



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

May 11, 2011

MEMORANDUM

TO: Mr. Calvin W. Leggett, P.E.
Manager, Program Development Branch

FROM: Mr. R. N. Prince
Feasibility Studies Engineer

SUBJECT: **R-2615B** – Proposed widening of US-421 (King Street) from US-421/321 junction to US-221/NC-105 west of Boone; Watauga County.

As requested, we have completed feasibility study R-2615B for the widening of US-421 (King Street) from US-421/321 junction to US-221/NC-105 west of Boone; Watauga County. This project proposes to construct a multi-lane divided highway for the limits mentioned above, a distance of approximately 3.3 miles.

Our evaluation of this project was based on a four-lane divided shoulder section, with 12-foot travel lanes, a 46-foot depressed grass median, and 10-foot shoulders (4 feet of which is paved) on 250-feet of right of way. It is anticipated that seventy four (74) residences and thirty one (31) businesses would need to be relocated due to this project.

The estimated total cost of this project is as follows:

Construction.....	\$ 25,200,000
Right of Way.....	\$ 38,600,000
Utility Relocation.....	\$ 1,100,000
<u>Total Cost.....</u>	<u>\$ 64,900,000</u>

The current year Average Daily Traffic (ADT) along US-421/321 ranges from 10,500 vehicles per day (vpd) to 16,500 vpd. For the design year 2035, the traffic volume along US-421/321 is estimated to range between 19,900 vpd to 29,300 vpd. Truck traffic is estimated to make up approximately 6 percent of the daily traffic.

The existing segment of US-421/321 operates at a level of service (LOS) E under current traffic volumes. If no improvements are made in the 2035 design year, it is projected that the segment along US-421/321 will continue to operate at a LOS F. With the proposed improvements, it is projected US-421/321 will operate at a LOS D or better in the 2035 design year.

Between 2008 and 2011, 105 total crashes were reported within the project limits. The crash rate for US 421/321 is 170.16 crashes per 100 million vehicle miles (crashes/100MVM) traveled. This rate is higher than the statewide rate; 151.02 crashes/100MVM for a two-lane Undivided United States route between 2007 and 2009. There were twenty seven (27) non-fatal injury crashes, 78 property damage only crashes, and no fatal crash. The most prevalent types of crashes were Rear End (42.9%), Animals (12.4%), and Sideswipes (12.4%) Fixed Objects (10.5%), Left Turns (10.5%), Movable Objects (3.8%), Angled (1.9%), Ran Off Road (2.9%) and other (2.9%).

No threatened or endangered species were identified, however there were some environmental concerns within the project study area. See Table 1 and 2 for detailed information.

A detailed investigation was not conducted for this feasibility study; however it is anticipated that there will be possible impacts to a US Post Office, Willowdale Baptist Church, Brushy Fork Baptist Church and First Christian Church.

Maps at the Survey and Planning Branch of the North Carolina State Historic Preservation Office were used to determine if any historic properties on the National Register of Historic Places (NRHP) or State study lists exist within the proposed project study area. There were no known properties located within the proposed project study area.

The proposed project study area is located in the Watauga River Basins. US 421/321 has 2 (Two) known culverts in the project corridor, C-15 near Circle Drive south of Vilas, C-28 near US 421 and 321 split on the east end of the project area. A portion of the project study area runs parallel with Brushy Fork Creek.

As you are aware, this work is preliminary and not the product of comprehensive environmental or design evaluations. If you should have further questions or additional information is needed, please do not hesitate to contact me at 715-5538, or via e-mail at rprince@ncdot.gov.

ATT: Table 1: Threatened and Endangered Species.
Project Map

cc: Al Avant, Assistant Branch Manager – Programming
Van Argabright, P.E., Manager – TIP Western Region
Michael A. Pettyjohn, PE, Division 11 Engineer

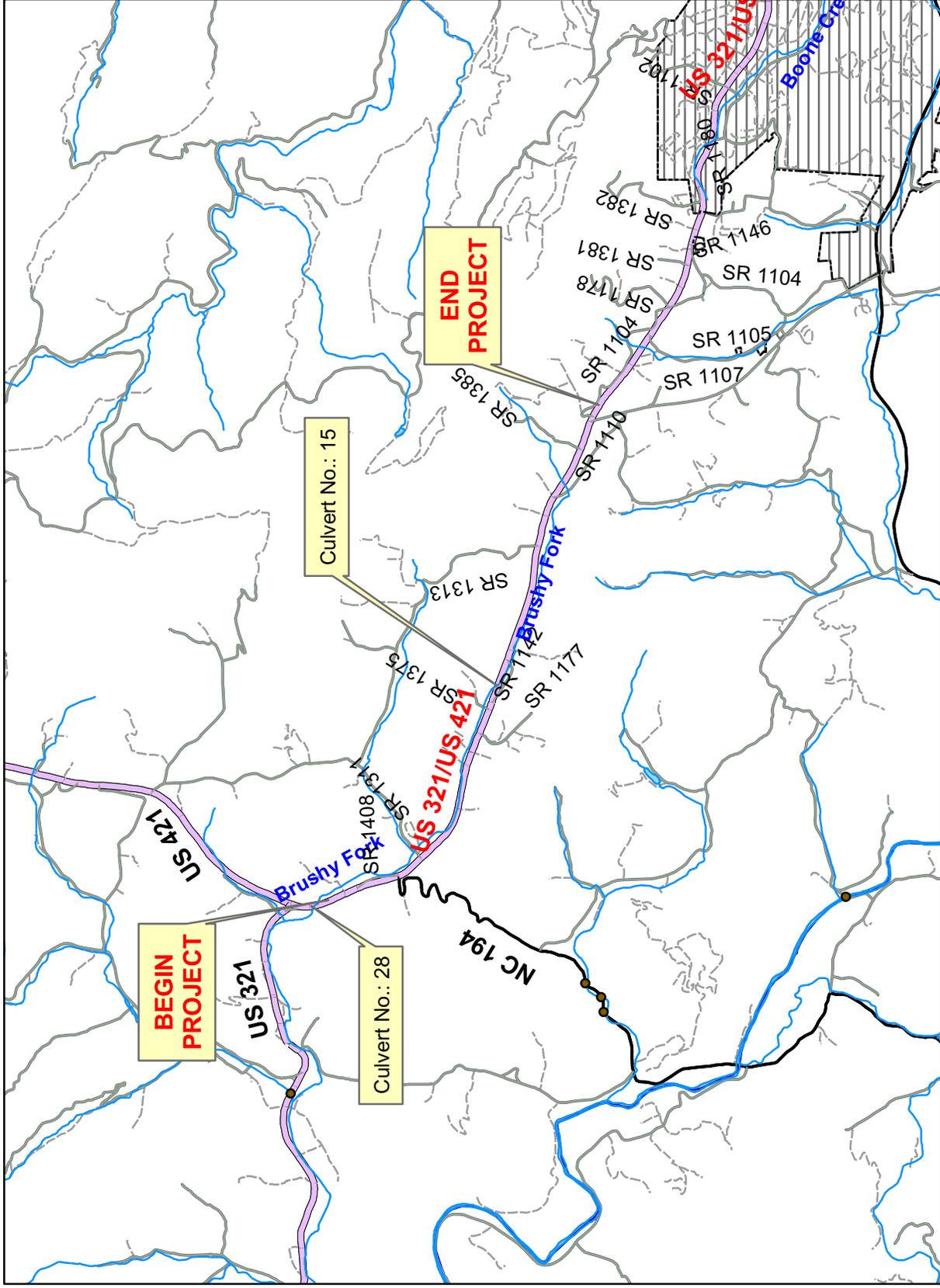
Table 1. Environmental impacts within the project study area.

Impact Types	Name
Land/Air Environmental	National Poll. Disch. Elim.
Wetlands	National Wetlands Inventory Lanes
Property Impact Concerns	Land Trust Priority Areas

Table 2. Watauga River Basin within the project study area.

Group	Name	
Fish	Notropis photogenis	Silver Shiner
	Percina aurantiaca	Tangerine Darter
	Pimephales notatus	Bluntnose Minnow
Mussels	Lasmigona subviridis	Green Floater

R-2615B Watauga County Location Map



LEGEND

- NCDOT Bridge Locations
- ▭ <all other values>
- Water Bodies
- Major Water Bodies
- Rivers
- Secondary Roads
- Old City Boundaries
- Airports
- Major Rivers
- dotrailrd
- Primary Routes**
 - I
 - NC
 - US
 - dotuniverse
- Roads**
 - I
 - NC
 - SR
 - US

