

FEASIBILITY STUDY

Boone

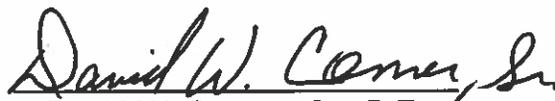
**US 421 (King Street)
from US 321 (Hardin Street)
to US 221 (Highway 105 Extension)
Watauga County**

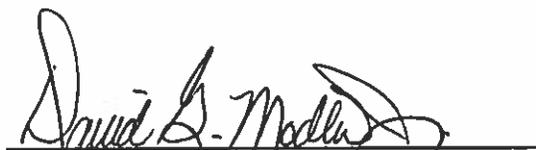
Division 11

FS-9911D

U-4020

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


David W. Conner, Sr., P.E.
Feasibility Studies Engineer


David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

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Date

FS-9911D

Boone
US 421 (King Street)
from US 321 (Hardin Street)
to US 221 (Highway 105 Extension)
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I. General Description

This feasibility study describes widening US 421 (King Street) from US 321 (Hardin Street) to US 221 (Highway 105 Extension) in Boone. The project length is 0.3 miles (0.5 km). The project location is shown on Figure 1.

The studied cross section is a 5-lane, 68-foot (20.7-m) wide (face-to-face) curb-and-gutter section with 10-foot wide berms on a 100-foot (30.5-m) wide right-of-way.

It is anticipated that the purchase of a 100-foot wide right-of-way would result in approximately 7 residential and 11 business relocations.

The total cost of the project, including right-of-way and construction, is estimated to be \$8,200,000 as follows:

Right-of-way	\$6,600,000
Construction	1,600,000
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Total	\$8,200,000

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 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 improve the traffic carrying capacity and the safety of King Street between Hardin Street and US 321. This section of roadway is included on the Boone Thoroughfare Plan as a major thoroughfare and in the Statewide Functional Classification System as a principal arterial.

Within the project termini, existing King Street is a 2-lane roadway with 12-foot (3.6-m) wide travel lanes. The north side of the roadway includes 4-foot (1.2-m) wide sidewalks which extend to the edge of pavement and create a 4-inch (10-cm) high curb. The south side of the roadway is generally a shoulder section with a mix of soil and paved shoulders. In the area of heavy commercial development on the south side, the edge of the roadway extends to and is synonymous with the parking areas of the businesses.

Development along the project route is dense commercial on both sides of the roadway.

At the west project terminus, Hardin Street is a 2-lane curb-and-gutter section with 12-foot (3.6-m) wide travel lanes. The south leg of the King Street intersection has been widened to include a left-turn lane. This leg of the intersection is scheduled for widening to a 5-lane curb-and-gutter section in the Draft 2000-2006 TIP as Project U-3800. Construction is scheduled for the year 2000.

At the east project terminus, widening of US 221 has recently been completed. The roadway is a 5-lane curb-and-gutter section with 12-foot (3.6-m) wide lanes.

It is estimated that the 1998 traffic volumes along the studied section of King Street are in excess of 17,000 vehicles per day (vpd). It is further estimated that the design year (2025) traffic volumes will be in excess of 26,000 vpd.

Based on the above traffic volumes, it is estimated that this studied section of roadway is currently operating at a Level of Service F. It is further estimated that construction of this project would improve the Level of Service to Level B which would prevail until near the design year.

During the three-year period from April 1, 1995 thru March 31, 1998, there were 106 accidents reported on King Street within the project limits. There were no fatalities reported during this period, but 29 of the accidents resulted in injuries. The accident rate along this segment of roadway is 1,497.2 accidents per 100 million vehicle miles (acc/100mvm). The 1995-1997 statewide rate for urban US routes is 273.1 acc/100mvm.

III. Detailed Description of Project

It is recommended that US 421 (King Street) be widened from US 321 (Hardin Street) to US 221 (Highway 105 Extension) in Boone. The project length is 0.3 miles (0.5 km). The project location is shown on Figure 1.

The recommended cross section is a 5-lane, 68-foot (20.7-m) wide (face-to-face) curb-and-gutter section with 10-foot wide berms on a 100-foot (30.5-m) wide right-of-way. Construction should be asymmetrical to the south side of the existing roadway.

The existing traffic signals at Hardin Street and NC 105 should be upgraded.

It is anticipated that the purchase of a 100-foot wide right-of-way would result in approximately 7 residential and 11 business relocations.

The total cost of the project, including right-of-way and construction, is estimated to be \$8,200,000 as follows:

Right-of-way	\$6,600,000
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Total	\$8,200,000

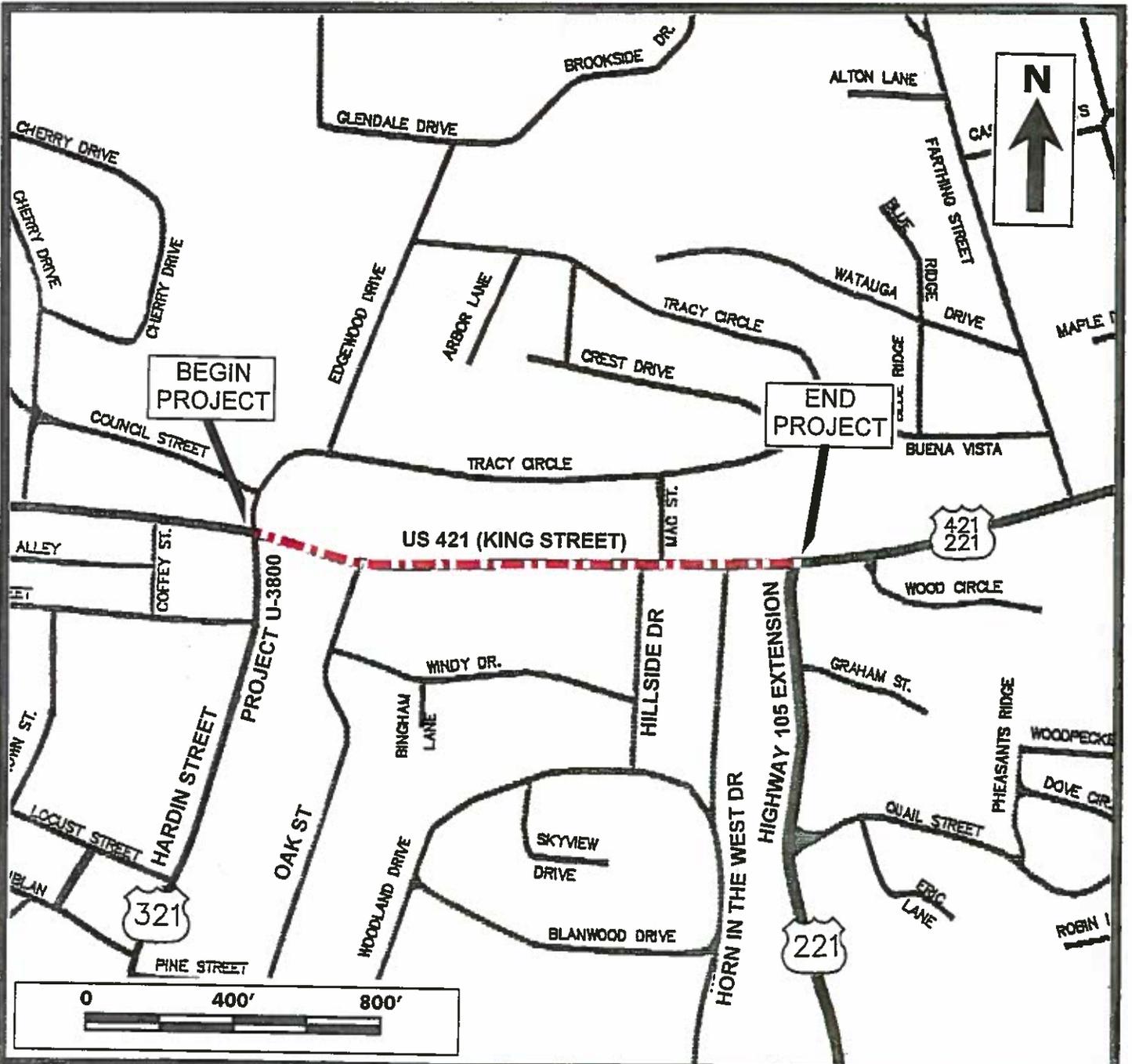
IV. Other Comments

Based on maps at the Department of Environment, Health & Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.

The NCDOT Division of Bicycle and Pedestrian Transportation has identified this segment of roadway as being part of the "Boone Bikeways Long Range Plan" and as having a need for special accommodations for bicycles. The recommended roadway cross section should be adequate to accommodate bicycle traffic.

A separate cost estimate was developed for adding sidewalks on the south side of the roadway. It is estimated that the addition of sidewalks would add \$30,000 to the cost of the project.

A transportation benefit analysis was completed for this project. It is estimated that the 28 year (1997-2025) transportation benefits are \$40.1 million which is an average of more than \$1.4 million per year. The total benefits include accident cost savings, time cost savings, and operating cost savings.



North Carolina Department of Transportation Program Development Branch	
FS-9911D US 421 (King Street) From US 321 (Hardin St) To US 221 (Highway 105 Extension)	
Boone, Watauga County	
DIVISION 11	FIGURE 1