

FEASIBILITY STUDY

**Wilkesboro
US 421 Bypass - Northern Option
from NC 16 to the Yadkin River
Wilkes County
U-3468**



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

A handwritten signature in black ink, appearing to read "Eric J. Lamb", written over a horizontal line.

Eric J. Lamb
Feasibility Studies Engineer

A handwritten signature in black ink, appearing to read "David G. Modlin, Jr.", written over a horizontal line.

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

2/14/96
Date

Wilkesboro
US 421 Bypass
from NC 16 to the Yadkin River
Wilkes County
U-3468

I. General Description

This feasibility study describes the construction of a bypass north of existing US 421 west of Wilkesboro from NC 16 to the Yadkin River, a distance of 3.4 miles (5.5 km). The project location is shown on Figure 1. The proposed cross-section is a four-lane divided section with 12-foot (3.7-m) travel lanes, 4-foot (1.2-m) paved inside shoulders, 10-foot (3.0-m) paved outside shoulders and a 60-foot (18.3-m) median. The proposed right-of-way is 300 feet (91.5 m) wide with full control of access. Four interchanges are proposed within the project limits. The total cost of the project, including construction and right-of-way, is estimated to be \$54,900,000.

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 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 alleviate congestion along the existing US 421 corridor. Development along existing US 421 is composed of mostly commercial retail development. There are several major anchors in shopping centers that generate a high amount of local site traffic. Behind this commercial development, the proposed project corridor is primarily residential. This project is supported by Wilkes County.

US 421 is designated as a major thoroughfare in the Wilkesboro Thoroughfare Plan and as a principal urban arterial in the North Carolina Statewide Functional Classification System.

US 421 is currently a five-lane roadway with soil shoulders through the congested shopping area. West of this region, US 421 is a two-lane, two-way roadway. Both ends of this project are flanked by TIP Project R-2240 B, which will widen US 421 to a four-lane divided section. This project originally included a southern bypass alternative which has since been eliminated due to an

historical conflict. R-2240 B is scheduled for right-of-way acquisition in 2000 and for construction in 2001.

The NC 268 Bypass of North Wilkesboro (TIP Project R-616) will be a four-lane divided, controlled-access facility that will intersect existing US 421 at the SR 1323 (Dancy Rd.) intersection. R-616 is scheduled for right-of-way acquisition in 2001 and for construction in 2003. See Figure 1 for a location.

The projected 1995 Average Daily Traffic (ADT) along the proposed US 421 Bypass varies from 8,400 to 12,700 vehicles per day (vpd). For the design year 2020, the estimated traffic volume will range between 15,600 and 24,300 vpd. Truck traffic is estimated to make up 13% of daily traffic. If constructed the US 421 Bypass will operate at LOS A in the current year and at LOS B in the design year 2020.

III. Description of Project

It is proposed to construct a bypass of US 421 west of Wilkesboro from NC 16 to the Yadkin River, a distance of 3.4 miles (5.5 km). The project location is shown on Figure 1. The proposed cross-section is a four-lane divided section with 12-foot (3.7-m) travel lanes, 4-foot (1.2-m) paved inside shoulders, 10-foot (3.0-m) paved outside shoulders and a 60-foot (18.3-m) median. The proposed right-of-way is 300 feet (91.5 m) wide with full control of access.

Four interchanges are proposed within the project limits in order to insure uniform traffic flow. A modified diamond interchange is proposed at the intersection of US 421 and NC 16 / SR 1143 (Browns Ford Rd.). Loops and ramps in the northeast and southwest quadrants of this interchange will provide adequate flow for the projected traffic movements. See Figure 2 for a diagram.

A flyover-style interchange is proposed at the intersection of existing US 421 and the proposed bypass. This interchange will allow eastbound traffic to exit by ramp to existing US 421 Business, while westbound traffic will enter the proposed bypass from a left-side entrance ramp. See Figure 2 for a diagram. Movements not serviced by this interchange will be provided for at the proposed interchange with the NC 268 Bypass.

A standard diamond interchange is proposed at the intersection between the US 421 Bypass and the NC 268 Bypass (R-616). A compressed diamond is proposed at the intersection between US 421 Bypass and existing US 421 Business. This design will accommodate the heavy left turns from westbound US 421 onto westbound US 421 Business with a minimum amount of right-of-way. This interchange will also alleviate some of the congestion currently associated with the intersection of existing US 421 and US 421 Business.

It is anticipated that 38 residences and 13 business will be relocated due to the project.

The total cost is as follows:

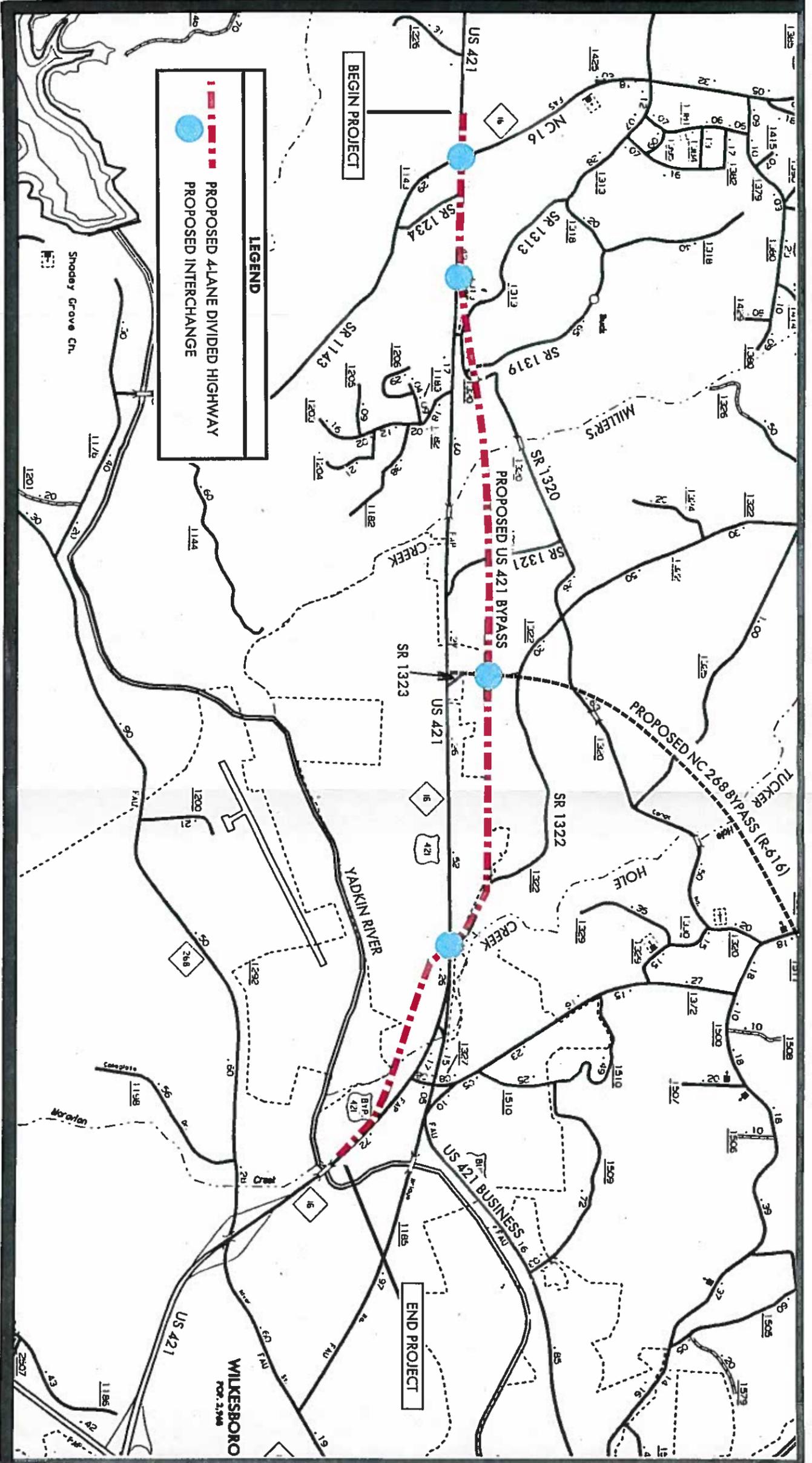
Construction.....	\$ 43,200,000
Right-of-way.....	\$ 11,700,000
<hr/>	
Total Cost	\$ 54,900,000

IV. Other Comments

An environmental screening was not conducted for this study. However, no impacts to historic properties or wetlands are anticipated. 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.

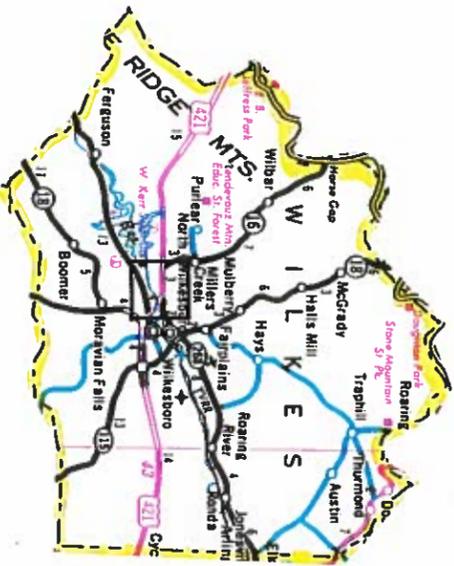
There are two creeks within the project limits that will require culverts. Miller's Creek and Tucker Hole Creek are both classified WS-IV and are part of the Yadkin-Pee Dee River Basin. Tucker Hole Creek is also classified TR CA. The cost of these improvements are included in the cost estimate.

No special accommodation for bicycles is recommended on this project.



LEGEND

- PROPOSED 4-LANE DIVIDED HIGHWAY
- PROPOSED INTERCHANGE



FEASIBILITY STUDIES UNIT

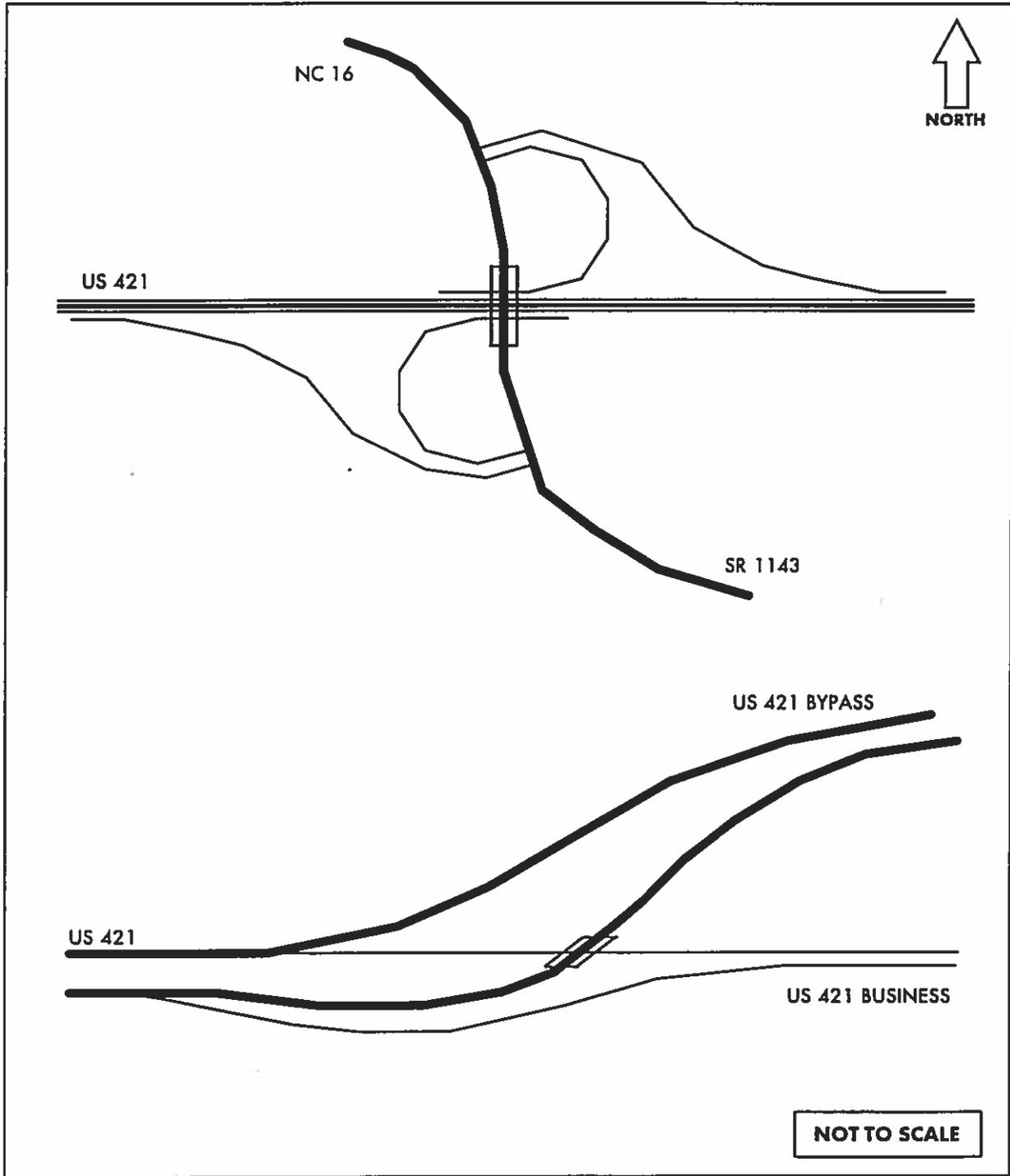
U-3468

US 421 BYPASS - NORTHERN OPTION

FROM NC 16 TO THE YADKIN RIVER

WILKESBORO

DIVISION 11 | WILKES COUNTY | FIGURE 1



U-3468
US 421 BYPASS - NORTHERN OPTION
PROPOSED INTERCHANGE CONFIGURATIONS

FIGURE 2