

FEASIBILITY STUDY

NC 279
from NC 150 in Cherryville
to Old US 321 in Dallas

Gaston County

R-3107

Prepared by
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I. GENERAL DESCRIPTION

This is a feasibility study for the widening and partial relocation of NC 279 from NC 150 in Cherryville to Old US 321 in Dallas (See Figures 1, 2, and 3), an approximate distance of 11.1 miles (17.9 kilometers). The recommended typical cross sections are a five-lane, 64-foot (19.5-meter) face-to-face, curb and gutter section with 8-foot (2.4-meter) berms on a 100-foot (30.5-meter) wide right-of-way with no control of access in the urban areas and a four-lane, 46-foot (14.0-meter) wide median divided highway on a 220-foot (67.1-meter) wide right-of-way with partial control of access in the rural areas. The estimated cost of this project is \$33,600,000 (\$8,000,000 for right-of-way and \$25,600,000 for construction).

This study is not a detailed planning/environmental investigation. A feasibility study presents recommendations for roadway improvements, general alignments of improvements, and estimated cost of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues which deserve consideration in the planning and construction stages.

II. NEED FOR PROJECT

This project was requested by Cherryville to improve traffic capacity between Cherryville and Dallas. NC 279 is classified as a Major Collector from NC 150 to SR 1458 and as an Other Principal Arterial from SR 1458 to Old US 321 on the Statewide Functional Classification System.

From NC 150 to Rudisill Street, the existing NC 279 is a two-lane, 28-foot (8.5-meter) face-to-face, curb and gutter section on a 50-foot (15.2-meter) wide right-of-way with no control of access. From Rudisill Street to NC 275, the existing NC 279 is mainly a two-lane, 24-foot (7.3-meter) roadway with 4 to 8-foot (1.2 to 2.4-meter) shoulders. From NC 275 to Old US 321, the existing NC 279 is a four-lane, 46-foot (14.0-meter) wide travelway with curb and gutter

or 6 to 8-foot (1.8 to 2.4-meter) shoulders on either side. Land use along NC 279 in Cherryville is predominantly residential and industrial, whereas, land use along NC 279 in Dallas is industrial, institutional, and commercial. Land use between Cherryville and Dallas is rural residential, agricultural, and undeveloped woodland.

The west terminal of this project is located at the intersection of NC 279 and NC 150 in Cherryville (See Figures 2 and 3). NC 150 is a two-lane, 24-foot (7.3-meter) roadway with 6 to 8-foot (1.8 to 2.4-meter) shoulders. TIP Project R-617 proposes to widen NC 150 to a multi-lane facility, from the existing NC 279 in Cherryville north to US 321 in Lincolnton.

The east terminal of this project is located at the signalized intersection of NC 279 and Old US 321 in Dallas (See Figures 2 and 3). Approximately 0.1 mile (0.2 kilometers) east of this intersection there is an interchange at the junction of NC 279 and US 321. NC 279 continues as a four-lane, 54-foot (16.5 meters) face-to-face, curb and gutter section over US 321 and into Dallas.

The CSX Railway parallels NC 150 and crosses NC 279 in Cherryville (See Figures 2 and 3). The railway carries approximately 18 trains per day at 20 miles per hour (32.3 kilometers per hour). The existing railway crossing is at-grade with warning lights and gates. The exposure index at this crossing is 360,000 which exceeds the 30,000 index for at-grade crossings; therefore, a grade separation is recommended.

Structure Number 55 carries NC 279 over Beaverdam Creek, approximately 0.4 miles (0.6 kilometers) east of the intersection of NC 279 and SR 1626. The sufficiency rating for this culvert is 99.2 out of 100.

Bridge Number 36 carries NC 279 over SR 1438, approximately 0.8 miles (1.3 kilometers) east of the intersection of NC 279 and SR 1436. This 114-foot (34.8-meter) long bridge has a deck width of 31.5 feet (9.6 meters) and a roadway width of 28.1 feet (8.6 meters). The sufficiency rating for this bridge is 67.2 out of 100.

Structure Number 18 carries NC 279 over Beaverdam Creek, approximately 0.5 miles (0.8 kilometers) east of the intersection of NC 279 and SR 1438. The sufficiency rating for this culvert is 97.0 out of 100.

The 1993 average daily traffic (ADT) on NC 279 is 10,400 vehicles per day (vpd). In the year 2013, traffic is anticipated to be 20,000 vpd. Peak hour traffic on the existing facility currently experiences a level of service (LOS) D and is expected to experience a LOS F in 2013. With

the recommended improvements, traffic would experience a LOS A through the year 2013.

During the period from July 1, 1990, through June 30, 1993, a total of 211 accidents were reported along the studied section of NC 279. The accident rate was 237.72 accidents per 100 million vehicle miles (acc/100mvm), compared to a statewide average of 193.9 acc/100mvm for similar routes. Rear-end collisions accounted for 34% of the accidents on NC 279. The recommended improvements are expected to reduce the accident rate.

III. RECOMMENDATIONS

It is recommended that 11.1 miles (17.9 kilometers) of NC 279 be improved by widening on the existing location and an additional 0.4 miles (0.6 kilometers) of roadway be constructed on a new location. This project is divided into the following three sections (See Figure 2).

Section A (See Figure 3) involves the widening and partial relocation of NC 279, from NC 150 to SR 1626, a distance of approximately 0.7 miles (1.1 kilometers). The recommended typical cross-section is a five-lane, 64-foot (19.5-meter) face-to-face, curb and gutter section with 8-foot (2.4-meter) berms on a 100-foot (30.5-meter) wide right-of-way with no access control. It is recommended that NC 279 be realigned to form a new signalized intersection with NC 150, approximately 0.7 miles (1.1 kilometers) north of the existing intersection. From this new intersection to the intersection of SR 1631 with NC 279, NC 279 would be relocated, a distance of approximately 0.4 miles (0.6 kilometers) (See Figure 2). The remaining 0.3 miles (0.5 kilometers) of NC 279, from SR 1631 to SR 1626, would be widened to the recommended five-lane section. The five-lane section would facilitate left-turn movements. A bridge approximately 250 feet (76.2 meters) long is recommended to carry the relocated NC 279 over the Southern Railway and SR 1630.

Section B (See Figure 2) is the widening of NC 279 from SR 1626 to SR 1461, a distance of approximately 9.1 miles (14.7 kilometers). The recommended typical cross-section is a four-lane, 46-foot (14.0-meter) median-divided roadway with 8-foot (2.4-meter) wide usable right shoulders (4-foot (1.2-meter) paved) and 2-foot (0.6-meter) wide paved median shoulders. A 220-foot (67.1-meter) wide right-of-way with partial control of access is recommended for this section. Structure Numbers 55 and 18 would be extended. A parallel structure would be built adjacent to Bridge Number 36 to accommodate the recommended cross-section.

Section C (See Figure 3) is the widening of NC 279 from SR 1461 to Old US 321, a distance of 1.3 miles (2.1 kilometers). The recommended typical cross section is a five-lane, 64-foot (19.5-meter) face-to-face, curb and gutter section with 8-foot (2.4-meter) berms on a 100-foot (30.5-meter) wide right-of-way with no access control. A five-lane pavement would facilitate left-turn movements.

The recommended improvements to NC 279 would increase traffic capacity, and stimulate development and travel between Cherryville and Dallas.

Low utility conflicts are expected.

The following table provides project cost for each section and the total project:

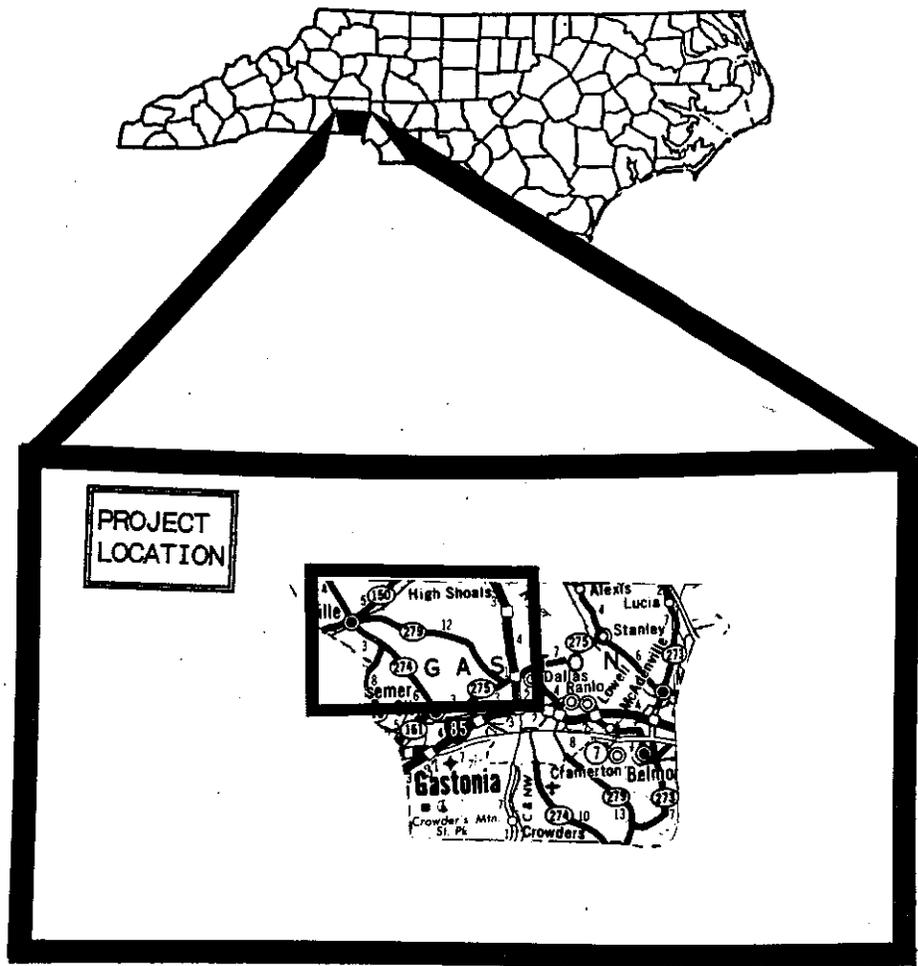
<u>SECTION</u>	<u>RIGHT-OF-WAY</u>	<u>CONSTRUCTION</u>	<u>SECTION TOTAL</u>
A	\$ 500,000	\$ 2,600,000	\$ 3,100,000
B	\$ 6,700,000	\$ 21,600,000	\$ 28,300,000
C	\$ 800,000	\$ 1,400,000	\$ 2,200,000
PROJECT TOTAL	\$ 8,000,000	\$ 25,600,000	\$ 33,600,000

In the event of phasing/staging this project, it is recommended that Section A be given priority, due to its existing traffic demand and the need for an additional grade separated railroad crossing in Cherryville.

IV. OTHER COMMENTS AND CONCERNS

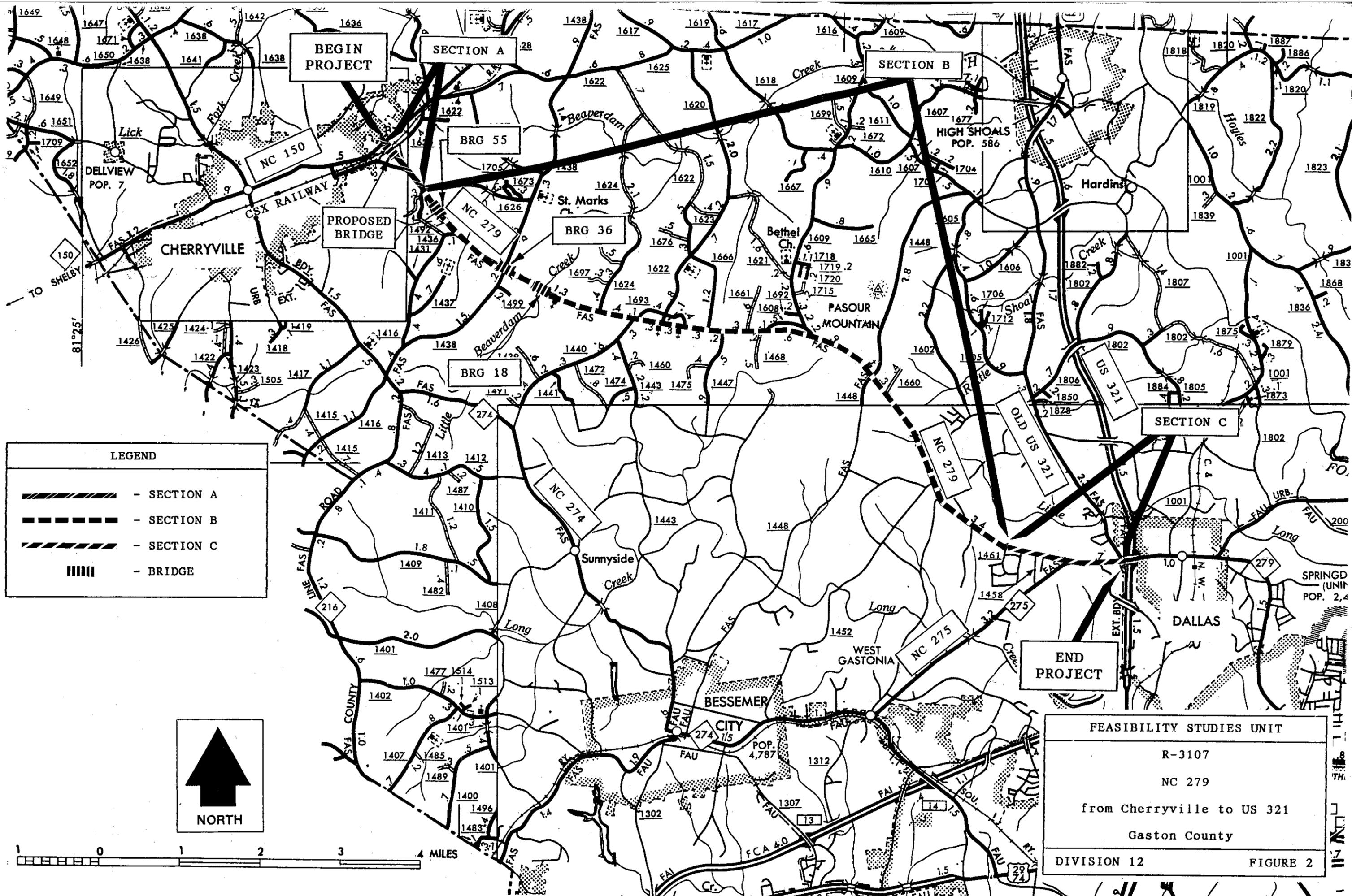
This project would require the relocation of approximately 49 residences and 18 businesses.

This project may require a Section 404, Corps of Engineers Nationwide Permit. A portion of this project is located in a water supply watershed. No historical or architecturally significant sites are known to be in the limits of the proposed project. No public parks are located in the project corridor.



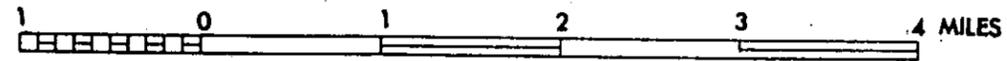
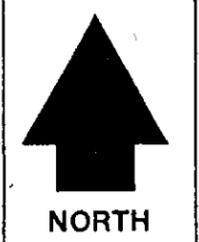
PROJECT
LOCATION

FEASIBILITY STUDY UNIT	
R-3107	
NC 279	
from Cherryville to US 321	
Gaston County	
DIV. 12	FIGURE 1



LEGEND

-  - SECTION A
-  - SECTION B
-  - SECTION C
-  - BRIDGE

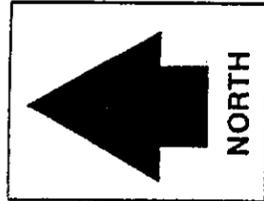
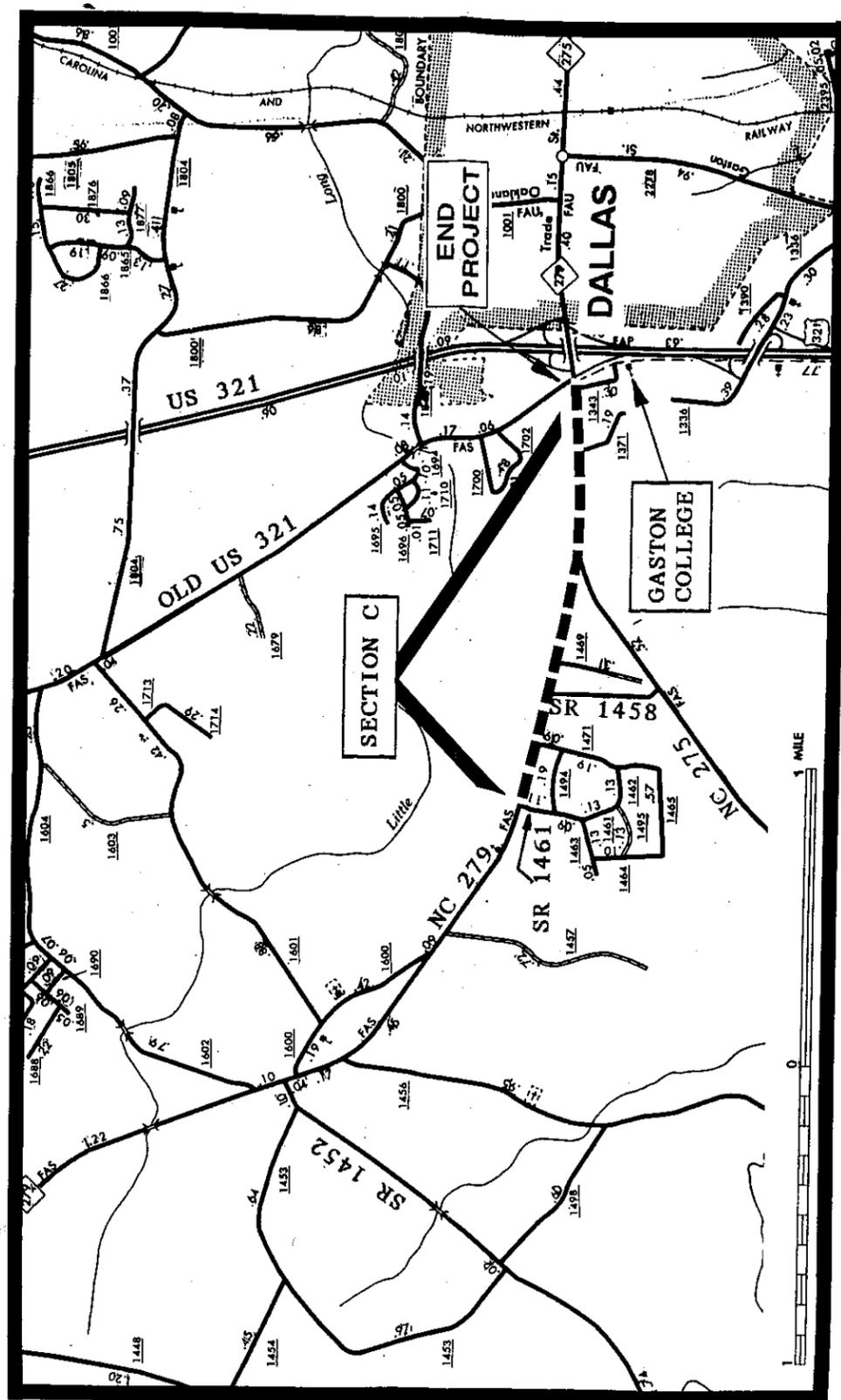
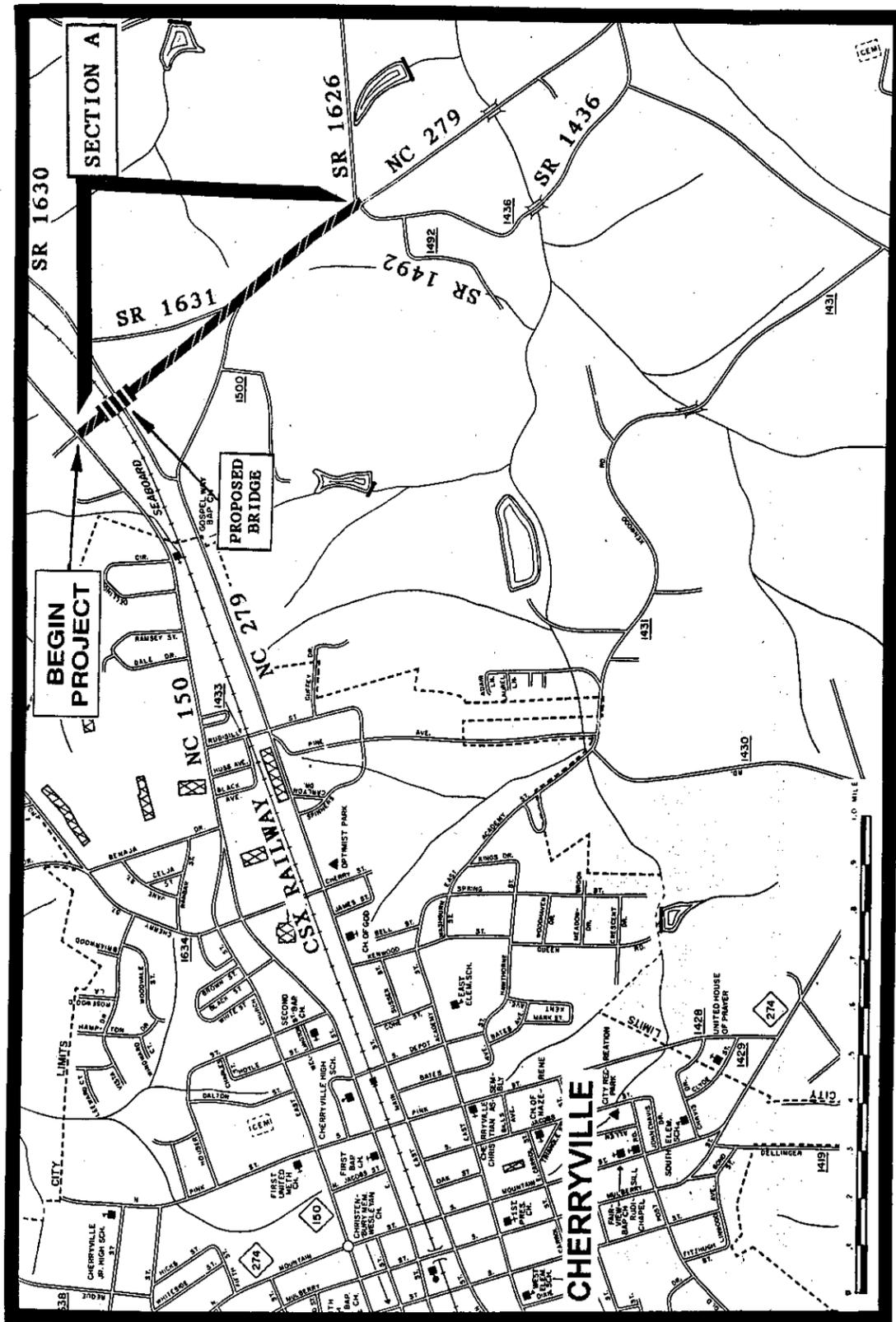


FEASIBILITY STUDIES UNIT

R-3107
 NC 279

from Cherryville to US 321
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DIVISION 12 FIGURE 2



FEASIBILITY STUDIES UNIT	
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NC 279	
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DIVISION 12	FIGURE 3