% were angle collisions. Left turn movements accounted for another 17% of the accidents at this intersection. Signalization and the addition of left turn lanes should reduce the potential for these types of accidents.

### III. RECOMMENDATIONS

A traffic signal is recommended at the intersection of Surrett Drive (SR 1595) and Eden Terrace (SR 1592) with railroad preemption and railroad crossing signal with gates. Recommended intersection improvements include adding 12 foot wide left turn storage lanes for all approaches. (See Schematic of Lanes on Figure 2.) Pavement wedging is recommended on Surrett Drive to eliminate a elevation difference with Eden Terrace.

Widening along Surrett Drive will extend a total length of 800

feet north and 800 feet south of the intersection with Eden Terrace-Corporation Drive. The 12 foot wide left turn storage lane will be added asymmetrically to the west since the eastern side is abutted by railroad tracks. These lanes will consist of 600 feet of storage with a 200 foot taper for both the northern and southern approach. The curb and gutter will be replaced on the western side of the road. Also, a retaining wall approximately 150 feet long and three feet high may be required west of Surrett Drive.

The cross section for Surrett Drive will be 40 feet wide from the face of curb on the western side to the edge of pavement on the eastern side. The eastern side will have a 2 foot paved shoulder and lanes will be 12 feet wide at the intersection. Existing right-of-way width for Surrett Drive is 60 feet. For widening on Surrett Drive, 45 feet of right-of-way will be required measured from the existing centerline of the road to the west. Therefore, some additional right-of-way will be required at this location.

Eden Terrace widening will extend east from Surrett Drive for a distance of 600 feet. The additional lane will be added asymmetrically to the north. A 400 foot storage lane will be 12 feet wide and the taper will extend 200 feet. The Eden Terrace cross section will be a 3 lane shoulder section with 12 foot lanes and 2 feet paved shoulders for a total pavement width of 40 feet. Existing right-of-way width for Eden Terrace is 60 feet. For widening of Eden Terrace, 50 feet of right-of-way will be required measured from the existing centerline of the road to the north. Therefore, additional right-of-way must be acquired on this approach.

Corporation Drive has pavement of adequate width, but will require painted channelization. Corporation Drive provides access to the industrial area west of the intersection and a large numbers of trucks turn onto Corporation Drive. Since channelization is not clear, the trucks use the entire pavement area.

Wedging of the pavement on Surrett Drive will improve the vertical alignment of the intersection. The pavement should be raised on Surrett Drive 1.5 feet to more closely approximate the level of the railroad tracks and Eden Terrace. A railroad spur crosses Surrett Drive approximately 140 feet south of the Eden Terrace intersection and may limit the height of wedging. (See Figure 3.)

Utility conflicts are low, but the proposed widening crosses the railroad tracks in two locations. The mainline Norfolk Southern Railway parallels Surrett Drive and the railroad will be crossed by the Eden Terrace widening. A railroad spur crosses Surrett Drive south of the intersection.

Cost for these recommended improvements to the Surrett Drive-Eden Terrace Intersection is as follows:

R/W Cost : \$ 240,000  
Construction Cost : 425,000

Total Cost: \$ 665,000

No residential and or business relocatees will be required.

#### IV. OTHER STUDIED ALTERNATIVES

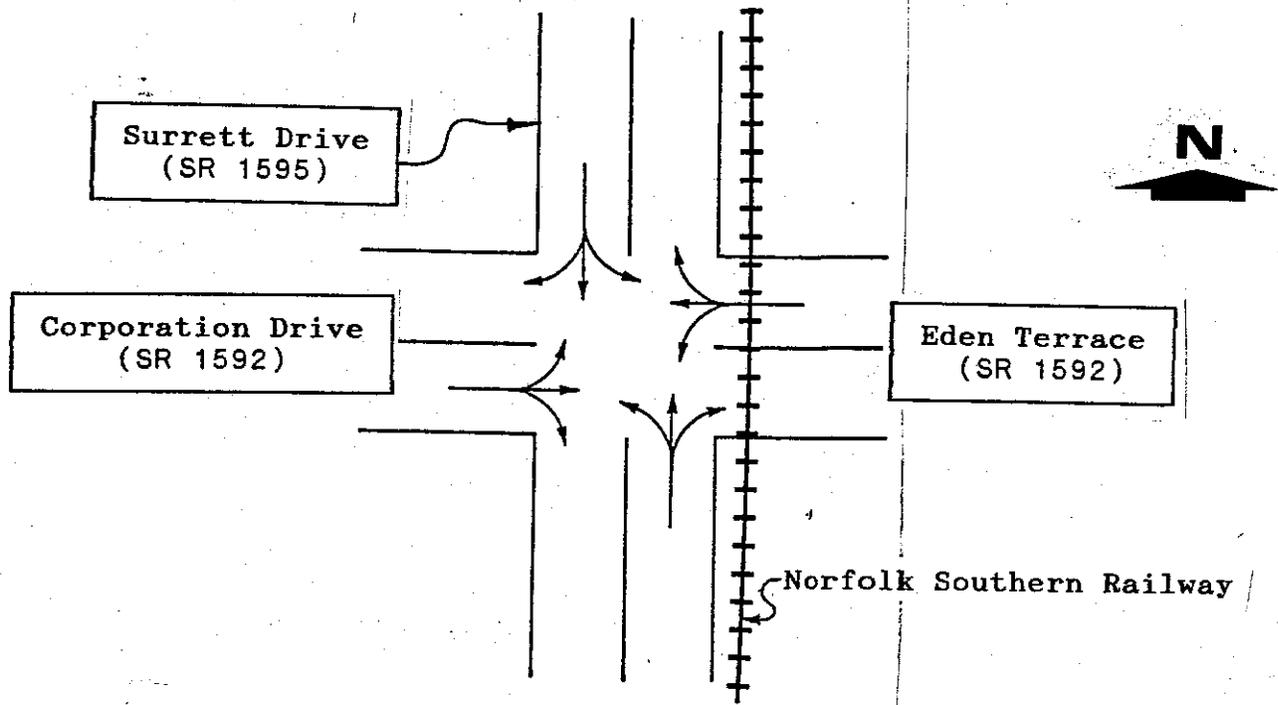
At the request of the Division Traffic Engineer, consideration was given to extending the proposed widening on Surrett Drive north to Fairfield Road by connecting the left turn storage lanes at each intersection. (See Figure 1). This alternative was dropped from consideration because Surrett Drive will likely be perceived by motorists as having two through lanes in the area. Because of the short length of the through lanes between the intersections, a high accident rate could result due to excessive weaving. Therefore, this study was strictly limited to the Surrett Drive-Eden Terrace intersection improvements including turning lanes with adequate storage length and tapers.

Consideration was also given to lowering the railroad rather than wedging Surrett Drive pavement. Since lowering the railroad would not necessarily provide better alignment of the tracks, the Norfolk Southern Railway may not agree with this solution. Also, lowering the railway may impact adjacent intersections, and it would certainly impact the railroad spur. To provide a readily obtainable solution, the road was raised rather than the railroad lowered.

#### V. OTHER COMMENTS

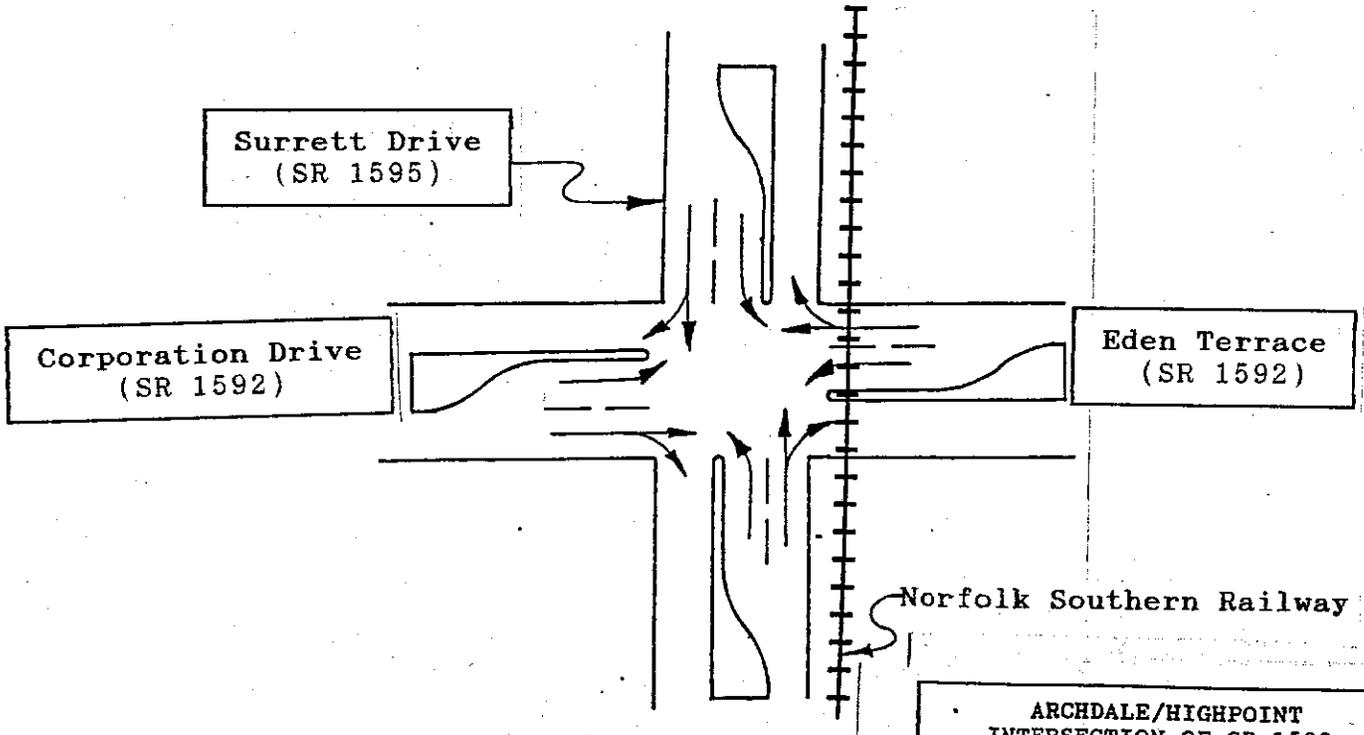
The Bicycle Program did not have recommendations at this location. No environmental screening was made. No wetlands or public parks are likely affected by this project.

# SCHEMATIC OF EXISTING LANES



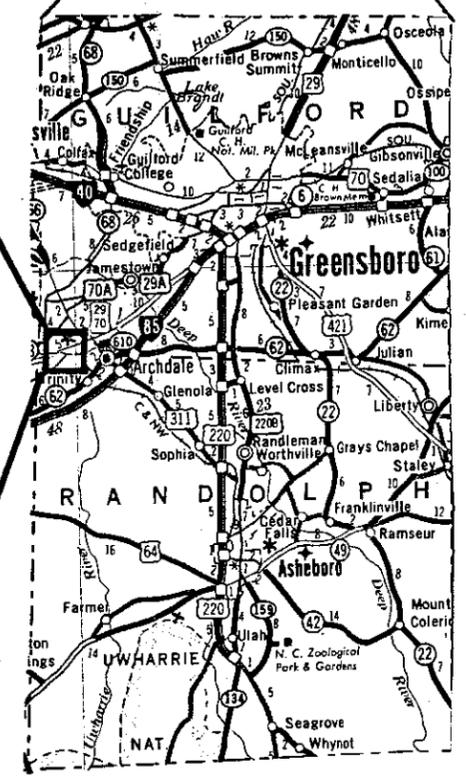
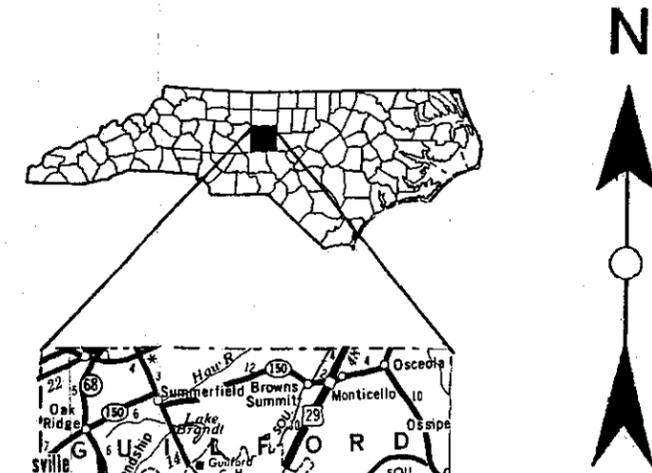
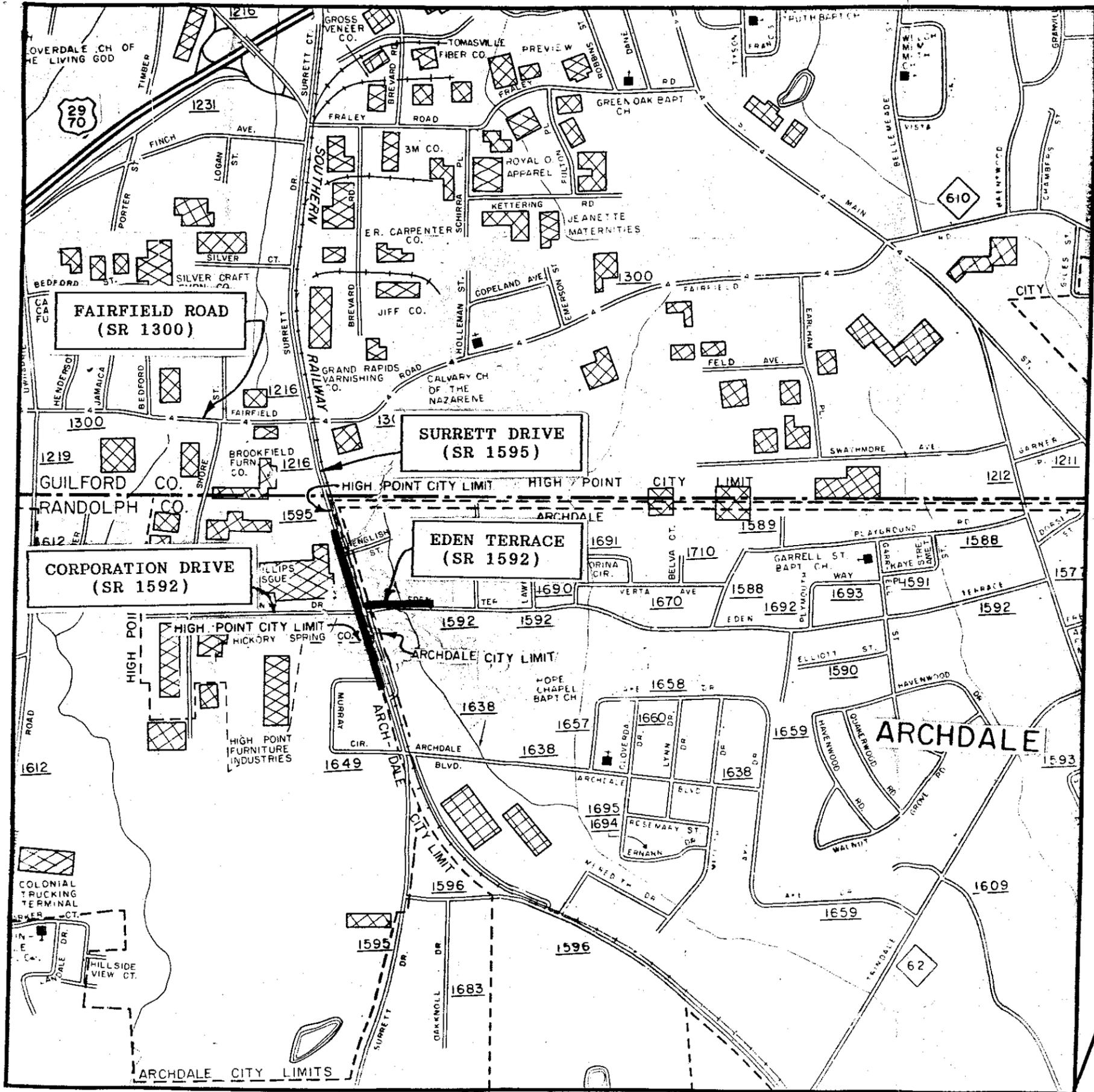
# SCHEMATIC OF PROPOSED LANES

LEFT TURN LANES ON ALL APPROACHES



ARCHDALE/HIGHPOINT INTERSECTION OF SR 1592 (EDEN TERRACE) AND SR 1595 (SURRETT DRIVE)	
FEASIBILITY STUDIES UNIT	
U-2702	RANDOLPH COUNTY
SCALE: NTS	DATE: JULY, 91

FIGURE 2



**PROJECT LOCATION**

Indicates limits of project

ARCHDALE/HIGHPOINT INTERSECTION OF SR 1592 (EDEN TERRACE) AND SR 1595 (SURRETT DRIVE)	
FEASIBILITY STUDIES UNIT	
U-2702	RANDOLPH COUNTY
SCALE: 1" = 1000'    DATE: JULY, 91	

FIGURE 1

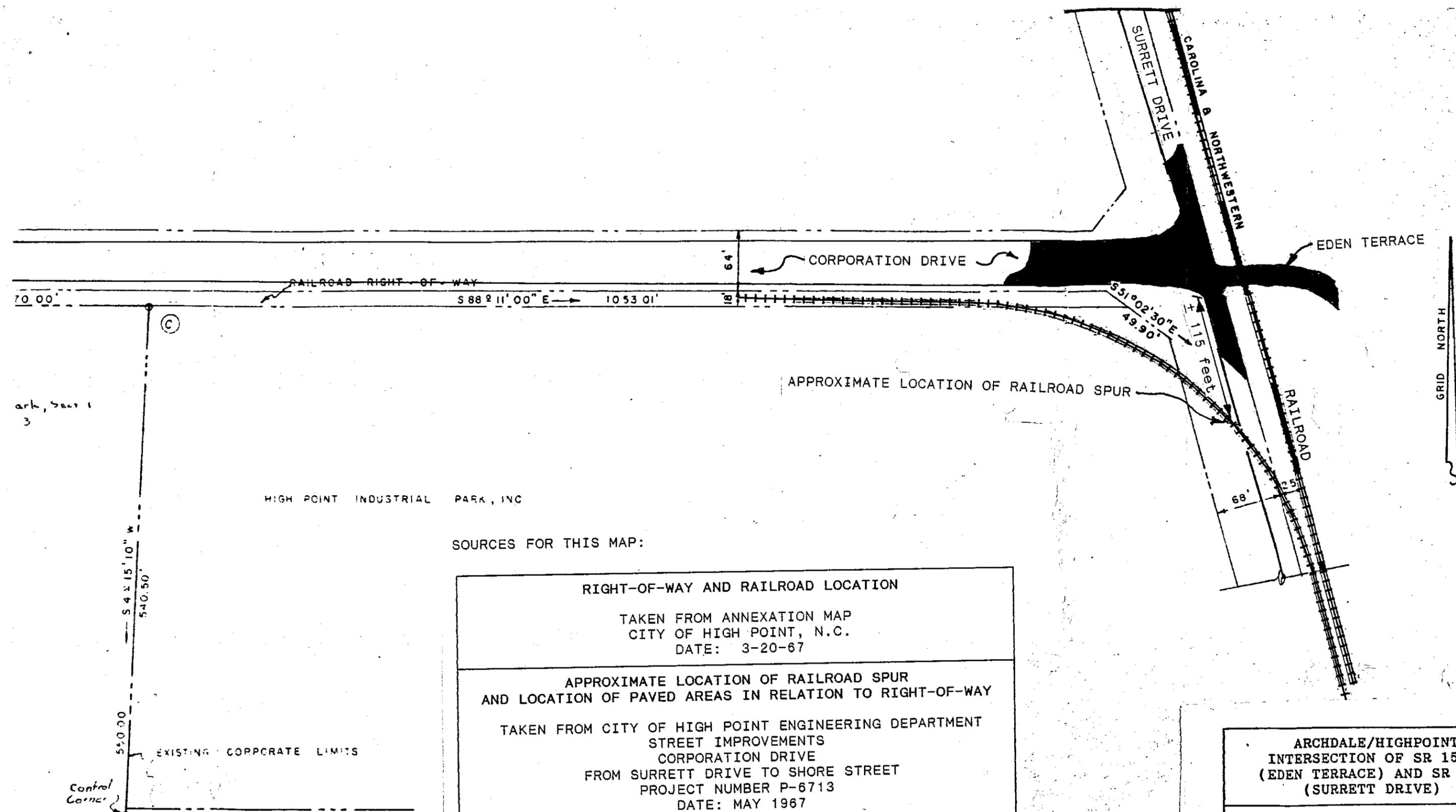


FIGURE 3