

**Feasibility Study**  
**New Connector Route**  
**From US 421 to NC 268**

**Wilkes County**

**Division 11**

**FS-0111A**



**Feasibility Studies Unit**  
**Program Development Branch**  
**N.C. Department of Transportation**

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*5/21/03*  
Date

# **FS-0111A**

## **New Connector Route From US 421 to NC 268 Wilkes County**

### **Division 11**

#### **I. Introduction**

This feasibility study describes the preliminary studies relative to the proposed Connector from US 421 to NC 268 in Wilkes County. The project study area is shown in Figure 1A.

#### **II. Executive Summary**

The proposed Connector route will provide high quality traffic service between the US 421 Freeway and NC 268 on the east side of the Wilkesboro-North Wilkesboro urban area. The proposed Connector will provide travel relief to the congested section of NC 18/268 just north of the Yadkin River between the junctions of US 421 Business/NC 115 with NC 18/268 and NC 268 East with NC 18 North in North Wilkesboro (See Figure 1A). This congested section of NC 18/268, which handles 21,000 vpd (2001 Average Daily Traffic [ADT]), must serve both east-west and north-south travel desires for the northeast section of the Wilkesboro-North Wilkesboro urban area. In addition, this new Connector would facilitate travel to the Wilkes County Airport from the US 421 Freeway corridor. This proposed Connector, in conjunction with TIP projects R-616, R-2603, and U-3468 will provide an urban loop facility for the Wilkesboro-North Wilkesboro urban area (See Figure 1B). [Project R-616 is a northern NC 268 Bypass from NC 18 to US 421. Project R-2603 is the improvement of NC 268 to multi-lanes from NC 18 to SR 1966 (Airport Road). Project U-3468 is the extension and completion of the US 421 Freeway Bypass from the Yadkin River westward to NC 16.] The Connector will serve as the eastern leg of the loop system.

The specific studied cross section for the majority of the project is a two-lane highway constructed asymmetrically on a right of way (150 to 200 feet) sufficient to contain an ultimate four-lane divided roadway. Partial control of access (one access per existing property) is recommended. The project has been separated into three sections. The sections are as follows:

**Section 1** is from US 421 to SR 2318, a distance of 2.3 miles. Section 1 will be a two-lane roadway with 12-foot shoulders (4-foot paved) constructed asymmetrically on a 150-foot wide right of way. This section will generally be on new location but parallels and is congruent to several short segments of SR 2344 and SR 2325 (See

Figure 1C). It is recommended that full control of access be provided on this section from the US 421 interchange to the intersection with SR 2346 and SR 2355.

**Section 2** is from SR 2318 to SR 2333 (just north of the Yadkin River), a distance of 2.8 miles. This section is on new location but runs concurrent with a short north-south section of SR 2325 (See Figure 1C). Improvements will consist of a two-lane roadway with 12-foot shoulders (4-foot paved) constructed asymmetrically on a 200-foot wide right of way. Section 2 also includes a short (700 feet) new roadway between the Connector and the “paralleled” section of SR 2318. The new roadway intersects the Connector approximately midway between the Yadkin River and Fishing Creek and ties into SR 2318 east of Fairview Church. Two bridges will be required in Section 2, a 1000-foot long bridge that will span the Yadkin River and the Southern Railroad and a 260-foot long bridge over Fishing Creek.

**Section 3** is from SR 2333 (near Yadkin River) to the intersection of NC 268 and SR 1966 (Airport Road), a distance of 1.3 miles (See Figure 1C). Section 3 is mostly on new location but will run concurrent with a short north-south section of SR 2333 near the Yadkin River. Section 3 will include a four-lane roadway with two 12-foot travel lanes in each direction with a 17.5-foot raised grass median and 12-foot shoulders (4-foot paved) from the NC 268 intersection with SR 1966 to the second (south) intersection of the Connector with SR 2333. The remainder of Section 3 will be a two-lane roadway with 12-foot shoulders (4-foot paved) constructed asymmetrically on a 150-foot wide right of way. The first (north) intersection of SR 2333 with the Connector will provide only right-in and right-out traffic movements for the southbound (SB) Connector travel. Consideration should be given to providing control of access for 1000 feet along each approach to the NC 268/SR 1966 (Airport Road) intersection.

The estimated costs of the sections are as follows:

**Section 1:** Two-lane roadway from US 421 to SR 2318 with a 150-foot right of way. Control of access is provided from US 421 to SR 2346 with partial control of access for the remainder of Section 1.

|                   |                        |
|-------------------|------------------------|
| Construction..... | \$ 6,000,000.00        |
| Right of way..... | <u>\$ 2,900,000.00</u> |
| Total Cost.....   | \$ 8,900,000.00        |

It is estimated 8 residences and 5 businesses will be relocated.

**Section 2:** Two-lane roadway with 200-foot right of way (partial control of access) from SR 2318 to SR 2333 (near Yadkin River). This section includes a new roadway that serves travel service from the Connector to the “paralleled” section of SR 2318.

|                   |                        |
|-------------------|------------------------|
| Construction..... | \$ 14,000,000.00       |
| Right of way..... | <u>\$ 1,700,000.00</u> |
| Total Cost.....   | \$ 15,700,000.00       |

It is estimated 14 residences and 0 businesses will be relocated.

**Section 3:** Two lane roadway from SR 2333 (near Yadkin River) to SR 2333 (south intersection) and a four-lane median divided roadway from SR 2333 (south intersection) to NC 268 with a 150-foot right of way (partial control of access).

|                   |                        |
|-------------------|------------------------|
| Construction..... | \$ 6,200,000.00        |
| Right of way..... | <u>\$ 5,000,000.00</u> |
| Total Cost.....   | \$ 11,200,000.00       |

It is estimated 10 residences and 7 businesses will be relocated.

This study is the initial step in the planning and design process for this project and is not to be considered the product of exhaustive environmental or design investigations. The purpose of the study is to describe the problem, recommend a feasible treatment including estimated costs, and identify potential problem areas that deserve consideration in the planning and design phases.

### **III. Existing Conditions**

The proposed Connector from US 421 to NC 268 will provide high quality travel service for the northeast section of the Wilkesboro-North Wilkesboro urban area. The Connector will generally provide a LOS C with an average operation speed of 50 mph for the 2025 PM peak hour of travel. It will use an existing interchange at US 421 and SR 2433 that currently serves the Community of Antioch and a small rural section of Wilkes County located just south of the Yadkin River. This new travel service will provide access to the Wilkes County Airport and will remove traffic from a very congested section of NC 18/268 between the junctions of US 421 Business/NC 115 with NC 18/268 and NC 18 North with NC 268 East between the Towns of Wilkesboro and North Wilkesboro. This section of NC 18/268 must support both east-west and north-south traffic flows for the Wilkesboro-North Wilkesboro urban area. [No traffic forecast was provided for this section of roadway but the existing (2001) ADT is 21,000 vph]. Using a conservative two percent annual growth rate, this section of NC 18/268 could expect travel demands to be around 34,000 vpd by 2025.]

#### **2025 Capacity Considerations**

The projected 2025 ADT volumes as shown in Figure 2 were developed for the recommended alternative from the traffic provided by the Statewide Planning Branch (NCDOT). The 2025 traffic volumes for the two-lane section of the Connector varies from a high of 5600 vpd just north of US 421 to a low of 3200 vpd just south of the SR 2318 intersection. The section with 5600 vpd will function at a LOS D with a 47 mph average travel speed for the PM peak hour and the section with 3,200 vpd will function at a LOS C with an average speed of 50 mph. The four-lane roadway section of the Connector (projected 2025 ADT of 10,000 vpd) from NC 268 to the SR

2333 second (south) intersection will function at a LOS A with an average speed of 60.0 mph.

Synchro/SimTraffic was used to analyze the US 421 Interchange with the proposed Connector (2025 traffic conditions). The traffic simulation indicated no traffic flow problems through the interchange area. The north and south ramp intersections at the SR 2433/proposed Connector will function at LOS C or higher with stop sign control.

For the 2025 traffic conditions, all other intersections with the Connector will function at a LOS C or higher. Traffic signals will be required at NC 268 and the SR 2333 (south) intersection. The traffic signal at SR 2333 (south) intersection will not be required until between the year 2020 and 2025. The NC 268/Connector intersection will require two through and right-turn lanes for all approaches, single left-turn lanes for the WB and SB approaches, and dual left-turn lanes for the NB and EB approaches. All other intersections with the connector will function with stop sign control. The SR 2333 (north) intersection will allow only right-in and right-out traffic movements.

#### **IV. Studied Alternates**

The recommended alternative was selected based on a field review of the initial alignment provided by NCDOT. The initial alignment south of SR 2318 affected a high-voltage relay station and the section north of the Yadkin River affected a new lumber industry. The recommended alternate was also selected to minimize the impact to the Yadkin River floodplain.

#### **V. Recommendations**

It is recommended that the Connector be initially constructed as a two-lane roadway with 150-200 feet of right of way to allow for an ultimate future four-lane roadway with a 17.5-foot raised median. It is additionally recommended that the section from SR 2333 (south) intersection to NC 268 be initially constructed as a four-lane roadway with a raised median within a 150-foot wide right of way to prohibit EB left and NB left turns at SR 2333 (north). Partial control of access is recommended.

The estimated cost of constructing the recommended improvements is:

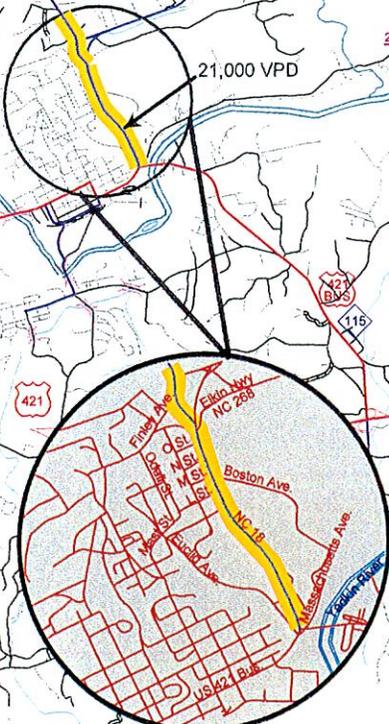
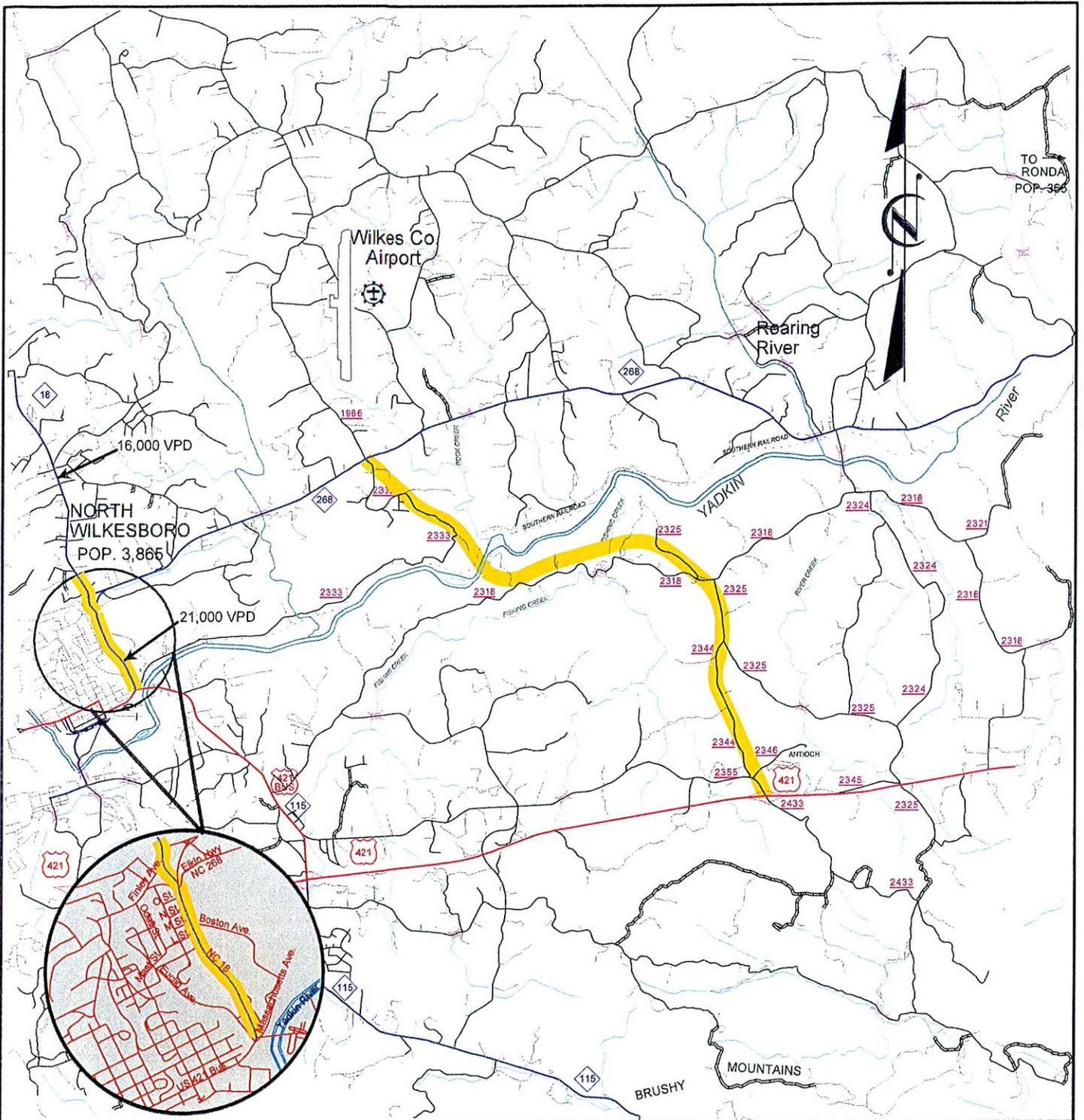
|                   |                        |
|-------------------|------------------------|
| Construction..... | \$ 26,200,000.00       |
| Right of way      | <u>\$ 9,600,000.00</u> |
| Total Cost.....   | \$ 35,800,000.00       |

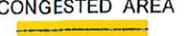
It is estimated 32 residences and 12 businesses will be relocated.

A cost estimate for acquiring no control of access along the project was prepared. No control of access is estimated to cost \$ 700,000 less than partial control. The total cost of this project with no control of access is estimated to be \$35,100,000.

## VI. Other Comments

No historic properties are known to exist in the study corridor. Two bridges are required, one for Fishing Creek and one for the Yadkin River. The Yadkin River crossing has been selected to minimize involvement with the floodplain. No stream re-alignments are anticipated. Based on the listings by the United States Fish and Wildlife Service, the bog turtle (*Clemmys muhlenbergii*) is a threatened or endangered species in Wilkes County. An environmental screening by a certified environmentalist was not conducted for this study but before this project is implemented an in-depth environmental screening will be provided for the project corridor.



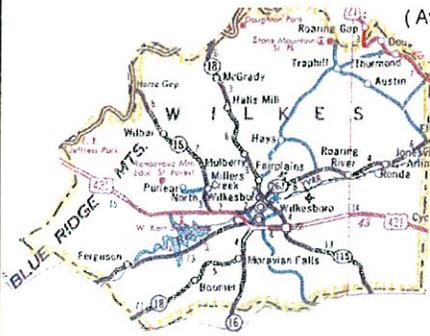
CONGESTED AREA  
  
 0000 2001 ADT  
 (Average Daily Traffic counts)

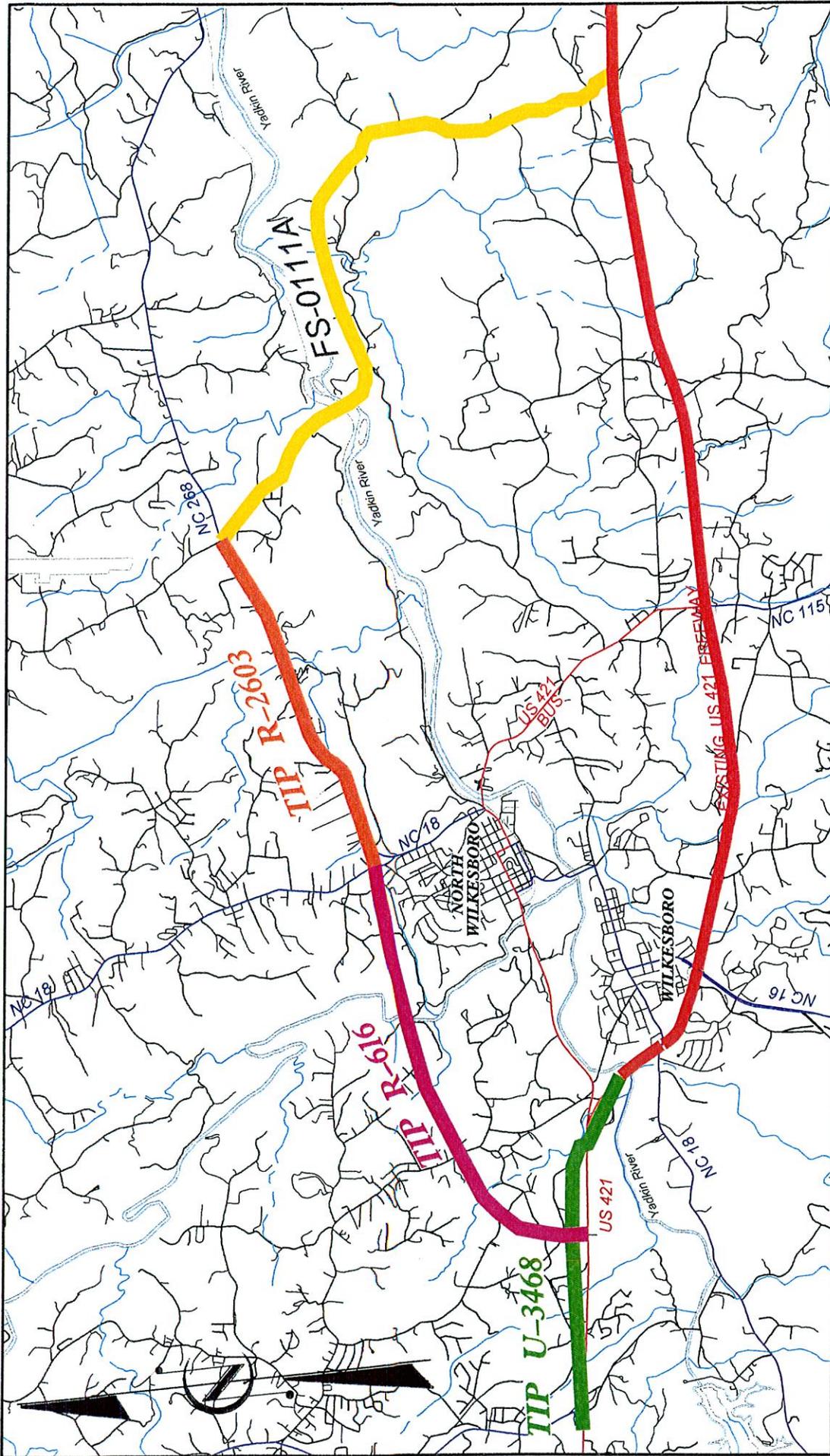


**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**PROGRAM DEVELOPMENT BRANCH**

FS-011A  
 NEW CONNECTOR ROUTE  
 FROM US 421 TO NC 268  
 WILKES COUNTY

FIGURE 1A







**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**PROGRAM DEVELOPMENT BRANCH**

**Wilkesboro - North Wilkesboro Loop System**  
**WILKES COUNTY**

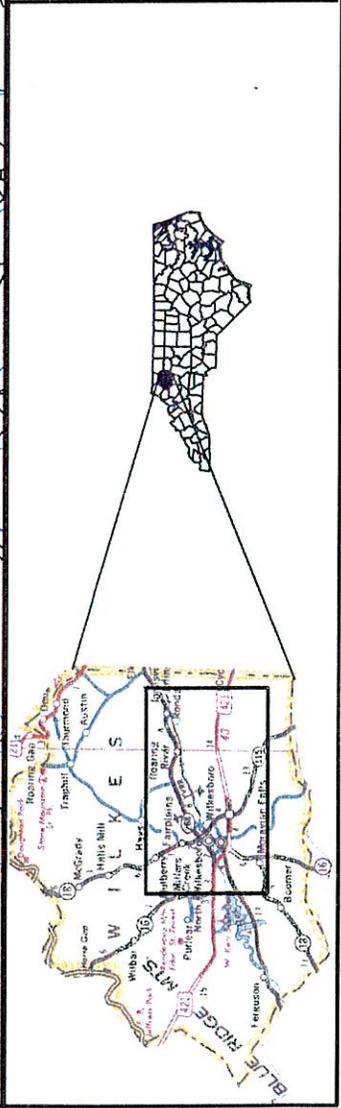
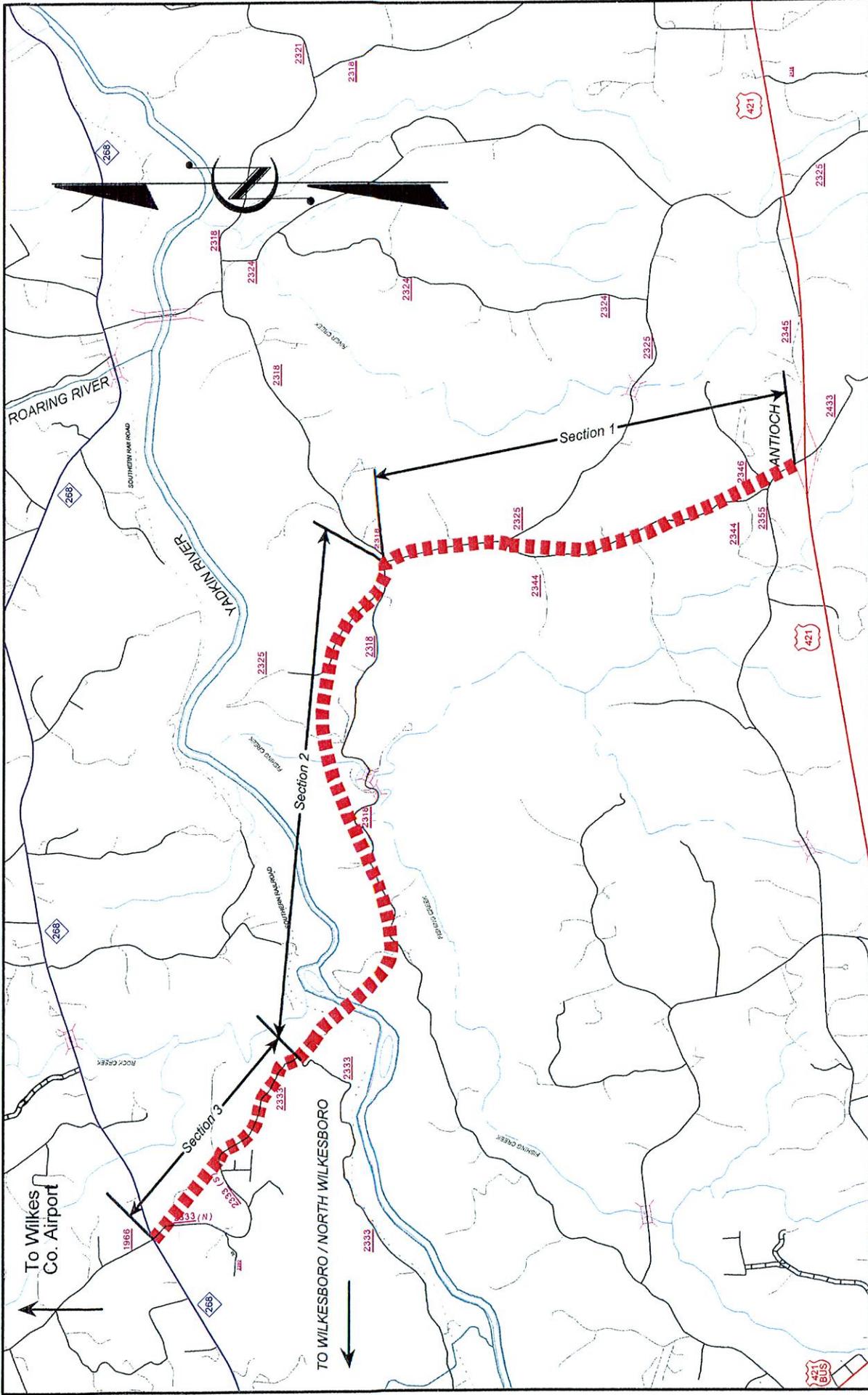


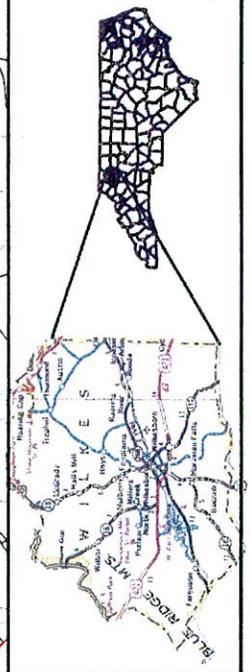
FIGURE 1B

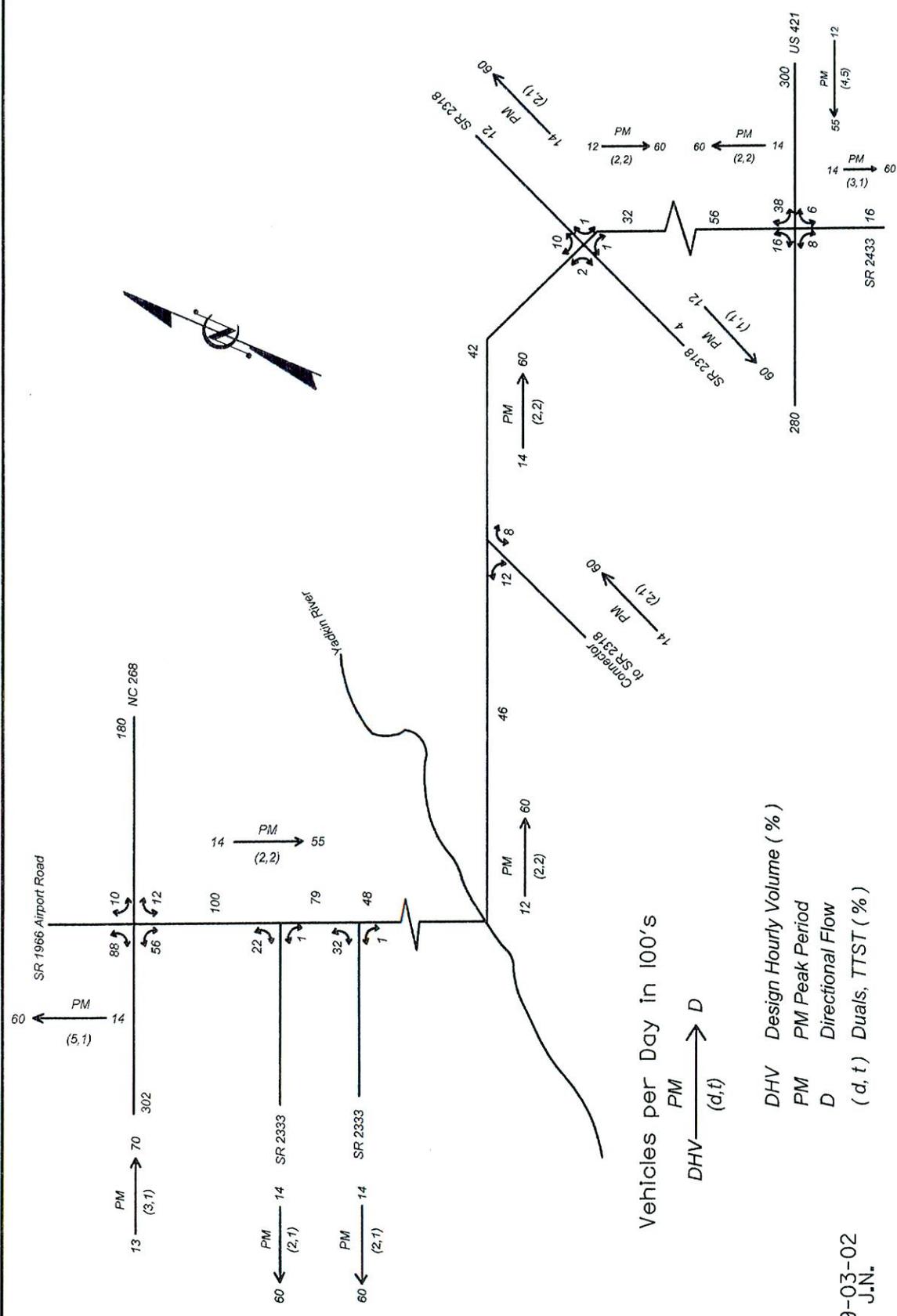


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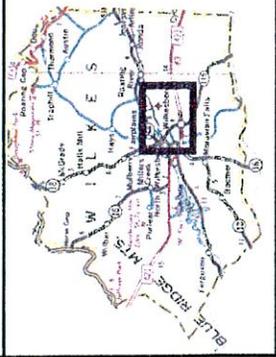
FIGURE 1C

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J.N.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
PROGRAM DEVELOPMENT BRANCH

FS-0111A  
2025 TRAFFIC AS RECOMMENDED  
FROM US 421 TO NC 268

FIGURE 2