

Feasibility Study

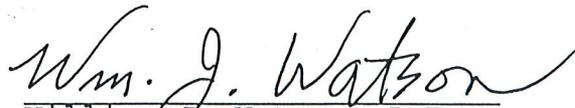
Dunn

Grade Separation at US 301 and CSX Railroad
Harnett County

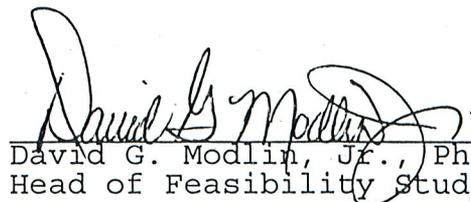
Division 6

U-3631

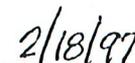
Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation



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Date

Grade Separation at US 301 and CSX Railroad
in Dunn
Harnett County
U-3631

I. GENERAL DESCRIPTION

This preliminary study describes two alternatives for a proposed grade separation at US 301 and the CSX Railroad in Dunn. Two locations for the structure and related approaches were studied, and they are shown on Figure 1 as Alternate 1 and Alternate 2. Alternate 1 follows existing US 301 on Granville Street. Alternate 2 calls for the structure to be located approximately 1,400 feet (427 m) north of Granville Street and will require the approaches and connecting roadway to be built mainly on new location. Both Alternatives provide a 2-lane bridge over the railroad with a clear deck widths of approximately 40 feet (12.2 m). Also, either alternative includes closing the existing at-grade railroad crossing on Granville Street.

Alternate 1 will likely require no business relocations and 21 residential relocations. The total cost including construction and right-of-way is estimated to be \$5,000,000.

Alternate 2 will likely require 1 business relocation and no residential relocations. The total cost including construction and right-of-way is estimated to be \$2,900,000.

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 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 access between the southeast and northwest sections of Dunn. Currently access is limited by the CSX Railroad which divides the city, as shown on Figure 1. There are 24 trains per day on this track, and it is estimated that access is blocked by stopped trains for up to 1.5 hours per day. There is no highway/railroad grade separation in the Dunn Area. This project was requested by the City of Dunn. The City of Dunn has worked with the NCDOT Rail Division in removing three at-grade railroad crossings in the City. According to the City of Dunn, the Granville Street grade separation is part of their agreement with the Rail Division to eliminate the crossings.

Granville Street (US 301) is classified as a Minor Arterial in the North Carolina Statewide Functional Classification System, and is a Minor Thoroughfare on the Dunn Thoroughfare Plan. Land use on Granville Street is mainly single family residential. North of Granville Street (along the line of Alternate 2) the land is mainly undeveloped.

Granville Street is a 2-lane paved curb-and-gutter section approximately 44 feet (13.4 m) wide from face-to-face of curbs. The existing right-of-way width appears to be 50 to 60 feet (15.2 to 18.3 m) wide.

Traffic volume estimates for Granville Street for the years 1996 and 2020 are 6,000 vehicles per day (vpd) and 11,000 vpd respectively. The Level of Service (LOS) provided is estimated to be LOS C in 1996 and LOS D in 2020. The LOS provided by the proposed improvements, under either alternative, for the years 1996 and 2020, is LOS C and LOS D respectively.

During the three year period beginning March 1, 1993, and ending February 29, 1996, there were 4 accidents reported on Granville Street within the project limits. None of these accidents involved a train. These accidents resulted in a total accident rate of 260 accidents per hundred million vehicle miles (ACC/100MVM). This compares with the statewide average of 269 ACC/100MVM for all urban US routes in North Carolina for 1994.

III. DISCUSSION OF ALTERNATIVES

ALTERNATE 1

Under Alternate 1, the bridge over the railroad will be located on Granville Street, as shown on Figure 1. This location conforms strictly with the City's request and with the purpose of the project which is improved access between the southeast and northwest sections of Dunn. This alternative also conforms strictly to the Dunn Thoroughfare Plan which is shown as Figure 2.

The grade change required on Granville Street will cause the relocation of an estimated 21 residences, and cause the closure of King Avenue, Fayetteville Avenue, and Wilson Avenue at Granville Street. Barrington Street will be extended to Fayetteville Avenue, as shown on Figure 1, in order to provide reasonable traffic circulation for area residents. This alternative provides a 2-lane bridge with a clear deck width of approximately 40 feet (12.2 m). The length of the structure under Alternate 1 is 200 feet (61 m).

The total cost including construction and right-of-way is estimated to be \$5,000,000 as follows:

Right-of-Way	.....	\$1,850,000
Construction	.....	<u>3,150,000</u>
Total Cost	.....	\$5,000,000

The advantages and disadvantages of Alternate 1 may be summarized as follows:

Alternate 1 Advantages

1. Conforms strictly with City's request
2. Conforms best with thoroughfare plan
3. Provides best local east/west access

Alternate 1 Disadvantages

1. More costly by \$2,100,000
2. Requires 21 residential relocations
3. Requires closure of three local streets

ALTERNATE 2

Alternate 2 was studied in an effort to find a location for the structure that was less expensive, and less disruptive to the neighborhood, than the Granville Street alternate. While alternate 2 is less expensive than Alternate 1, it does not provide direct access between the two sections of Dunn, does not conform strictly to the City's request, and does not conform strictly to the thoroughfare plan.

Under Alternate 2, the bridge over the railroad will be located approximately 1,400 feet (427 m) north of Granville Street, as shown on Figure 1. This location is in a much less densely developed area. It is estimated that this Alternate will require no residential relocations and 1 business relocation. This alternative provides a 2-lane bridge with a clear deck width of approximately 40 feet (12.2 m). The length of the structure under Alternate 2 is 150 feet (45.7 m). The approaches and connecting roadways will be 2-lane shoulder sections with 12-foot (3.6-m) wide travel lanes and 4-foot (1.2-m) wide paved shoulders. At the north terminus the intersection with existing US 301 will require a traffic signal. Southbound US 301 traffic (to the new facility) will require an exclusive left-turn lane and northbound US 301 traffic (from the new facility) will require an exclusive right-turn lane. The total cost

including construction and right-of-way is estimated to be \$2,900,000 as follows:

Right-of-Way	.....	\$ 700,000
Construction	.....	<u>2,200,000</u>
Total Cost	.....	\$2,900,000

The advantages and disadvantages of Alternate 2 may be summarized as follows:

Alternate 2 Advantages

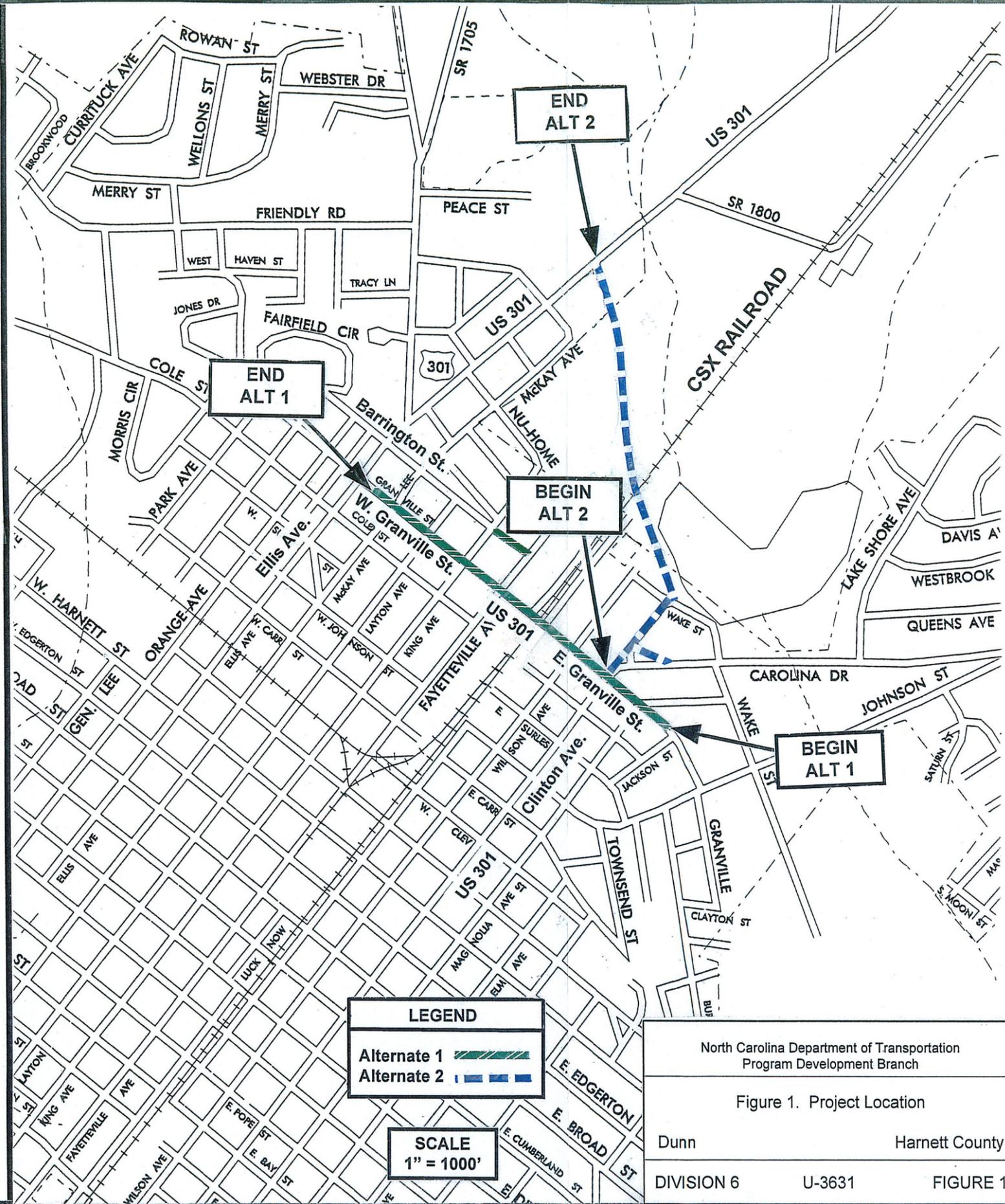
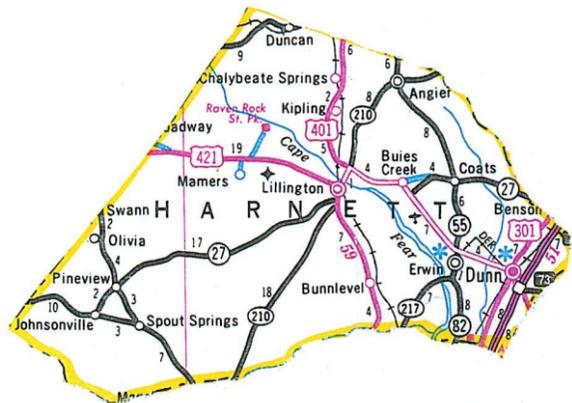
1. Requires no residential relocations
2. Removes US 301 traffic from local neighborhood
3. Less costly by \$2,100,000
4. Street closures not required
5. Only one track to cross; bridge is shorter
6. Better balance of cut and fill

Alternate 2 Disadvantages

1. Provides indirect local east/west access
2. Involves some wetlands
3. Does not conform strictly with City's request
4. Does not conform strictly with thoroughfare plan

IV. OTHER COMMENTS

An environmental screening was not conducted for this study. Some wetlands are involved with Alternate 2.



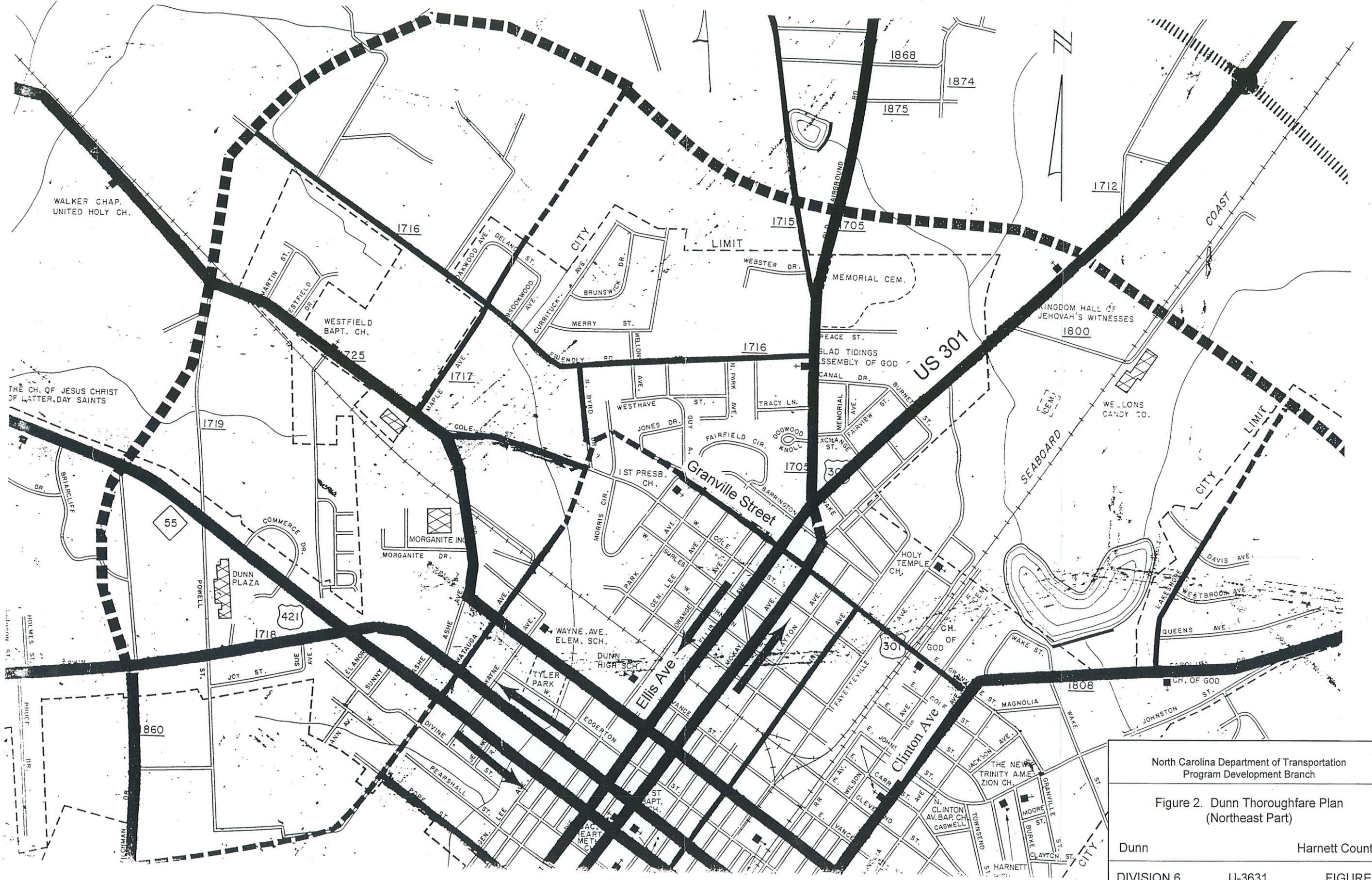
LEGEND

Alternate 1 

Alternate 2 

SCALE
1" = 1000'

North Carolina Department of Transportation Program Development Branch	
Figure 1. Project Location	
Dunn	Harnett County
DIVISION 6	U-3631
FIGURE 1	



North Carolina Department of Transportation
 Program Development Branch

Figure 2. Dunn Thoroughfare Plan
 (Northeast Part)

Dunn Harnett County

DIVISION 6 U-3631 FIGURE 2