

US 64
From West of NC 281 at Lake Toxaway to Indian Creek
Transylvania County
WBS No. 34428.2.2
T.I.P. No. R-2409C

CATEGORICAL EXCLUSION

U.S. Department of Transportation
Federal Highway Administration
and
N.C. Department of Transportation

Approved:

10-28-2013
DATE

for Jennifer Harris
Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation

10-28-2013
DATE

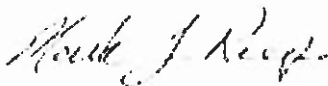
for Michael O'Farrell
John F. Sullivan, III, P.E.
Division Administrator
FHWA

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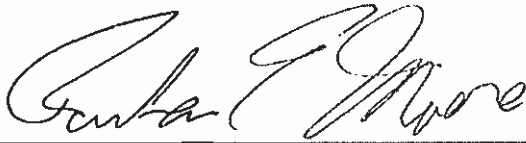
Documentation Prepared By
ICA Engineering, Inc.



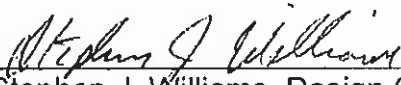
Mark L. Reep, P.E.
Project Engineer – ICA Engineering, Inc.



For The North Carolina Department of Transportation



Reuben E. Moore, PE, Division Operations Engineer
Division 14 Office



Stephen J. Williams, Design Construction Engineer
Division 14 Office



John Conforti, REM, Project Development Group Supervisor
Project Development and Environmental Analysis Unit

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PROJECT COMMITMENTS

Division 14/ Right of Way Branch

Land is required from Gorges State Park, which is part of the North Carolina (NC) State Park System. The park is located along the south side of US 64 on the western end of the project. The project requires the permanent use of property from the park's northern boundary along US 64.

This land is subject to the State Parks Act (General Statute 113-44.14). Any removal or addition of land to a state park requires approval from the NC General Assembly.

This land use is also subject to Section 4(f) of the USDOT Act of 1966. The NC DENR Division of Parks and Recreation concurs that the recommended improvements with Alternative 4 will have minimal impact on the park and that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f) with the following measures included to minimize harm:

- Minimization of water quality impacts through stringent erosion control.
- Use of native plant species (no invasive species) for stabilizing the construction slopes after construction in the area of the state park.
- Revision of new park boundaries to join the roadway right of way with no private parcels in between. The property affected by this project or the right of way needed from Gorges State Park will need to be removed from the NC State Parks System and the State Nature and Historic Preserve.

Approximately 7.26 acres of park property are located with the proposed right of way limits. A portion will be replaced by acquiring and transferring approximately 2.58 acres of private property between US 64 and the park. Where US 64 is realigned away from the park, unnecessary right of way may also be considered for park replacement. During final design, NCDOT will coordinate with the Division of Parks and Recreation to revise the boundary between the park and roadway right of way and determine compensation requirements. NCDOT will provide the documentation required for the NC General Assembly to authorize this land use. During construction in the area of the park, NCDOT will minimize water quality impacts through stringent erosion control and use native plant species to stabilize slopes.

FHWA considers the impacts from the project to this 4(f) protected site to be minimal. FHWA has made a 4(f) "de minimis" determination [23 CFR 774.17(5) (2)] based on concurrence from NC DENR Division of Parks and Recreation that the project will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Division 14/ Right of Way Branch

A colony of federally protected small whorled pogonia plants is located in the eastern portion of the project just north of existing US 64. The colony is located within 50 feet of the existing roadway. The proposed alignment has been shifted to the south side of US 64 to avoid any direct impact to the plants. NCDOT proposes a retaining wall to limit the amount of required cut slope near the plants. A retaining wall in this area will also help stabilize the slope and prevent erosion that could threaten the plants. Top-down construction and geotechnical fabrics will be considered to limit tree canopy removal. During final design, NCDOT will continue coordinating with the US Fish and Wildlife Service regarding tree removal, slope protection, and planting of native vegetation in this area.

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EXECUTIVE SUMMARY

1. FEDERAL HIGHWAY ADMINISTRATION

This is a Federal Highway Administration (FHWA) Administrative Action Categorical Exclusion.

2. CONTACTS

The following individuals may be contacted for additional information concerning this Proposal:

Mr. John F. Sullivan, III, P.E.
Division Administrator
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601
Telephone: (919) 856-4346

Mr. Edward A. Green, P.E., Division Engineer
Highway Division 14 Office
North Carolina Department of Transportation
253 Webster Road
Sylva, NC 28779
Telephone: (828) 586-2141

3. OTHER GOVERNMENTAL ACTIONS REQUIRED

The proposed action will require permits pursuant to Sections 401 and 404 of the Clean Water Act of 1977, as amended. A 401 Water Quality Certification from the Water Quality Section of the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality will be needed for fill activity in adjacent wetlands and surface waters. A Section 404 permit issued by the US Army Corps of Engineers will be required to discharge and place fill materials into wetlands.

4. PROPOSED ACTION

The North Carolina Department of Transportation (NCDOT) and FHWA propose transportation improvements to US 64 from 0.3 mile west of NC 281 at Lake Toxaway to Indian Creek, Transylvania County. The proposed project is included in the NCDOT 2012-2020 State Transportation Improvement Program (STIP) as project number R-2409C. The project consists of upgrading this 1.5-mile, two-lane roadway to improve geometric design conditions and add a climbing lane. The project straightens the roadway alignment, provides standard-width travel lanes, includes unpaved shoulders, and adds a westbound climbing lane.

5. BUILD ALTERNATIVES

Two build alternatives have been studied in detail. Both alternatives widen the existing lanes to 12 feet, provide six-foot unpaved shoulders, and add a climbing lane in the westbound direction. These are described below.

Alternative 2 realigns portions of the roadway to provide flatter horizontal curves and achieves a minimum design speed of 30 mph.

Alternative 4 (Recommended) requires the most realignment of horizontal curves but corrects more of the alignment deficiencies. This alternative provides a minimum design speed of 40 mph.

The **No-Build Alternative** has also been considered. It would not upgrade existing US 64 in the Lake Toxaway area.

6. SUMMARY OF IMPACTS

Table i: Comparison of Preliminary Build Alternatives

Evaluation Factor	Alternative 2	Alternative 4 (Recommended)
Estimated Costs (2012-2020 STIP)		
Right of Way	\$400,000	\$400,000
Construction	<u>\$4,000,000</u>	<u>\$4,000,000</u>
Total	\$4,400,000	\$4,400,000
Estimated Displacements	0	0
No. of Stream Crossings	5	8
Total Stream Impacts (feet)	615	995
Total Wetland Impacts (acre)	0	0
Historic and Archaeological Resources	0	0
Section 4(f) Resources (Gorges State Park)	De Minimis Impact / Not Adverse	De Minimis Impact / Not Adverse
Federally Protected Species (Small whorled Pogonia Plants)	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect

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1.0 PURPOSE OF AND NEED FOR THE ACTION

1.1 GENERAL

The North Carolina Department of Transportation (NCDOT) and the Federal Highway Administration (FHWA) propose transportation improvements to US 64 from 0.3 mile west of NC 281 at Lake Toxaway to Indian Creek, Transylvania County (see Figure 1 for location). The proposed project is included in the NCDOT 2012-2020 State Transportation Improvement Program (STIP) as project number R-2409C. The project consists of upgrading this 1.5-mile, two-lane roadway to improve geometric design conditions and adding a climbing lane. The project straightens the roadway alignment, provides standard-width travel lanes and shoulders, and adds a westbound climbing lane. R-2409C is a part of a larger project (R-2409) that stretches from NC 107 at Cashiers in Jackson County to US 178 at Rosman in Transylvania County. According to NCDOT's TIP, this project is scheduled for right of way acquisition to begin in 2013 and construction in 2014.

In 1989, a feasibility study was completed for Project R-2409 focusing on improvements to US 64 between Cashiers and Rosman in Jackson and Transylvania Counties. R-2409A and R-2409B improvements are complete. The most substantial US 64 alignment deficiencies are located between Toxaway River and Indian Creek within the limits of R-2409C. Planning and design are in progress for R-2409D to evaluate improving an adjoining 2.1-mile stretch of US 64 to the east between Indian Creek and Flat Creek Valley Road (SR 1147). The estimated cost in the TIP for R-2409C is \$4,400,000. This includes \$400,000 for right of way acquisition and \$4,000,000 for construction.

1.2 NEED FOR THE PROPOSED ACTION

US 64 near Lake Toxaway is characterized by a substandard roadway width and narrow shoulders, a poor horizontal and vertical alignment, and a design speed that is lower than the posted speed limit (see Figure 1). Wide vehicles, such as tractor-trailer trucks, cross the road centerline into the opposing travel lane when moving through several sharp curves. The accident rate exceeds the statewide average and critical crash rates for similar facilities. The purpose of the project is to improve safety and traffic flow by correcting roadway deficiencies and constructing a climbing lane to enable motorists to pass slower-moving cars or trucks.

1.3 EXISTING CONDITIONS

1.3.1 System Linkage

Existing Road Network

Transylvania County has 407 miles of state maintained roads of which 347 miles are paved (Transylvania County Comprehensive Plan February 2005). This system has close to a quarter of the roads assigned as primary roads, and three-quarters assigned as being secondary roads. Transylvania County's primary road system is comprised of three US routes (US 64, 178, and 276) and three NC routes (NC 215, 280, and 281). US 64 is the major east-west route across Transylvania County, and US 276, NC 215, and 281 are the major north-south routes.

According to the 2000 Census County Commute Summary, 78% of Transylvania County residents remain inside the County, while 18% commute to neighboring Henderson, Buncombe, and Jackson Counties. The primary routes listed above are important commuting routes between neighboring counties and South Carolina.

Railways, Airports, and Mass Transit

There are no active railways in the vicinity of the project.

The nearest major commercial airport to the project study area is the Asheville Regional Airport located on I-26 south of Asheville. The Asheville Regional Airport is approximately 35 miles from Lake Toxaway. Two general aviation airports are located within 40 miles of the project study area. The Jackson County Airport is located three miles south of Sylva, and the Transylvania County Airport is located five miles east of Brevard.

Transylvania County is not served by a national bus service, and there are no fixed bus routes operated by the County. However, the County operates a community transit system called TRANSPORT (Transylvania People Oriented Rural Transportation), located in Brevard. This system provides bus service to several groups of citizens (Child Development program children, the elderly participating in the Nutrition and Day Activities, handicapped persons, etc.) on an as-needed basis.

1.3.2 Route Classification

US 64 in Transylvania County is classified as a Minor Arterial in the Statewide Functional Classification system. This part of US 64 is also included in the NCDOT *Strategic Highway Corridors Vision Plan* (adopted by the North Carolina Board of Transportation September 2, 2004). It is the only major road leading west from Transylvania County and is along Strategic Highway Corridor 2 between Chattanooga and Hendersonville. In this plan, it is classified as a Thoroughfare with needs for future upgrades.

The improvements proposed under R-2409C are included in the *Transylvania County Comprehensive Transportation Plan (2012)*. US 64 is listed as an Other Major Thoroughfare in need of improvement. This document also designates US 64 as an on-route bicycle facility.

1.3.3 Traffic Volumes and Speed Limit

Average daily traffic (ADT) volumes were collected from NCDOT count stations located in the vicinity of the project. Along US 64, the estimated 2012 traffic volumes range from approximately 4,900 vehicles per day (vpd) to 5,700 vpd. Along NC 281, the average daily traffic volume is approximately 2,100 vpd. The truck volumes as a percent of the ADT are estimated to be 5% tractor-trailer semi trucks (TTST) and 5% Dual-tire trucks.

The posted speed limit ranges from 35 mph to 45 mph. Advisory postings are located in areas where sharp horizontal curves limit the travel speed to a minimum of 20 mph.

1.3.4 Existing Traffic Capacity Analysis

The level of service (LOS) is a “qualitative measure that characterizes operational conditions within a traffic stream and their perception by motorists and passengers. The descriptions of individual levels of service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst” (*Highway Capacity Manual 2000*, Transportation Research Board). The methodologies and procedures documented in the *Highway Capacity Manual 2000* were used to calculate roadway segment and intersection levels of service.

A capacity analysis was performed with the HCS2000, Two-Lane Highways Release 4.1d. The extended uphill section of westbound US 64 is currently operating at a Level of Service (LOS) E during the peak hour. The capacity analysis for the build condition is in Section 2.4, Capacity Analysis.

1.3.5 Existing Facility

US 64 is a two-lane, 20-foot roadway with an existing right of way width that is generally 60 feet throughout the length of the project. The vertical and horizontal alignments are poor, with limited sight distance near sharp curves. The roadway has approximately 20 horizontal curves, with design speeds in the range of 20 to 25 mph. The posted speed ranges from 35 to 45 mph. Tractor-trailer trucks cross the road centerline into the opposing travel lane when moving through several sharp

curves. See Figure 2 for photographs of existing conditions. Two roads intersect with US 64 at grade. These are NC 281 and Whetstone Gap Road. Access to intersecting roads and adjacent properties is uncontrolled.

1.3.6 Structures

No bridges or major culverts are located within the project limits. Six streams cross US 64 in the project area, passing through pipes or culverts that vary in size from 18 inches to 48 inches. Just west of the project limits is a bridge over the Toxaway River, and just east is a culvert carrying Indian Creek.

1.3.7 Utilities

Aerial power lines and phone lines are located along the roadway. Utility impacts are presented in Section 4.6, Utilities.

1.3.8 Bicycles and Pedestrians

The current facility does not provide accommodations for pedestrians, bicyclists or the physically disabled, nor does the proposed project include provisions for pedestrians, bicyclists or the physically disabled. The narrow lanes, heavy truck traffic, and mountainous terrain are not conducive to these types of users. However, R-2409C will provide wider lanes, useable shoulders, and an improved alignment that would not negatively affect pedestrian, bicycle or handicapped access.

1.3.9 Accident Analysis

Between June 1, 2008 and May 31, 2013, 33 crashes were reported along US 64 within the approximate 1.5 mile project study area. No fatalities were recorded in the latest five-year crash summary. The primary types of accidents that occurred resulted from hitting fixed objects (52 percent), overturning (27 percent), and sideswiping (9 percent). Tables 1 and 2 give a complete breakdown of the accident types and rates.

This portion of US 64 has a total crash rate of 268.88 accidents per 100 Million Vehicle Miles of Travel (MVMT) that exceeds the 149.74 MVMT rate for all two-lane undivided rural US routes statewide. The project area crash rate also exceeds the 209.85 MVMT critical crash rate that has been statistically adjusted based on roads with similar characteristics to remove elements of chance and randomness. This is attributable to the poor horizontal alignment and substandard width with no shoulders.

Table 1: Accident Data (Sept. 2008 – Aug. 2013)

Accident Data	US 64-NC 281 From Toxaway River to Indian Creek
Length in miles	1.43
Total No. Accidents	33
Fatal Accidents	0
Total Injury Accidents	11
Property Damage Only Accidents	22
Daytime Accidents including Dust & Dawn	20
Nighttime Accidents	13
Accidents in Wet Conditions	9
Accidents with Alcohol / Drug Involvement	2

**Table 2: Accident Rates and Critical Crash Rates
per 100 Million Vehicle Miles of Travel
(Sept. 2008 – Aug. 2013)**

Accident Type	US 64-NC 281 From Toxaway River to Indian Creek	Statewide Accident Rates for Rural US Routes*	Study Area Critical Crash Rate
Total Accident Rate	301.47	149.74	209.85
Fatal Accident Rate	0	1.64	0.00
Injury Accident Rate	105.92	52.69	89.42
Nighttime Accident Rate	122.22	51.56	87.92
Wet Surface Accident Rate	73.33	26.74	53.67

* 2008-2013 Crash Rates for all two-lane undivided rural US routes.

The proposed improvements offer safety benefits by reducing the potential for accidents to occur in the project area. Sharp curves will be straightened to improve sight distances and driver comfort in driving the posted speed on US 64. In addition, wider travel lanes and shoulders provide a greater clear zone and recovery area to meet safer, standard geometric design guidelines. A westbound climbing lane will enable motorists to pass slower-moving vehicles or trucks. These improvements will reduce the potential for collisions from running off the road, hitting fixed objects, overturning, and sideswiping other vehicles.

1.3.10 School Bus Data

There are four school buses that utilize this portion of US 64 each day, resulting in eight trips (four in the morning, four in the afternoon). These buses serve four schools.

1.3.11 Geodetic Survey Monument

There are no North Carolina Geodetic Survey (NCGS) monuments in the project area.

2.0 ALTERNATIVES

2.1 GENERAL DESCRIPTION

2.1.1 Design Criteria and Typical Sections

The design criteria and typical sections are the same for each of the build alternatives. The typical section for all of the alternatives includes two 12-foot travel lanes, a 12-foot westbound climbing lane, and six-foot unpaved shoulders (nine-foot unpaved shoulders where guardrail is necessary). The typical sections are shown on Figures 3A and 3B.

NCDOT's policy is to select a design speed that is at least five mph above the posted speed. However, given the context and project setting, the Department may propose a design speed to match the speed limit with some advisory postings in areas requiring lower speeds. Since US 64 is the primary east-west route through Transylvania County, the project alternatives have been investigated in an effort to minimize costs and environmental impacts while achieving the highest practical design speed. For this reason, the project includes alternatives with different design speeds.

Alternative 2 realigns portions of the roadway to provide flatter horizontal curves and achieves a minimum design speed of 30 mph (see Figure 3A). This alternative avoids impacts to a population of small whorled pogonia plants, a federally protected species, in the project area by minimizing encroachment into sensitive areas.

Alternative 4 corrects more of the alignment deficiencies, straightens curves, and increases the design speed to 40 mph (see Figure 3B). This alignment also avoids the small whorled pogonia plants by minimizing encroachment into sensitive areas. This alternative provides the highest level of improvement.

2.1.2 Right of Way and Access Control

Due to the mountainous terrain, the proposed right of way varies from a minimum of 80 feet to a maximum of 250 feet for Alternative 2, and a minimum of 70 feet to a maximum of 425 feet for Alternative 4. No control of access is proposed at driveways or intersections.

2.1.3 Proposed Alignment

The proposed alignments for both alternatives begin approximately 700 feet east of the Toxaway River and end approximately 200 feet west of Indian Creek.

Alternative 2 follows the existing US 64 alignment more closely than Alternative 4. This allows for smaller areas of significant cut and fill, which results in a lesser

amount of required right of way while still improving the alignment of some of the existing horizontal and vertical curves.

Alternative 4 flattens most of the existing horizontal curves and is primarily on new alignment; therefore, requires larger amounts of cut and fill. This alternative requires more right of way but offers the most improvements.

2.1.4 Intersection Treatment and Type of Control

Two roads intersect with US 64 at grade. These are NC 281 and Whetstone Gap Road. Access to intersecting roads and adjacent properties is uncontrolled. Intersection improvements at NC 281 will include a 12-foot wide center turn lane. There will be no dedicated turn lanes at Whetstone Gap Road.

2.1.5 Structures and Drainage Recommendations

Each of the build alternatives includes similar pipe culvert improvements. Pipe replacements are proposed at the stream crossings as described in Table 3.

Table 3: Proposed Culverts

Crossing	Existing Structure	Recommendations
UT 1	48" RCP * & 4'x4' RCBC **	Extend with 66" Pipe at Existing Location
UT 2	24" CMP ***	Replace with 30" Pipe at Existing Location
UT 3	18" CMP ***	Proposed 30" Pipe on New Alignment
UT 4	24" CMP ***	Replace with 42" Pipe on New Alignment
UT 5	None	Proposed 30" Pipe on New Alignment
UT 6	24" CMP ***	Replace with 30" Pipe at Existing Location
UT 7	24" CMP ***	Replace with 24" Pipe on New Alignment
UT 8	18" CMP ***	Replace with 18" Pipe on New Alignment
UT 9	None	Proposed 18" Pipe on New Alignment

* RCP – Reinforced Concrete Pipe
 ** RCBC – Reinforced Concrete Box Culvert
 *** CMP – Corrugated Metal Pipe

2.1.6 Bicycle and Pedestrian Provisions

The project does not include provisions for bicyclists and pedestrians.

2.2 BUILD ALTERNATIVES

Two detailed study alternatives have been developed for the project. The detailed study alternatives were evaluated based on their impact to the natural and human environment and their ability to meet the purpose and need for the project. The impacts for the alternatives are generally based on variable right of way widths, depending on the typical sections used and the amount of cut or fill. A comparison of the detailed study alternatives (Alternatives 2 and 4) is included in Table 4.

Table 4: Comparison of Build Alternatives

Evaluation Factor	Alternative 2	Alternative 4 (Recommended)
Estimated Costs (2012-2020 STIP)		
Right of Way	\$400,000	\$400,000
Construction	<u>\$4,000,000</u>	<u>\$4,000,000</u>
Total	\$4,400,000	\$4,400,000
Design Speed (mph)	30	40
Estimated Displacements	0	0
No. of Stream Crossings	5	8
Total Stream Impacts (feet)	615	995
Total Wetland Impacts (acre)	0	0
Historic and Archaeological Resources	0	0
Section 4(f) Resources (Gorges State Park)	De Minimis Impact / Not Adverse	De Minimis Impact / Not Adverse
Federally Protected Species (Small whorled Pogonia Plants)	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect

Alternative 2 realigns portions of the roadway to provide flatter horizontal curves and achieves a minimum design speed of 30 mph (see Figure 3A). It is 1.3 miles long and includes a 0.5-mile long climbing lane from approximately 0.3 mile east of NC 281 to 0.2 mile east of Whetstone Gap Road. This alternative crosses five streams and impacts 615 linear feet of stream channel. It requires land from the northern boundary of Gorges State Park, a Section 4(f) resource, but the impact is considered to be minor (de minimis). It avoids direct impacts to a population of small whorled Pogonia plants, a federally protected species.

Alternative 4 (Recommended) corrects more of the alignment deficiencies, straightens curves, and increases the design speed to 40 mph (see Figure 3B). It is 1.3 miles long and includes a 0.5-mile climbing lane from 0.2 mile east of NC 281 to 0.2 mile east of Whetstone Gap Road. This alternative crosses eight streams and impacts 995 linear feet of stream channel. It requires land from the northern boundary of Gorges State Park, a Section 4(f) resource, but the impact is considered to be minor (de minimis). It avoids direct impacts to a population of small whorled Pogonia plants, a federally protected species. Alternative 4 is the recommended alternative for the following reasons:

- It better meets the purpose of the project by correcting more alignment deficiencies than Alternative 2 and having a higher design speed.
- Alternative 4 will have fewer disruptions to traffic during construction than Alternative 2. Approximately 0.5 mile of Alternative 4 improvements will be on existing alignment compared to 0.9 mile for Alternative 2. Therefore, more lane closures will be required during construction of Alternative 2, resulting in one way traffic patterns on this major east-west route.

- Gorges State Park officials favor Alternative 4 for more improved road conditions and taking less private property.

2.3 ALTERNATIVES ELIMINATED FROM FURTHER STUDIES

Alternative 1 follows the existing alignment without flattening any of the sharp horizontal curves. This alternative maintains a minimum design speed of 20 mph. This alternative was eliminated from further consideration because it does not meet the purpose and need. Alternative 1 does not sufficiently address the roadway deficiencies since it does not improve sharp curves in the alignment. Although it includes wider lanes, a climbing lane, and paved shoulders, trucks will continue to have difficulty remaining in the travel lanes in the sharp curves. Of the 38 horizontal curves in this alternative, 25 would need 10 feet or more of additional pavement width to prevent trucks from encroaching into oncoming travel lanes. Some would require as much as 25 feet of additional width. Alternative 1 would require high costs for little benefit, and would be similar to the no-build condition.

Alternative 3 corrects more of the alignment deficiencies, straightens curves, and increases the design speed to 40 mph. This alignment passes behind the small whorled pogonia plants at a higher elevation. A section of cut would be required in this area, leaving the plants on high ground above the road bed. This alternative would change the natural drainage patterns to the small-whorled pogonia plants. This is not a desirable condition from the USFWS perspective and would not minimize the effect on the plants. For this reason, Alternative 3 was eliminated from further consideration.

The **No-Build Alternative** was also considered. It would not construct a new roadway or upgrade existing US 64. This alternative uses the existing roadway system, and relies upon other improvement projects in the area.

The No-Build Alternative will not have any direct impacts to the human and natural resources in the area such as right of way purchases, residential/business relocations, water resources, plant communities, or wildlife habitats. However, the No-Build Alternative will not provide any transportation improvements in the area that will address the roadway deficiencies and higher accident rates. The No-build alternative does not address the travel and safety issues for drivers on US 64 and does not meet the primary purpose and need for the project. For these reasons, the No-Build Alternative was eliminated from further consideration.

2.4 CAPACITY ANALYSIS

2.4.1 Two-Lane Analysis

A capacity analysis was performed for US 64 using the future 2035 year ADT of 8,800 vpd and the 10% truck estimates. The uphill section of westbound US 64 is projected to operate during the future peak hour at a LOS F as a single lane. With a

truck climbing lane added to this section, the roadway is expected to function at a LOS D.

2.4.2 Unsignalized Intersection Analysis

The daily turning volume estimates for the year 2035 are shown in Figure 4. An intersection capacity analysis was performed for the US 64 / NC 281 intersection using the HCS2000, Unsignalized Intersection Release 4.1d. A left turning bay is proposed for the eastbound approach of US 64 at this intersection. For both the AM and PM peaks, the US 64 eastbound and westbound movements will function at a LOS A, and the NC 281 southbound movement (stop-sign controlled) will function at a LOS C.

3.0 AFFECTED ENVIRONMENT

3.1 COMMUNITY CHARACTERISTICS

A more detailed description of the community and an assessment of potential social and economic impacts associated with this project is given in the Community Impact Assessment for this project and is available from the NCDOT project file. A Direct Community Impact Area (DCIA) was established in the Community Impact Assessment (see Figure 5). The community characteristics of this area are described below.

R-2409C is located in the southwestern part of Transylvania County in western North Carolina, approximately 14 miles southwest of Brevard and 45 miles southwest of Asheville. It lies between the incorporated areas of Rosman (2010 pop. 576) to the east and Highlands (Macon County – 2010 pop. 924) to the west. Lake Toxaway is an unincorporated area of Transylvania County and lies at the western terminus of the project. US 64 is a major transportation route through the Blue Ridge Mountains, and while this part of US 64 is not within the boundaries, it is largely surrounded by the Pisgah National Forest. Transylvania County is a member of the Land-of-Sky Regional Council, a local government planning and development organization in western North Carolina.

Lake Toxaway is a premiere resort destination. People from out of state often come for a vacation and end up staying permanently, buying a second home, or plan to return for their retirement years. Homes surround the lake and range in price from the modest to multi-million dollar homes.

A County official indicated most of the home owners in Lake Toxaway are retired executives and business owners transplanted from other parts of the country. Land uses along the project corridor include mostly heavily wooded, mountainous, vacant land while the land uses around Lake Toxaway are mostly residential with big, well-kept homes on large wooded lots. There are not many businesses, public facilities, or infrastructure in the project vicinity. The few facilities that are available include those that cater to tourists, visitors and part-time residents, as well as small country stores, gas stations, and automotive repair shops.

Table 5 presents an overview of the demographic characteristics of the project vicinity (Census Tract 9606 in Transylvania County) compared to the County and State. See Figure 6 for a map of the Demographic Study Area (DSA).

Table 5: Demographic Overview

Population Growth, 2000-2010 ¹						
	Census Tract 9606		Transylvania County		North Carolina	
2000 Population	2,263		29,334		8,049,313	
2010 Population	2,506		33,090		9,535,483	
Percent Change	10.7%		12.8%		18.5%	
Population by Race, 2010 ²						
Race	Census Tract 9606		Transylvania County		North Carolina	
	Pop.	%	Pop.	%	Pop.	%
White	2,371	94.6%	30,577	92.4%	6,528,950	68.5%
African American	12	0.5%	1,292	3.9%	2,048,628	21.5%
Total *	2,383	95.1%	31,869	96.3%	8,577,578	90.0%
Ethnicity						
Ethnicity	Census Tract 9606		Transylvania County		North Carolina	
	Pop.	%	Pop.	Pop.	%	Pop.
Hispanic	102	4.1%	964	2.9%	800,120	8.4%
Non-Hispanic	2,404	95.9%	32,126	97.1%	8,735,363	91.6%
Total	2,506	100.0%	33,090	100.0%	9,535,483	100.0%
Population Over the Age of 65, 2010 ¹						
Age	Census Tract 9606		Transylvania County		North Carolina	
	Pop.	%	Pop.	%	Pop.	%
65 or Older	541	21.6%	8,539	25.8%	1,234,079	12.9%
Educational Attainment, 2010 ³						
Level of Education	Census Tract 9606		Transylvania County		North Carolina	
% High School Graduate or Higher	70.1%		86.1%		83.6%	
% Bachelor's Degree of Higher	18.1%		27.0%		26.1%	
Economic Indicators and Housing Characteristics ⁴						
	Census Tract 9606		Transylvania County		North Carolina	
Family Income Below Poverty Level (2009)	13.5%		9.5%		11.4%	
Median Household Income (2009)	\$36,646		\$39,408		\$45,570	
Median Home Value	\$168,500		\$169,600		\$149,100	
Vacant **	58.2%		24.9%		13.5%	

¹ Census 2000 SF 2 (DP-1) and 2010 Census SF 2 (DP-1), ² 2010 Census SF 1 (QT-P3)

³ 2006-2010 ACS Selected Population Tables (B15002), ⁴ 2006-2010 ACS Selected Economic Characteristics, Income Below Poverty Level (DP03); 2006-2010 ACS Selected Population Tables, Median Household Income (B19049), Median Home Value (B25077); 2010 Census SF 1, Vacancy Status (H3)

* Note: Race population and percentages do not equal population totals due to other racial groups not shown.

** Note: Homes that are for rent, for sale, or are used seasonally are given the status of vacant.

According to the North Carolina Department of Commerce Division of Employment Security (DES), between 2000 and 2011 the County's annual unemployment rate averaged 6.7%, compared to 6.8% state-wide. The monthly unemployment rate for the County hit a high of 12.7% in February, 2010.

The most recent unemployment statistics available at the time of this report indicate 2012 monthly unemployment rates are down from those in 2011. As of July of 2012, the annual rate was 10.1% (down from 10.2% in 2011).

Based on information obtained from the DES, 1,862 jobs were lost between the years 2000 and 2011. The retail trade, health care and social assistance, and accommodation and food services employment sectors helped to absorb some of those losses. The number of jobs in these sectors reported in 2011 amounts to 4,036 – or 49% of the total jobs (8,178) in Transylvania County.

Tourism also contributes considerably to the County's economy. According to the Transylvania County Planning and Economic Development department, more than 690 jobs were directly attributable to travel and tourism in 2010. The natural beauty of Transylvania County and the charm of the City of Brevard attract many tourists.

As Lake Toxaway is a resort area of the County, there are some small businesses (retail shops, real estate / rental agencies, automotive repair shops, etc.) that mainly cater to tourists and visitors, as well as the permanent residents. These places, along with a post office, small hospital, and a country club, serve as places of employment within the project vicinity. According to a County planner, there are no major places of employment in this part of the County. The majority of the working population in the project vicinity commutes to the major employment centers located in Cashiers (Jackson County) and Brevard. US 64 is the only practical commuting route to these places in the western part of Transylvania County.

Community facilities within the project area are scattered along US 64 and NC 281 (see Figure 5). The nearest facilities include a real estate sales center and two possible seasonal businesses. The real estate sales center for Catatoga Lake, a golf and tennis residential community, is located just east of the project limits at the main entrance to Catatoga Lake. Just west of the project, there is a structure that serves as a part-time furniture / craft stand. Another possible facility is located on the south side of US 64 just east of the intersection with NC 281. It is a small dilapidated structure that may also operate as a seasonal business.

Outside of the project corridor, the largest concentration of facilities is located along US 64 between East Shore Drive and NC 281 west of the R-2409C project corridor. The Lake Toxaway Post Office and the Lake Toxaway Community Center are located along NC 281 near the intersection with Kim Miller Road (SR 1304). Lake Toxaway Country Club and a community hospital are located along US 64 between Club Boulevard and Old County Road. An entrance to Gorges State Park is located

along NC 281 south of US 64. The Gorges State Park property fronts US 64 along the project corridor. There are several churches in the project area, but none are located along the project corridor. There are also no public schools located in the vicinity of the project.

Impacts to the community associated with this project are discussed in Section 4.2, Community Impacts.

3.2 LAND USE

Land uses along the project area include mostly heavily wooded, mountainous, vacant land, while land uses around Lake Toxaway are mostly residential. The *Transylvania County Comprehensive Plan* (February 2005) indicates land uses in the project area are a mixture of large, vacant parcels and subdivisions. The subdivisions are limited to Whetstone Gap Road, the area surrounding Lake Toxaway, and Catatoga Lake.

Possible future land use changes associated with this project are presented in Section 4.1, Future Land Use.

3.3 CULTURAL RESOURCES

The project complies with Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 (36 CFR Part 800). Section 106 requires that if a federally-funded, licensed, or permitted project has an effect on a property listed on or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation must be given an opportunity to comment.

3.3.1 Historic Architecture

An Architectural Historian from NCDOT surveyed the project area and found that there are no properties over 50 years old, nor are there any National Register-listed properties within the Area of Potential Effects. The North Carolina State Historic Preservation Office (HPO) concurred with the findings (see Appendix for the signed concurrence form).

3.3.2 Archaeology

An archaeological survey was conducted by an archaeology consultant firm for NCDOT in July 2006 for this project. No archaeological sites were located and no further archaeological investigation is recommended for this project (see Appendix for the concurrence letter).

3.4 NATURAL RESOURCES

This section of the report describes natural features within the project study area including soils, water resources, plant communities, wildlife, Section 404 jurisdictional areas, and pertinent protected species issues. In addition, it provides a preliminary evaluation of permit needs.

Prior to a site visit, published resource information pertaining to the project area was gathered and reviewed. Information sources used in this pre-field investigation include: US Geological Survey (USGS) maps (Lake Toxaway and Reid, NC 7.5 minute quadrangles), NC Natural Heritage Program (NCNHP) records, and digital orthophoto quarter quadrangles (1998) of the project area. Geographic Information Systems (GIS) hydrologic data layers were obtained from the NC Center for Geographic Information Analysis database (BasinPro Ver. 2.1). Information concerning the occurrence of federal and state protected species in the project area was gathered from the US Fish and Wildlife Service (USFWS) list of protected species, as well as from NCNHP lists of rare species and unique habitats (Franklin and Finnegan 2004, LeGrand et al. 2004). In addition, NCNHP records documenting presence of federally or state listed species within Transylvania County were consulted prior to field investigations.

Primary activities conducted during the field investigation were 1) potential protected species habitat; 2) jurisdictional area delineations; and 3) plant community mapping. The field work for this investigation was conducted on October 29-30, 2005, June 14-16, 2006, and June 26-27, 2008 by Catena Group biologists. The study area was navigated using digital background mapping of the project area uploaded into a Trimble Global Positioning System (GPS) unit. The entire project area was walked and all significant hydrologic features noted and described. Jurisdictional area boundaries were surveyed to sub-meter accuracy. Plant communities were mapped and species noted. An assessment of habitat availability for protected species was also made during this time.

Plant community descriptions are based on a classification system utilized by the Schafale and Weakley (1990). Vascular plant names follow nomenclature in Kartesz (1998). Jurisdictional areas were evaluated using the three-parameter approach following US Army Corps of Engineers (USACE) delineation guidelines (USACE 1987). Jurisdictional areas were characterized according to the classification scheme established by Cowardin et al. (1979).

For the purposes of Section 3.4, the following definitions and area terminology apply. The **Project Area** extends 50 feet outside of the proposed cut-fill boundaries for each alternative, inclusively an area of approximately 50.4 acres. The **Project Vicinity** is the area within 0.5 mile of the project area, and the **Project Region** is the area included in a 7.5 minute USGS quadrangle map with the project area as the center.

3.4.1 Physiology and Soils

The project area is located in mountainous terrain of the upper Savannah River Basin. Elevations range from 2,880 to 3,000 feet National Geodetic Vertical Datum (NGVD). Land use within and adjacent to the project area is almost entirely mature hardwood or mixed pine-hardwood forest. The study area terrain is characterized by steep mountainous slopes, predominantly south facing; rock outcroppings of parent granitic material are occasional; drainageways are high gradient, forming narrow ravines and coves.

The project area is bordered to the south by Gorges State Park. Gorges State Park (7,100 acres), due to its varying topography, includes 21 of the 44 natural community types known in the mountain regions of North Carolina. Nearly 125 rare plant and animal species that occur in the mountain counties of North Carolina are found in the park, in addition to five state threatened or endangered plants and animals and one federally endangered plant.

Based on soils mapping for Transylvania County (USDA 1974), four soil series are mapped within the project area: Ashe stony sandy loam, Ashe and Edneyville soils, Chester fine sandy loam, and Chester stony loam. The Ashe (*Typic Dystrochrepts*) series is located in the western most portion of the project area. Ashe soils are characterized as being excessively drained sloping to very steep soils on narrow ridges and uneven sideslopes; permeability is rapid. Edneyville (*Typic Hapludults*) soils occur with Ashe soils to form the series that occurs on roughly 80 percent of the project area. These are well drained and occur on sloping to very steep areas; permeability is moderate. Chester fine sandy loam occurs on two ridges that intersect the project area and Chester stony loam occurs on one side slope in the western portion of the project area. The Chester (*Typic Hapludults*) series is characterized by well-drained, sloping to steep soils that occur on broad ridges; permeability is moderate. None of the above listed soil series are considered to be hydric or have inclusions of hydric soils.

3.4.2 Water Resources

The project area is located within NCDWQ sub-basin 03-13-02 of the Savannah River Basin (NCDWQ 2002a) and is part of USGS Cataloging Unit 03060101 of the South Atlantic / Gulf Region.

Ten jurisdictional stream systems are located within the project study area: five UTs to Toxaway River (UTs 1-3, 8, and 9), four UTs to Indian Creek (UTs 4-7), and Indian Creek (see Figure 7). The combined length of these streams within the project area is approximately 2,438 linear feet, and combined areas covered by these jurisdictional surface waters is approximately 0.25 acre. It is anticipated that impacts to jurisdictional streams within the project area will require compensatory mitigation.

UT 1 is a large perennial stream that traverses the east side of NC 281 and flows south until reaching a culvert, where it is directed under the road, then continues southward out of project area. This stream is approximately 12 feet wide and has banks approximately four to six feet high, and may be classified as riverine and upper perennial. Within the channel, UT1 is characterized by high flow velocity and excellent water clarity over a substrate composed of sand, gravel, and cobble (R3UB1/2).

UT 2 flows into the project study area as a perennial stream four feet in width with banks approximately two feet high. It flows generally south for a short distance before being directed under the road and out of the project study via a culvert. Within the channel, UT2 is characterized by high flow velocity and excellent water clarity over a substrate composed of sand, gravel, and cobble (R4UB1/2).

UT 3 enters the project study area as a perennial stream approximately four feet in width with banks approximately two feet high. It flows generally southeast for a short distance before being directed under the road by a culvert. Downstream of the culvert, it emerges as an intermittent stream approximately three feet wide with banks three feet high and then becomes perennial again before leaving the project area in a southwest direction. It has a sand, gravel, and cobble substrate (R4UB1/2) throughout.

UT 4 is a small perennial stream approximately four feet wide with banks approximately six feet high. UT4 flows generally southeast for a short distance before being directed under the road by a culvert, then continues southeast parallel with the project area corridor. UT4 may be characterized as riverine and upper perennial with moderate flow velocity over a substrate composed of bedrock (R3UB1/2).

UT 5 is a perennial stream approximately three feet in width and having banks approximately three feet high. It flows generally northeast and merges with UT4 south of US 64. UT5 is characterized by moderate flow velocity with a substrate composed of sand, gravel, and cobble (R4UB1/2).

UT 6 is a perennial stream originating north of US 64; UT6 flows beneath US 64 via a culvert and joins UT4 within the project area. UT6 is approximately three feet wide with banks approximately two feet in height. This stream is riverine and upper perennial with a substrate composed of sand, gravel, and cobble (R4UB1/2).

UT 7 is an intermittent stream originating north of US 64. After flowing beneath US 64 via a culvert, it emerges as a perennial stream and joins Indian Creek just outside of the project area southern boundary. UT7 is approximately three feet wide with banks approximately three feet in height. This stream is riverine and upper perennial with a substrate composed of sand, gravel, cobble, and boulder (R4UB1/2).

UT 8 is an intermittent stream that begins south of NC 281 at a large headcut and flows south outside of the project boundary. Within the project area, the stream is highly incised with banks ranging to five feet high and varies in width from two to three feet. The flow is of moderate velocity and the substrate is composed of sand, gravel, and cobble (R4UB1/2).

UT 9 is an intermittent stream that begins at a headcut south of NC 281 and flows south until leaving the project area. It is approximately two to three feet wide with banks approximately two feet high. The flow is of moderate velocity and the substrate is composed of sand, gravel, and cobble (R4UB1/2).

Indian Creek is a large perennial stream south of NC 281 that flows generally southwest parallel to the roadway. It is approximately 20 feet wide with banks up to six feet. Based upon the Cowardin classification, Indian Creek is riverine and lower perennial with moderate flow velocity over a bedrock substrate (R2RB1/2).

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. Unnamed tributaries receive the same classification as their receiving waters. A Best Usage Classification of C has been assigned to this reach of the Toxaway River, which applies to its unnamed tributaries in the project study area. A Best Usage Classification of C with a supplemental classification Tr has been assigned to this reach of Indian Creek, which applies to its unnamed tributaries in the project study area. Class C waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. The Trout Waters, Tr, designation protects freshwaters for natural trout propagation and the survival of stocked trout (15A NCAC 02B .0301). This NCDWQ supplemental classification is intended to protect water quality and is not the same as the NCWRC's Designated Public Mountain Trout Waters. NCDWQ enforces the state in-stream standards and wastewater discharge rules (and enforces no buffer requirement). The NC Division of Land Resources (NCDLR), Land Quality Section has a special buffer zone requirement which applies to all NCDWQ Trout Waters. Areas affected by the Tr supplemental designation are the water body and adjacent buffer zone. Basically, this affects only wastewater discharges and land disturbing activities adjacent to Trout Waters. In addition, Lake Toxaway, approximately 0.25 mile west of the project study area, has been assigned a Tr designation.

No designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), Water Supply I (WS-I), Water Supply II (WS-II) waters, or watershed Critical Areas (CA) occur within one mile of the project study area. However, HQW waters exist within the Bearwallow Creek watershed approximately 1.8 miles south of the project study area. Direct impacts to this watershed from the proposed action are not anticipated to occur.

NCDWQ has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project study area is summarized in the Savannah River Basinwide Water Quality Plan (NCDWQ 2002a). Sub-basin 03-13-02 of the Savannah River Basin has no major and 12 minor point source discharges. Primary non-point sources of pollution within the Savannah River Basin include land disturbing activities (runoff from construction activities, agriculture, forestry practices, etc.). Sedimentation and nutrient inputs are major problems associated with non-point source discharges. One ambient and three benthic macroinvertebrate monitoring stations occur in this subbasin, the nearest being a macroinvertebrate monitoring station (B1) located just outside the project area on Indian Creek at the US 64 crossing. Indian Creek at this location has been given a bioclassification of "Good" based on sampling in 1999 (NCDWQ 2002a).

All waters within Gorges State Park, including sections of the Toxaway River and Indian Creek, are designated as Public Mountain Trout Waters, Wild Trout Waters by NC Wildlife Resources Commission (NCWRC 2005). These are defined as High Quality Waters that sustain trout populations through natural reproduction. The section of UT 3 south of US 64 is also within Gorges State Park, and is considered to be Public Mountain Trout Waters, Wild Trout Waters. Other UTs within the proposed alternatives are not located within the park boundary, and thus not considered to be considered Public Mountain Trout Waters or Wild Trout Waters.

Based on a letter dated December 7, 2005 from the NC Department of Environment and Natural Resources (NCDENR) (see the Appendix), areas just south of the project area include the Toxaway River Gorge, a Significant Natural Heritage Area. In addition, the Toxaway River is recognized by NCNHP as part of the Savannah River Significant Aquatic Habitat because of several rare fish species limited in North Carolina to just Savannah River drainage streams.

NCDWQ has assembled a list of impaired waterbodies based on the Clean Water Act Section 303(d) and 40 CFR 130.7, hereafter referred to as the NC 2012 Section 303(d) list. Streams attaining only Partially Supporting (PS) or Not Supporting (NS) status are listed on the NC 2012 Section 303(d) list, and further categorized into one of six types (Parts) according to source of impairment and degree of rehabilitation required for the stream to adequately support aquatic life. Within Parts 1, 4, 5, and 6 of the list, North Carolina has developed a priority ranking scheme (low, medium, high) that reflects the relative value and benefits those waterbodies provide to the State. No streams within the Savannah River basin are listed on any section of the NC 2012 Section 303(d) list.

A discussion on impacts to water resources may be found in Section 4.10.1, Water Resources.

3.4.3 Biotic Resources

Biotic resources located in the project area include terrestrial and aquatic communities. This section describes the communities encountered and the relationships between fauna and flora found within these communities. Descriptions of terrestrial systems are presented in the context of plant community classifications and follow those presented by Schafale and Weakley (1990) where possible (see Figure 7). The dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided. Plant taxonomy typically follows Radford et al. (1968) with adjustments for updated nomenclature (Kartesz 1998). Animal taxonomy follows Brown (1997), Martof et al. (1980), Potter et al. (1980), Rhode et al. 1994), Webster et al. (1985), and AOU (1998). All subsequent references to the same organism will include the common name only. Fauna observed during the site visit are denoted with an asterisk (*). Scat evidence or tracks equate to observation of the species. Published range distributions and habitat analysis were used in estimating fauna expected to be present within the project area.

Acidic Cove Forest – This plant community is described by Schafale and Weakley (1990) as occurring in sheltered low and moderate elevation sites, primarily narrow, rocky gorges, steep ravines, and low gentle ridges within coves. Acidic Cove Forest is located mostly in riparian areas along streams and on steep topography on both sides of US 64. The canopy is dominated by eastern hemlock (*Tsuga canadensis*), scarlet oak (*Quercus coccinea*), and northern red oak (*Q. rubra*). The understory is dominated by great rhododendron (*Rhododendron maximum*) and blueberry (*Vaccinium sp.*). The herb layer is sparse, but includes Galax (*Galax urceolata*) and blueberry.

Chestnut Oak Forest – Schafale and Weakley (1990) describe this plant community as occurring on slopes and ridgetops at low to moderate montane elevation. This forest type is in a state of transition due to the loss of American chestnut (*Castanea dentata*) as the dominant canopy species. Within the project area, this forest type occurs along the higher elevation reaches north of US 64. The canopy is composed of scarlet oak (*Q. coccinea*), chestnut oak (*Q. prinus*), northern red oak, southern red oak (*Q. falcata*), white oak (*Q. alba*), eastern white pine (*Pinus strobus*), Virginia pine (*P. virginiana*), eastern hemlock, red maple (*Acer rubrum*), mockernut hickory (*Carya tomentosa*), and sourwood (*Oxydendrum arboreum*). The shrub layer is relatively open and includes species such as great rhododendron, mountain laurel (*Kalmia latifolia*), blueberry, sassafras (*Sassafras albidum*) saplings, sourwood saplings, eastern white pine saplings, tulip poplar (*Liriodendron tulipifera*), and American holly (*Ilex opacum*). Vine species include bramble (*Rubus sp.*) and greenbrier (*Smilax sp.*). The herb layer is sparse but diverse and includes Galax, striped wintergreen (*Chimaphila maculate*), Christmas fern (*Polystichum*

acrostichoides), New York fern (*Thelypteris noveboracensis*), cranefly orchid (*Tipularia discolor*), switch cane (*Arundinaria tecta*), and downy rattlesnake plantain (*Goodyera pubescens*).

Disturbed / Maintained Land – This plant community occurs along the edges of US 64. Roadside edges contain planted and volunteer grass species, along with weedy herbs such as violet (*Viola sp.*), plantain (*Plantago lanceolata*), clover (*Trifolium sp.*), foxtail grass (*Setaria sp.*), goldenrod (*Solidago sp.*), evening primrose (*Oenothera biennis*), broom sedge (*Andropogon virginicus*), mountain mint (*Pycnanthemums sp.*), horse nettle (*Solanum carolinense*), and joe pye weed (*Eupatorium sp.*). Within these grassy areas, there are pockets which are overgrown with brambles, Japanese honeysuckle (*Lonicera japonica*), and privet (*Ligustrum sinense*).

No terrestrial mammals were observed during the site visit. Mammal species expected to occur within the project area are eastern cottontail (*Sylvilagus floridanus*), red squirrel (*Tamiasciurus hudsonicus*), mink (*Mustela vison*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), little brown bat (*Myotis lucifugus*), eastern mole (*Scalopus aquaticus*), white-footed mouse (*Peromyscus leucopus*), golden mouse (*Ochrotomys nuttalli*), eastern harvest mouse (*Reithrodontomys humulis*), woodland vole (*Microtus pinetorum*), and northern short-tailed shrew (*Blarina brevicauda*).

Birds expected within project area are downy woodpecker (*Picoides pubescens*), yellow-bellied sapsucker (*Sphyrapicus varius*), white-breasted nuthatch (*Sitta carolinensis*)*, golden-crowned kinglet (*Regulus satrapa*)*, common flicker (*Colaptes auratus*)*, Carolina wren (*Thryothorus ludovicianus*)*, northern cardinal (*Cardinalis cardinalis*), yellow-throated warbler (*Dendroica dominica*), blue-gray gnatcatcher (*Polioptila caerulea*), dark-eyed junco (*Junco hyemalis*), eastern phoebe (*Sayornis phoebe*), song sparrow (*Melospiza melodia*), gray catbird (*Dumetella carolinensis*), northern parula (*Parula americana*) Carolina chickadee (*Poecile carolinensis*)*, American crow (*Corvus brachyrhynchos*), common grackle (*Quiscalus quiscula*), and blue jay (*Cyanocitta cristata*).

Terrestrial reptiles and amphibians which may occur within upland and riparian areas of the project area are American toad (*Bufo americanus*), gray tree frog (*Hyla versicolor*), southern red-backed salamander (*Plethodon serratus*), southern Appalachian salamander (*P. oconaluftee*), eastern box turtle (*Terrapene carolina*), black racer (*Coluber constrictor*), ringneck snake (*Diadophis punctatus*), eastern rat snake (*Elaphe obsoleta*), rough green snake (*Opheodrys aestivus*), and five-lined skink (*Eumeces fasciatus*).

Aquatic or semi-aquatic reptiles and amphibians expected to occur within the streams of the project area are bullfrog (*Rana catesbeiana*), green frog (*R. clamitans*), southern leopard frog (*R. sphenoccephala*), two-lined salamander (*Eurycea bislineata*), northern dusky salamander (*Desmognathus fuscus*), mountain

dusky complex (*Desmognathus ochrophaeus*)*, eastern musk turtle (*Sternotherus odoratus*), and northern water snake (*Nerodia sipedon*).

No sampling was undertaken in any of the streams within the project area to determine fishery potential. Fish species that may occur the project area streams include blacknose dace (*Rhinichthys atratulus*), Tennessee shiner (*Notropis leuciodus*), whitetail shiner (*Cyprinella galactura*), yellowfin shiner (*Notropis lutipinnis*), sunfish (*Lepomis spp.*), mottled sculpin (*Cottus bairdii*), turquoise darter (*Etheostoma inscriptum*), river chub (*Nocomis micropogon*), creek chub (*Semotilus atromaculatus*), northern hogsucker (*Hypentelium nigricans*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*).

Impacts related to biotic resources are in Section 4.10.2, Biotic Resources.

3.4.4 Threatened and Endangered Species

Some populations of fauna and flora have been in, or are in, the process of decline due to either natural forces or their inability to coexist with human activities. Federal law requires that any action, which has the potential to have a detrimental impact to the survival and wellbeing of any species classified as federally protected, is subject to review by the US Fish and Wildlife Service (USFWS) and / or the National Marine Fisheries Service (NMFS), under the provisions of the Endangered Species Act (ESA) of 1973, as amended. Endangered species may receive additional protection under separate state statutes. In North Carolina, protection of plant species falls under N.C. General Statutes (G.S.) 106-202.12 to 106-202.19 of 1979. Wildlife protection falls under G.S. 113-331 to 113-337 of 1987.

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Sections 7 and 9 of the Endangered Species Act of 1973, as amended. As of December 12, 2012, the USFWS lists nine species of plants and animals as federally protected species for Transylvania County (see Table 6).

Table 6: Federally Protected Species listed for Transylvania County (December 12, 2012)

Common Name	Scientific Name	Federal Status
Bog Turtle	<i>Glyptemys muhlenbergii</i>	T (S/A)
Carolina Northern Flying Squirrel	<i>Glaucomys s. coloratus</i>	E
Appalachian Elktoe	<i>Alasmidonta raveneliana</i>	E
Mountain Sweet Pitcherplant	<i>Sarracenia rubra ssp. jonesii</i>	E
Small Whorled Pogonia	<i>Isotria medealoides</i>	T
Spreading Avens	<i>Geum radiatum</i>	E
Swamp Pink	<i>Helonias bullata</i>	T
Rock Gnome Lichen	<i>Gymnoderma lineare</i>	E
Virginia Spiraea	<i>Spiraea virginiana</i>	T

E = Endangered; T = Threatened; * = Historic record – obscure and incidental record.

T (S/A) – Threatened, due to similarity of appearance (e.g., American Alligator) – a species that is threatened due to similarity of appearance with other rare species and listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

Effects on these federally protected species are discussed in Section 4.11.1, Federally Protected Species.

3.5 AIR QUALITY

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter (PM), sulfur dioxide (SO₂), and lead (Pb) (listed in order of decreasing emission rate).

3.5.1 National Ambient Air Quality Standards (NAAQS)

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The primary pollutants from motor vehicles are unburned hydrocarbons, NO_x, CO, and particulates. Hydrocarbons (HC) and Nitrogen oxides (NO_x) can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO₂. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources and, therefore are more regional than local.

The project is located in Transylvania County, which has been determined to comply with the National Ambient Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area. In addition, the project is not in an area of concern requiring PM 2.5 hot spot analysis.

3.5.2 Mobile Source Air Toxics (MSATS)

Recently, concerns for air toxics impacts are more frequent on transportation projects during the National Environmental Policy Act (NEPA) project development process. Transportation agencies are increasingly expected by the public and other agencies to address Mobile Source Air Toxics (MSAT) impacts in their environmental documents as the science emerges. MSATs analysis is a continuing area of research where, while much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools

and techniques for assessing project-specific health impacts from MSATs are limited. These limitations impede the ability to evaluate how mobile source health risks should factor into project-level decision-making under NEPA. Also, the EPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process. The Federal Highway Administration (FHWA) has several research projects underway to more clearly define potential risks from MSAT emissions associated with transportation projects. While this research is ongoing, FHWA requires each NEPA document to qualitatively address MSATs and their relationship to the specific highway project through a tiered approach. The FHWA will continue to monitor the developing research in this emerging field.

Potential impacts to air quality are discussed in Section 4.8, Air Quality Impacts.

3.6 TRAFFIC NOISE

Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23 CFR 772) and the NCDOT Traffic Noise Abatement Policy require Type I highway projects to be analyzed for predicted traffic noise impacts. Type I projects are proposed Federal or Federal-aid highway projects that include:

- a highway or interchange on new location;
- improvements of an existing highway that significantly changes the horizontal or vertical alignment or increases the vehicle capacity, or projects that involve new construction; or
- substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

Project R-2409C is a Type I project because it involves substantial vertical alteration of an existing highway and adds a through-traffic lane that functions as a truck climbing lane.

Impacts associated with traffic noise are discussed in Section 4.9, Noise Impacts.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 FUTURE LAND USE

The land uses along the project corridor are largely vacant and heavily wooded in mountainous terrain. Widening the existing lanes and adding a climbing lane (whether on new alignment or not) should not alter the existing land uses along the project corridor. The nature of the terrain dictates that land uses will remain unchanged. The steep slopes are not conducive for dense development.

R-2409C will not increase the roadway capacity of US 64; therefore, land uses in the project vicinity should not change as a result of this project. Local officials expect the County, on a whole, will remain generally rural, and future land uses will not change much in the next 10 years. The presence of Gorges State Park and the mountainous terrain will limit the types of land uses.

4.2 COMMUNITY IMPACTS

4.2.1 Social and Psychological

This section of US 64 does not go through any type of neighborhood or community; therefore, R-2409C will not split or isolate any existing neighborhoods or communities. And, considering the type of changes being proposed, this project should have no effect on community stability, neighborhood cohesion, development trends / patterns, or access to community facilities.

4.2.2 Physical Aspects and Visual Environment

There will most likely be some visual and aesthetic impacts associated with both alternatives being studied. Due to the nature of the terrain, widening the existing lanes and adding a climbing lane (whether on new or existing alignment) will require increased areas of cut and fill. As a result, trees and vegetation will need to be removed, and existing drainage structures will need to be replaced or extended.

4.2.3 Transportation Access

The project will be constructed while maintaining traffic flows on US 64. Access to community facilities should not be disrupted during or after construction. Access to the Catatoga Lake development and the neighborhood along Whetstone Gap Road may be altered as a result of the proposed project, but it will either be improved or remain as functional as it is currently. Other than the parking area for the possible seasonal business structure on the south side of US 64 just east of NC 281, there is no other designated parking along the project corridor. Parking for this structure will be unaffected by the project, and access will be maintained during and after construction.

The current facility does not provide access for the handicapped, nor does the proposed project include provisions for the handicapped. The high traffic volumes (including heavy truck traffic) and mountainous terrain is not conducive to handicapped users. For these reasons, R-2409C will neither improve nor negatively affect handicapped access.

The project will not impact public transit since there is no fixed-route transit service in Transylvania County or transit facilities along this part of US 64.

4.2.4 Transportation Network

US 64 is the only viable east / west route in the western part of Transylvania County; therefore, this project should not alter commuting patterns. Since this project does not include the construction of additional through lanes, the roadway capacity will not be increased, and travel times should not be affected. Temporary delays may have an effect on travel times during construction, and some users may opt to make their trips during off-peak times during construction to avoid delays due to construction activities.

4.2.5 Safety

There is currently little to no pedestrian / bicycle activity along this stretch of US 64, and the terrain and alignment does not allow for a safe facility for pedestrians and bicyclists. This project will not change the conditions for pedestrians and bicyclists along US 64, but should they find themselves on this section of US 64 after the construction of R-2409C, the wider lanes, straighter alignment (depending on the selected alternative) and the climbing lane could provide some relief. However, the improvements under this project are not being proposed to accommodate pedestrians or bicyclists.

Vehicular safety and emergency response should be enhanced by this project. A climbing lane for slower moving traffic (most notably heavy trucks) will help disperse traffic and cut down on long platoons of vehicles. It will also provide an area for all traffic to move out of the way of police, fire and EMS personnel responding to emergencies. The wider lanes should also provide a sense of security to drivers in the mountainous terrain – especially in bad weather and in the dark. Vehicular safety and emergency response would benefit even more if an alternative was chosen that straightens the alignment.

4.2.6 Environmental Justice and Title VI Considerations

Environmental justice refers to the equitable treatment of people of all races, cultures, ages, and incomes with respect to development, implementation and enforcement of environmental laws, regulations and policies. The Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment (ICOGP) has identified vulnerable elements of the population to include

the elderly, children, the disabled, and members of low-income and minority groups. This document will identify special populations based on the ICOGP definitions, and those set forth in Title VI of the Civil Rights Act of 1964 and Executive Order 12898, to ensure that the STIP project is not disproportionately impacting or disproportionately denying benefits of the project or resulting in any undue burden on EJ populations. If special populations are present within the DCIA, community outreach, including meaningful non-traditional methods, will be identified.

The Council on Environmental Quality (CEQ) has oversight of the Federal government's compliance with Executive Order 12898. CEQ has developed guidance to further assist agencies with their procedures so that environmental justice concerns are effectively identified and addressed. Based on the CEQ guidance, low-income should be identified with the annual statistical poverty thresholds from the United States Census Bureau's Current Population Reports (Series P-60 on Income and Poverty). Minority populations, based on the CEQ guidance, should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population in the general population or other appropriate unit of geographic analysis. This section will assess environmental justice based on the race and low-income thresholds put forth by CEQ.

Based on the demographic data, site visits, and interviews with local officials, there are no environmental justice communities that will be impacted by the project.

4.2.7 Farmland Impacts

North Carolina Executive Order Number 96, *Preservation of Prime Agricultural and Forest Lands*, requires all state agencies to consider the impact of land acquisition and construction projects on prime farmland soils, as designated by the U.S. Natural Resources Conservation Service (NRCS). These soils are determined by the NRCS – based on criteria such as crop yield and level of input of economic resources.

The Farmland Protection Policy Act (FPPA) is designed to minimize the degree to which federally sponsored programs contribute to the “unnecessary and irreversible conversion of farmland to non-agricultural uses,” and ensure that these programs are consistent with state, local, and private programs to protect farmland.

There should be no farmland impacts as a result of the construction of R-2409C. According to soil maps in the Transylvania County Soil Survey (1974) and the list of important farmlands in North Carolina, there are no prime or important farmlands along the project corridor. There are some in the project vicinity – mostly adjacent to Lake Toxaway and along the area's creeks and streams.

4.3 RELOCATION IMPACTS

Based on preliminary studies, no residences or businesses will be relocated with the project.

4.4 ECONOMIC IMPACTS

The real estate sales center for Catatoga Lake and the two possible seasonal businesses located along, or near, the project corridor (see Figure 5) should not experience any long-term negative effects as a result of the proposed project.

Additional right of way will be required from land that currently fronts US 64. Right of way is to be acquired from large parcels – representing a small percentage of the total land area of each parcel; therefore, the project will have a minimal impact on the market and tax values.

The project will not increase the capacity of US 64; therefore, future economic opportunity should not be affected.

4.5 INDIRECT AND CUMULATIVE EFFECTS

This section presents a summary of the qualitative indirect and cumulative effects assessment associated with this project. Additional details regarding this assessment are provided in NCDOT's R-2409C *Community Impact Assessment* report which is available from the NCDOT project file. A Growth Impact Study Area (GISA) was established in the Community Impact Assessment (see Figure 6). The indirect and cumulative effects of this area are described below.

Indirect impacts are those impacts that, as a result of an event such as this proposed transportation project, occur over a longer period of time and can take place away from the immediate project area. A short-term example would be the development of a small subdivision along a new or widened roadway that would otherwise not have occurred. Closely related is the concept of cumulative impacts, which are the collective effects of multiple events and actions. These may be dependent or independent of the proposed action.

4.5.1 Study Area Direction and Goals

Regional Location Influences and Implications

Transylvania County lies in the Blue Ridge Mountains of southwestern North Carolina. Its natural resources and proximity to major metropolitan areas such as Charlotte and Atlanta, Georgia attract vacationers, second home owners, and retirees. Commercialism and industrialism have mostly been limited to the eastern part of the County around the City of Brevard and the Town of Rosman. This is due, in part, to the lack of an adequate roadway system in the western part to support

commercial and industrial development. County officials are concerned that the county resembles a cul-de-sac in that most traffic enters and leaves the County via NC 280 and US 64 in Brevard – never traveling any further west. They feel the condition of the main roads in other directions creates safety problems and traffic bottlenecks. What development that has occurred in the Lake Toxaway area has mostly been residential development.

Table 7 presents population estimates and projections, as well as growth percentages by decade.

Table 7: Population Estimates and Projections, 1990-2030

Population	Census Tract 9606	Transylvania County	North Carolina
1990	1,680	25,520	6,628,637
2000	2,263	29,334	8,049,313
Percentage Growth 1990-2000	34.7%	14.9%	21.4%
2010	2,506	33,090	9,535,483
Percentage Growth 2000-2010	10.7%	12.8%	18.5%
Population Projections:			
2020	N/A	35,290	10,614,862
Percentage Growth 2010-2020	N/A	6.6%	11.3%
2030	N/A	37,515	11,629,556
Percentage Growth 2020-2030	N/A	6.3%	9.6%

Sources: US Census Bureau and NC Office of State Budget & Management.

Demographic and Employment Trends

County officials do not expect the project area to develop into an area of major employment in the County. They predict Lake Toxaway and the surrounding area will continue to serve as a resort area – attracting tourists, second home owners and retirees. The Transylvania County Economic Development Commission has no specific plans to lure commercial or industrial enterprises to this area. Small businesses and other facilities in the project area will continue to provide some employment opportunities.

Transportation Plans and Proposed Projects

R-2409C is included on the *Transylvania County Comprehensive Transportation Plan's (CTP) Highway Map* and *Bicycle Map* (April 2012) where US 64 is recommended for improvements. R-2409C is consistent with the Highway Map and Bicycle Map. Specific accommodations for bicycle travel are not included in the preliminary design for this project. However, the project will provide wider lanes, usable shoulders, and a straighter alignment to improve conditions for bicyclists to share the road. Improvements to US 64 from NC 178 in Rosman to the Jackson

County line is listed as a high priority project in the *Comprehensive Transportation Plan, Study Report for Transylvania County* (May 2007), Other projects recommended in the CTP include:

- NC 281 North from US 64 to Kim Miller Road (SR 1304) – recommended to be widened from two 10-foot lanes to two 12-foot lanes (also a high priority project);
- Kim Miller Road (SR 1304) from US 64 to Reid Road (SR 1316) – recommended to be widened from two nine-foot lanes to two 10-foot lanes;

A search of NCDOT's Draft 2013-2023 STIP revealed one other project within the GISA. R-2409D proposes to widen and realign US 64 from Indian Creek to Flat Creek Valley Road (SR 1147). This adjoining project is immediately east of R-2409C.

Local Land Use Plans, Future Land Use, and Zoning

As discussed previously in this document, existing land uses in the Lake Toxaway area may be characterized as residential in the immediate vicinity of the lake and rural elsewhere. There are some sporadic commercial uses along US 64 and NC 281 near Lake Toxaway. Outside of the lake area, the presence of large parcels of public lands (i.e. Gorges State Park) and the mountainous terrain mostly restricts rural residential uses in the GISA to valleys north of US 64.

Local officials expect the County, on a whole, will remain generally rural, and future land uses will not change much in the next 10 years. The only exceptions may be in the Brevard area. Again, the presence of Gorges State Park and the mountainous terrain will limit the types of land uses in the GISA.

There is no zoning in the County.

4.5.2 Environmental Regulations

According to the North Carolina Division of Water Quality, as a result of storm water rules enacted by the EPA in 1999, construction or land development activities that disturb one acre or more require a National Pollutant Discharge Elimination System (NPDES) storm water permit. An erosion and sediment control plan must also be developed for these sites under the state's Sedimentation Pollution Control Act (SPCA) administered by the NC Division of Land Resources (NCDLR). Site disturbances of less than one acre require the use of Best Management Practices (BMPs) with no required site plan; site disturbances greater than one acre require both. According to the March 1997 NCDOT Best Management Practices for Protection of Surface Waters report, BMPs include activities, practices, and procedures undertaken to prevent or reduce water pollution, such as: on-site detention areas, vegetative buffers, culverts, inspections and enforcement, and erosion control.

Waters within Gorges State Park, including sections of the Toxaway River and Indian Creek, are “Designated Public Mountain Trout Waters” by North Carolina Wildlife Resources Commission (NCWRC). Waters with this designation are defined as waters that sustain trout populations through natural reproduction. There are no development restrictions imposed by the NCWRC designation.

Waters within Gorges State Park meet the High Quality Waters (HQW) and Outstanding Resource Waters (ORW) requirements set by the North Carolina Division of Water Quality (NCDWQ).

All of the GISA streams have been assigned a best usage classification of “C”. Some, including the Toxaway River and Indian Creek, also have the Division of Water Quality (DWQ) supplemental classification “Tr”, with Bearwallow Creek being the only stream in the GISA to meet the HQW requirements. Class “C” waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. There are no restrictions on watershed development associated with Class “C” waters. The “Tr” supplemental classification protects fresh waters for natural trout propagation and the survival of stocked trout (15A NCAC 02B .0301). It is not the same as the NCWRC’s “Designated Public Mountain Trout Waters” classification. There are also no watershed development restrictions associated with “Tr” waters except the stream buffer zone requirements of NCDLR.

The GISA falls under the jurisdiction of the Tennessee Valley Authority (TVA), specifically Section 26a of the TVA Act. Section 26a requires “TVA’s approval prior to construction, operation, or maintenance of any dam, appurtenant works, or other obstruction affecting navigation, flood control, or public lands or reservations along or in the Tennessee River or any of its tributaries”. According to correspondence from the TVA (December 2, 2005), the project is outside of the TVA watershed, requiring no involvement with the TVA (see Appendix).

Additionally, the County has other ordinances in place that help protect and manage growth, including a Flood Damage Control Ordinance, a Subdivision Ordinance, and their Voluntary Farmland Protection Ordinance. These regulations should provide adequate water resource protection for any project-related land clearing activity (induced development) that may occur.

Due to the scarcity of both wetlands and flood prone soils, it is unlikely that either will have any major effects on limiting development within the GISA.

Environmental limitations on future development within the GISA are mainly limited by Gorges State Park, and steep topography.

4.5.3 Activities That Cause Effects

The County boasts being the one county in the country with the most waterfalls (over 200) and realizes the natural beauty of the area draws tourists and visitors from all over. While the attraction of the natural resources is seen as an asset for the economy in terms of tourism, the resources are also a hindrance to commercial and industrial development in the western part of the County. The steep terrain limits the commercial and industrial development potential. The lack of suitable sites and infrastructure restricts development to residential developments.

According to a County planner, the only recent development activity in the GISA other than sporadic new home construction is the development of Catotoga Lake golf and tennis community. However, there are plans for more residential development within the GISA.

4.5.4 Potential Indirect and Cumulative Effects for Assessment

The following is an assessment of a set of factors that can be used to evaluate indirect and cumulative impacts, and to determine if further analysis is necessary.

Conflict with local plan:

The proposed lane widening and climbing lane is not in conflict with local land use or transportation plans. This project is included in the *Transylvania County Comprehensive Plan* and the *Thoroughfare Plan for Transylvania County*.

Explicit economic development purpose:

The purpose of R-2409C is to improve safety and traffic flow by correcting roadway deficiencies and constructing a climbing lane to enable motorists to pass slower-moving vehicles or trucks; therefore, there is no explicit economic development purpose.

Planned to serve specific development:

R-2409C is not being built to serve a specific development.

Likely to stimulate land development having complementary (to highway-related travel) functions:

The assessment of this factor involves the evaluation of a subset of factors commonly used to determine induced growth. This subset includes:

- Distance to a major urban center
- Traffic volumes on intersecting roadways
- Availability of water / sewer

R-2409C is approximately 14 miles from Brevard, traffic volumes are low on US 64 (between 4,900 and 5,700 in 2012) and other area roads, and there are no County provided water or sewer services available in the GISA. Based on these factors, this project is not expected to stimulate land development having complimentary functions. Some additional residential development may occur as a result of Lake Toxaway being more accessible from the east, but County officials do not expect highway-related growth to occur.

Likely to influence intraregional land development location decisions:

Typically, if the conditions are favorable for development and / or a region is currently undergoing urbanization, an improvement in the transportation infrastructure is likely to influence where development will occur. In the case of R-2409C, the region is not currently undergoing urbanization. The US 64 corridor in the project area is rural and expected to stay that way in the foreseeable future. Local officials encourage commercial and industrial development in the western part of Transylvania County, but they realize there are limitations as a result of the natural resources and that it will take more than an improvement to the transportation infrastructure to lure that kind of development. Some small commercial enterprises (gas stations, convenience stores) may locate along the corridor to accommodate seasonal tourists and residents, but not on a large scale.

Notable features present in Growth Impact Study Area:

There are numerous Federal and State protected species which may be located within the GISA. Also within the GISA, there are properties either listed or eligible for the National Register of Historic Places. The presence of Gorges State Park and the mountainous terrain limits development options in this part of Transylvania County.

4.5.5 Indirect and Cumulative Effects

The following set of indicators helps to evaluate the potential of land use and growth impacts induced by highway projects, and helps to determine if quantitative analysis is warranted. These factors include change in accessibility, change in property values, forecasted growth, land supply vs. demand, water and sewer availability, market for development, and public policy (see Table 8).

Table 8: Potential for Land Use Change

Rating	Change in Accessibility	Change in Property Values	Forecasted Growth	Land Supply vs. Land Demand	Water/ Sewer Availability	Market For Development	Public Policy
Strong	> 10 min. travel time savings	> 50% increase in property values	> 3% annual pop. growth	< 10-year supply of land	Existing service available	Development activity abundant	Less stringent; no growth management
^							
"							
"						X	X
"		X		X	X		
^	X		X				
Weak	< 2 min. travel time savings	No property value increase	0-1% annual pop. Growth	> 20-year supply of land	No service available now or in future	Development activity lacking	More stringent; growth management

- There could be some travel time savings since there will be a climbing lane and possible favorable changes in the alignment, but considering the project is only 1.5 miles long, the savings will not be significant.
- The improved accessibility should only minimally affect property values.
- Population projections given by the State estimate an annual growth of about 0.7% for Transylvania County between 2010 and 2030.
- There is still a lot of land available for residential development.
- Water and sewer availability in the GISA is limited to private wells and septic systems. Some of the larger residential developments have community services. There are no plans to expand County provided water and sewer services to this part of the County.
- According to local planners, this area of the County is expected to experience steady residential development over the next 10-20 years.
- Local officials support and encourage residential, commercial, and industrial growth in the Lake Toxaway area but are also committed to policies that will maintain the rural setting.

4.5.6 Evaluation of Analysis Results

Consideration of Indirect Effects

The potential for induced growth due to R-2409C is low. Water and sewer service does not exist and is not planned for the future. The presence of Gorges State Park and rugged mountain terrain limits development. While the current residential development trend is expected to continue for the next 10 or more years, local officials expect it to occur with or without the construction of R-2409C. This project

may slightly improve access to the Lake Toxaway area, but it is unlikely to act as a catalyst for increased development.

Consideration of Cumulative Effects

The cumulative impacts of a transportation improvement project increases when considered along with other proposed TIP projects and local road improvements, which together will improve regional transportation. According to the Draft 2013-2023 NCDOT STIP list and local planners, there is one other funded transportation improvement project within the GISA.

4.5.7 Indirect and Cumulative Effects Assessment Conclusions

Findings indicate that R-2409C should not induce much growth nor affect overall water quality. Residential development is predicted to remain steady in the GISA over the next 10 years as people continue to discover Transylvania County as a nice place to build a retirement or vacation home, but is not anticipated to occur and cannot occur in any intense pattern due to the lack of available and / or suitable land to develop and the general lack of water and sewer service.

4.6 UTILITIES

Aerial power and telephone lines are located along US 64 in the project area. Construction of the project is not expected to cause any serious disruptions in service to any of the utilities serving the area. Before construction is started, a preconstruction conference involving the contractor, local officials, utility companies, and the Division of Highways will be held to discuss various construction procedures. It will include a discussion of precautionary steps to be taken during the time of construction that will minimize interruption of utility service.

4.7 CULTURAL RESOURCES

4.7.1 Historic Architecture

Since the project area contains no properties listed on or eligible for the National Register of Historic Places, the project will not affect any historic properties.

4.7.2 Archaeology

The project will not impact any archaeological sites.

4.8 AIR QUALITY IMPACTS

The FHWA has developed a tiered approach for analyzing MSATs in NEPA documents. Depending on the specific project circumstances, FHWA has identified three levels of analysis:

- No analysis for projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; or
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

This project proposes to reconstruct the highway, improve shoulders, and add a climbing lane. This project has no potential for meaningful MSATs effects since it is a project qualifying as a categorical exclusion under 23 CFR 771.117(c) with no meaningful impact on traffic volumes or vehicle mix.

During construction of the proposed project, all materials resulting from clearing and grubbing, demolition or other operations will be removed from the project, burned or otherwise disposed of by the Contractor. Any burning will be done in accordance with applicable local laws and ordinances and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. Care will be taken to insure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will be performed under constant surveillance. Also during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents.

4.9 NOISE IMPACTS

FHWA has developed Noise Abatement Criteria (NAC) and procedures to be used in the planning and design of highways. Traffic noise impacts are determined by following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Abatement Policy, and the NCDOT Traffic Noise Analysis and Abatement Manual. The two categories of traffic noise impacts are defined as 1) those that “approach” or exceed the FHWA NAC for various land uses, and 2) those that represent a “substantial increase” over existing noise levels as defined by NCDOT. When traffic noise impacts are predicted, noise abatement measures must be considered for reducing or eliminating these impacts. Temporary and localized noise impacts will likely occur as a result of project construction activities. Construction noise control measures will be incorporated into the project plans and specifications.

Residential areas are located near the east end of the project between Whetstone Gap Road and Indian Creek. The nearest noise sensitive land uses are located more than 200 feet away from US 64 and will not be impacted by the project. Since noise impacts are not predicted, noise abatement measures are not recommended or proposed for this project.

This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772. No additional noise analysis will be performed for this project unless warranted by a significant change in the project scope, vehicle capacity or alignment.

In accordance with NCDOT Traffic Noise Abatement Policy, the Federal/ State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of the Categorical Exclusion (CE). For development occurring after this date, local governing bodies are responsible to insure that noise compatible designs are utilized along the proposed facility.

4.10 NATURAL RESOURCES

4.10.1 Water Resources

Because waters of the project area drain directly into stream systems that are 1) considered by NCWRC to be Wild Trout Waters and 2) an important ecological component of Gorges State Park, they meet NCDWQ requirements for a HQW, and possibly an ORW, classification; however, Indian Creek and Toxaway Rivers and their tributaries have not officially been reclassified by NCDWQ with these designations. The lack of a formal designation to date does not, however, exclude these waterways from protection needs as set forth in the HQW and ORW surface water protection rules administered by various state agencies.

In a memorandum from NCDWQ (dated December 28, 2005, in the Appendix), it is stated that, “the most protective sediment and erosion control [Best Management Practices] be implemented to reduce the risk of turbidity violations in trout waters”. The memorandum also states that all disturbances within trout buffers be conducted in accordance with NCDLR and NCWRC requirements. In correspondence from November 20, 2006, the NWRC’s Western NC Permit Coordinator commented that NCWRC does not have concerns regarding trout for this project. Therefore, no construction moratorium during trout spawning periods will be required.

Impacts to water resources in the project area may result from activities associated with project construction. Activities that would result in impacts are clearing and grubbing on streambanks, riparian canopy removal, in-stream construction, fertilizers and pesticides used in re-vegetation, and pavement / culvert installation. Strict adherence to NCDOT Best Management Practices (BMP’s) for the Protection of Surface Waters should be applied during the construction phase of the project. The following impacts to surface water resources could result from the construction activities mentioned above.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.

- Changes in and destabilization of water temperature due to vegetation removal.
- Alteration of water levels and flows due to interruptions and / or additions to surface and ground water flow from construction.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

4.10.2 Biotic Resources

Construction related activities in or near the previously described resources have the potential to impact biological functions. Table 9 summarizes the amount of each biotic community within each of the proposed alternatives.

Table 9: Vegetated Coverage in the Study Area (acres)

Biotic Community	Alternative 2	Alternative 4
Chestnut Oak Forest	8	14
Acidic Cove Forest	2	2
Disturbed/maintained land	3	2
Total	13	18

Changes in plant community composition in the surrounding habitats are an indirect consequence of road construction. Studies have shown that invasion of exotic plant species into adjacent forest habitats is facilitated by roadways (Forman and Deblinger 1998). Once exotics become naturalized, they often change community species composition, alter structure, and reduce natural diversity of native plant and animal species. These species such as Chinese privet, Kudzu (*Pueraria montana*), autumn olive (*Eleagnus umbellata*) and Japanese honeysuckle can quickly eliminate native vegetation from an area, and offer little benefit to native wildlife.

Plant communities found within the study corridor provide shelter, nesting, and foraging habitat for numerous species of wildlife. Mortality is likely to occur to some animals during project construction, as clearing will destroy species living within trees and grading / filling activities will impact ground dwelling species. Many other individuals will simply be displaced into other habitats. However, by concentrating these organisms into a smaller area, over-utilization and degradation of the habitat may occur, which ultimately lowers the carrying capacity of the remaining habitat, and is manifested in some species becoming more susceptible to disease, predation, and starvation.

Habitat fragmentation is another direct consequence of roadways. Impacts of habitat fragmentation on community structure can be dramatic. Newly constructed roadways dissect existing habitats, creating a barrier to some species between the two separated parcels. Not only does this loss of habitat and fragmentation result in losses to faunal populations, but changes in community dynamics are also likely. In

fragmenting the forest, more ecotone, or edge habitat, is created. Species that thrive on community edges will increase, while species that require larger, undisturbed tracts will decrease, or disappear, as a result of competitive interactions, habitat reduction, and other factors. Studies have shown that populations of species such as wood thrush and blue jay are negatively impacted by road construction. Conversely, road construction has been shown to have a positive, or no effect on species such as northern cardinal, tufted titmouse, indigo bunting, and field sparrow (Leedy and Adams 1982).

Construction of this project has the potential to impact the described water resources in a variety of ways, both during construction and once the road is in use. These potential impacts are addressed here and recommendations on how to minimize or eliminate these impacts are also given. It should be noted that potential impacts are not limited to the areas immediately adjacent to the water bodies, because the entire project area drains to a waterbody at some point.

Sedimentation is the most serious project-related threat to the waters within the project area, and results when areas are exposed from construction activities. Studies have shown that during construction activity, there is a direct correlation between the amount of suspended particles in the stream channel with the amount of clearing and grubbing activity, embankment modification, project duration and rainfall (Vanoni 1975, Shirley 1976, Embler and Fletcher 1981). Land clearing and grubbing activities during project construction will directly result in soil erosion leading to increased sedimentation and turbidity in nearby streams. These effects may extend downstream for considerable distance with decreasing intensity.

Not only is sedimentation detrimental to the aquatic ecosystem, but changes in physical characteristics of the stream can also result. Decreased channel conveyance capacity during peak flows result from continued sedimentation, which increases flooding potential, causing streambank scour and erosion. Sedimentation also leads to increased turbidity of the water column, which reduces the aesthetic value of the water resources, as well as causing biological degradation.

Forested tracts of land border the majority of the streams located in the study area. Removal of streamside vegetation will have a negative effect on water quality. Streamside vegetation is crucial for maintaining streambank stability and controlling erosion, as well as contributing a significant food source to the stream ecosystem. Loss of riparian vegetation can also lead to lowered levels of dissolved oxygen in the water, because the increase of light incidence to the stream raises water temperatures and promotes weed growth, both depleting oxygen levels. Excessive weed growth in stream channels also increases flooding potential (Gilbert 1989).

The installation and / or extension of hydraulic modifiers such as culverts and pipes during project construction typically results in sedimentation and turbidity in stream resources. Temporary diversions of water flow during installation raise the water level upstream from the project and lower the water level downstream of the project.

This disruption of the stream reduces stream flow downstream of the project and may have a localized impact on various aquatic species. These alterations are short-lived, however the placement of culverts and pipes in-stream may also result in permanent alterations of stream morphology.

Locally, the construction of this project will increase the amount of impervious area in the project study area and ultimately vehicular use in the vicinity. This will directly lead to an increase in concentrations of toxic compounds (gas, oil, and highway spills) which may be carried into nearby water resources via precipitation, sheet flow, and subsurface drainage. Increased amounts of toxic materials can adversely alter the water quality of any water resource, thus impacting its biological and chemical functions.

4.10.3 Jurisdictional Topics

“Waters of the United States”: Jurisdictional Issues

Surface waters within the project area are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the U.S. (33 CFR Section 328.3). The term "waters of the United States", broadly defined, refers to waters that are susceptible to use in interstate or foreign commerce, including intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and impoundments of waters. Waters of the United States do not include prior converted cropland.

Permits

Ten jurisdictional stream systems are located within the project study area: five UTs to Toxaway River (UTs 1-3), four UTs to Indian Creek (UTs 4-7), and Indian Creek (See Figure 7). Alternative 2 will impact five jurisdictional streams resulting in a total length of 615 linear feet (see Table 10). Alternative 4 will impact eight streams resulting in a total length of approximately 995 feet. These impacts will require permits.

Pursuant to **Section 404** of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the USACE for the discharge of dredged or fill material into “Waters of the United States.” Activities that result in less than 300 total linear feet of stream loss or degradation may be authorized under Nationwide Permit (NWP) 14. NWP 14 may be used for jurisdictional impacts from minor roadway projects for up to 0.5 acre on a single and complete project for crossing waters of the United States.

Table 10: Potential Impacts to Jurisdictional Areas

Site	Alternative 2		Alternative 4	
	Linear Distance (ft)	Area (acres)	Linear Distance (ft)	Area (acres)
UT 1	15	0.003	30	0.015
UT 2	0	0.000	40	0.004
UT 3	15	0.001	265	0.018
UT 4	360	0.026	260	0.026
UT 5	0	0.005	105	0.067
UT 6	45	0.003	30	0.004
UT 7	180	0.012	185	0.013
UT 8	0	0.000	80	0.018
UT 9	0	0.000	0	0.009
Indian Creek	0	0.000	0	0.000
TOTAL	615	0.050	995	0.174

NWP 14 requires a Pre-Construction Notification (PCN) be submitted to the USACE and NCDWQ. The PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the US so that losses result in minimal adverse effects to the aquatic environment. A statement describing how temporary losses will be minimized to the maximum extent practicable must also be included.

For activities resulting in multiple stream crossings, the USACE has discretionary authority to require an Individual Permit, and the final decision rests with the USACE. Activities with 300 or more linear feet of stream impact will require an Individual Section 404 Permit from the USACE. The Individual Permit process requires public notice and input.

Section 401 of the Clean Water Act (33 U.S.C. 1341) requires each state to certify that state water quality standards will not be violated for activities which: 1) involve issuance of a federal permit or license; or 2) require discharges to waters of the United States. The use of a Section 404 permit requires the prior issuance of the 401 certification. Therefore, the NCDOT must apply to the NCDWQ for 401 certification as part of the permit process which is typically handled as a joint permit application to both the USACE and NCDWQ.

Mitigation

Vegetated wetlands are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (USACE 1987). Based on jurisdictional area investigations, no vegetated wetlands occur within the project area.

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy which embraces the concept of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of waters of the U.S. and, specifically, wetlands. Each of the three main aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance entails an examination of all appropriate and practicable possibilities of averting impacts to waters of the U.S. According to a 1990 Memorandum of Agreement between the U.S. Environmental Protection Agency and the USACE, in determining “appropriate and practicable” measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes. Impacts to wetlands in the project area are expected to be temporary in nature, depending on the footprint of the final bridge design. Temporary impacts due to bridge construction may be unavoidable during a replacement project.

Minimization includes the examination of appropriate and practicable steps to reduce adverse impacts to waters of the U.S. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of right of way widths, fill slopes and/or roadside shoulder widths. Lengthening of the bridge to lessen the length of the approach causeway is another method to minimize impacts in bridge projects. All efforts will be made to decrease impacts to surface waters.

Compensatory mitigation is not normally considered until anticipated impacts to waters of the U.S. have been avoided and minimized to the maximum extent possible. It is recognized that “no net loss of wetlands” functions and values may not be achieved in every permit action. Furthermore, in accordance with 67 FR 2020, 2092; January 15, 2002, the USACE requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The size and type of proposed project impact, and function and value of the impacted aquatic resource, are factors considered in determining acceptability of compensatory mitigation. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been performed. Compensatory actions often include restoration, preservation and enhancement, and creation of waters of the US. Such actions should be undertaken first in areas adjacent to or contiguous to the discharge site.

Utilization of BMP’s is recommended in an effort to minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native riparian species and removal of temporary fill

material upon project completion. A final determination regarding mitigation rests with the USACE and NCDWQ.

4.11 RARE AND PROTECTED SPECIES

4.11.1 Federally Protected Species

The federally protected species listed for Transylvania County as of December 26, 2012 are listed in Table 6 in Section 3.4.4, Threatened and Endangered Species. These species are briefly described as follows.

***Glyptemys muhlenbergii* (Bog Turtle)**

Status: Threatened due to similarity of appearance

Family: Emydidae

Listed: November 4, 1997

The bog turtle is distinguished from other turtles by its small size and the bright orange or yellow blotch on each side of its head. The bog turtle is a small semi-aquatic reptile, measuring three to 4.5 inches in length, with a weakly keeled, dark brown carapace and a blackish plastron with lighter markings along the midline. This species exhibits sexual dimorphism; the males have concave plastrons and longer, thicker tails, while females have flat plastrons and shorter tails. The bog turtle is found in the eastern United States, in two distinct regions: the northern population, in Massachusetts, Connecticut, southern New York, New Jersey, Pennsylvania, Maryland, and Delaware is listed as Threatened and protected by the Endangered Species Act. The southern population, occurring in Virginia, North Carolina, South Carolina, Tennessee, and Georgia is listed as Threatened Due to Similarity of Appearance (T/SA) (USFWS 2001).

Preferred bog turtle habitat consists of fens, sphagnum bogs, swamps, marshy meadows, and pastures. Areas with clear, slow-flowing water, soft mud substrate, and an open canopy are ideal. Clumps of vegetation, such as tussock sedge and sphagnum moss, are important for nesting and basking. This species hibernates from October to April, hiding just under the frozen surface of mud. Their diet consists of beetles, moth and butterfly larvae, caddisfly larvae, snails, nematodes, millipedes, seeds, and carrion (Nemuras 1967).

The bog turtle is listed as T/SA, which is not subject to the provisions of Section 7. Therefore, potential impacts to this species were not evaluated.

***Glaucomys sabrinus coloratus* (Carolina Northern Flying Squirrel)**

Status: Endangered

Family: Sciuridae

Listed: July 1, 1985

The Carolina northern flying squirrel has a large, well furred flap of skin along either side of its body. This furred flap of skin is connected at the wrist in the front and at the ankle in the rear. The skin flaps and a broad flattened tail allow the northern flying squirrel to glide from tree to tree. It is a solely nocturnal animal with large, dark eyes.

There are several isolated populations of the northern flying squirrel in the western part of North Carolina along the Tennessee border. It is generally found above 5,000 feet in elevation in the transition zone between hardwood and coniferous forests. Both forest types are used to search for food and the hardwood forest is used for nesting sites (USFWS 1992a).

Biological Conclusion:

No Effect

No habitat exists in the project area for the Carolina northern flying squirrel, which is found in habitats above 5,000 feet. The project area is characterized by mixed pine and deciduous forest at a maximum of 3,000 feet. Based on NCNHP records, this species has not been documented to occur within one mile of the study area. It can be concluded that the project will not impact this endangered species.

***Alasmidonta raveneliana* (Appalachian Elktoe)**

Status: Endangered

Family: Unionidae

Listed: September 3, 1993

Isaac Lea (1834) described the Appalachian elktoe from the French Broad River system in North Carolina. Its shell is thin, but not fragile, oblong and somewhat kidney-shaped, with a sharply rounded anterior margin and a broadly rounded posterior margin. (Parmalee and Bogan 1998) site a maximum length of 3.1 inches. However, individuals from the Little River (French Broad River Basin) in Transylvania County and West Fork Pigeon River (French Broad River Basin) in Haywood County measured in excess of 3.9 inches in length (Tim Savidge, personal observations). The periostracum (outer shell) of the Appalachian elktoe varies in color from dark brown to yellowish-brown in color. Rays may be prominent in some individuals, usually on the posterior slope, and nearly obscure in other specimens. The nacre (inside shell surface) is a shiny bluish white, changing to salmon color in the beak cavity portion of the shell. A detailed description of the shell characteristics is contained in Clarke (1981). Ortmann (1921) provides descriptions of the soft anatomy.

Two populations of the Appalachian elktoe were known to occur when the species was listed in 1993: the Nolichucky River (including its tributaries of the Cane River and the North Toe River), and the Little Tennessee River and its tributaries. The record in the Cane River was represented by one specimen found just above the confluence with the North Toe River. Since listing, the Appalachian elktoe has been found in additional areas. These occurrences include extensions of the known

ranges in the Nolichucky River (North Toe River, South Toe River and Cane River) and Little Tennessee River (Tuckaseegee River and Cheoah River) as well as a rediscovery in the French Broad River Basin (Pigeon River, Little River, Mills River and main-stem French Broad River). Many of these newly discovered populations are relatively small in size and range. The Appalachian elktoe has been observed in gravelly substrates often mixed with cobble and boulders, in cracks of bedrock, and in relatively silt-free, coarse sandy substrates (USFWS 1996).

Biological Conclusion:

No Effect

The Appalachian elktoe is “restricted to tributaries to the Tennessee River in East Tennessee and western North Carolina” (Parmalee and Bogan 1998). This species does not occur in Atlantic Slope river basins, such as the Savannah River Basin. In addition, streams within the project area are considered too high gradient to support the species.

***Sarracenia jonesii* (Mountain Sweet Pitcher Plant)**

Status: Endangered

Family: Sarraceniaceae

Listed: September 30, 1988

Mountain sweet pitcher plant is a perennial herb growing from 7.9 to 29.1 inches tall. The leaves are hollow and trumpet-shaped, forming slender, almost tubular pitchers with a heart-shaped. The flowers are typically maroon with recurving petals. The stalks are erect and bear one flower each.

Habitat is specialized, being restricted to bogs and streamsides along the Blue Ridge Divide, and generally in level depressions associated with floodplains. A few populations can be found along the sides of waterfalls on granite rock faces. Bog soils where the plant occurs are deep and poorly-drained with high organic matter content; herbs and shrubs usually dominate, but there may be a few scattered trees. This plant currently exists in only four locations in Henderson and Transylvania Counties, North Carolina and in the French Broad River drainage (USFWS 1990).

Biological Conclusion:

No Effect

Streams within the project area have narrow or absent floodplains, and none are characterized as having adjacent bogs or bog-like seepages. No rock faces that would provide habitat for this species were observed within the project area. Based on NCNHP records, this species has not been documented to occur within one mile of the study area. Therefore, it can be concluded that the project will not impact this endangered species.

***Isotria medeoloides* (Small Whorled Pogonia)**

Status: Threatened

Family: Orchidaceae

Listed: October 6, 1994

Small whorled pogonia is a perennial herb with long, pubescent roots and a smooth, hollow stem 3.7 to 9.8 inches tall terminating in a whorl of 5 or 6 light green, elliptical leaves that are somewhat pointed and measure up to 3.1 x 1.6 inches. A flower, or occasionally two flowers, is produced at the top of the stem. Small whorled pogonia's nearest relative is the purple five leaf orchid (*Isotria verticillata*), which is similar looking but can be distinguished by its purplish stem and by differences in the flower structure. The purple five leaf orchid is much more common and widespread than the small whorled pogonia. When not in flower, young plants of Indian cucumber-root (*Medeola virginiana*) also resemble small whorled pogonia. However, the hollow stout stem of the small whorled pogonia will separate it from the genus *Medeola*, which has a solid, more slender stem (USFWS 1992b). Small whorled pogonia may remain underground in a dormant state for several years and is often found in colonies. Flowering typically occurs in May through June.

The 23 populations of small whorled pogonia in the Southeast Region occur in North Carolina (five populations), South Carolina (four populations), Georgia (13 populations), and Tennessee (one population). Most southeastern populations number less than 25 plants. South Carolina has one population of over 25 plants, and Georgia has two populations numbering about 100 plants (USFWS 1992b). North Carolina currently has 14 populations, four of which are viable; only three populations have over four individuals (Carolyn Wells, USFWS, pers. comm.). South Carolina has four protected sites, two of which are viable; and Georgia has seven protected sites, four of which are viable (USFWS 1992b). Small whorled pogonia is extremely rare: it is listed as Endangered in North Carolina and has a State Ranking of S1, "Critically Imperiled" with fewer than five extant populations in the state. It has a Global Ranking of "G2" which is defined as, "imperiled globally because of rarity or because of some factor (s) making it very vulnerable to extinction throughout its range" (NCNHP 2004).

This orchid typically grows in open, dry deciduous woods and in areas along streams with acidic soil. The plant can also be found in rich, mesic woods in association with eastern white pine and great rhododendron. Small whorled pogonia prefers leaf litter and decaying material, but can also be found on dry, rocky wooded slopes, moist slopes or slope bases near vernal streams (NCNHP 2004).

Small-whorled pogonia is known to occur in Transylvania County and potentially suitable habitat occurs throughout forested areas of the project area. Systematic surveys were conducted within the project during the days of June 14-16, 2006 by two persons walking transects (perpendicular to slope of terrain) and searching areas of suitable habitat while spaced 15-20 feet apart. The survey resulted in finding one colony of small whorled pogonia within the project area on

June 16, 2006. The colony is located at the east end of the project area and north of US 64, approximately 50 feet from US 64. A subsequent visit to the colony by NCDOT and USFWS personnel resulted in the finding of six additional small whorled pogonia stems, all within a distance of 20 feet of the original two stems and closer to US 64. Additional surveys were conducted June 26-27, 2007 in an expanded portion of the study area and along the entire project June 10-11, 2013. No other small whorled pogonia plants were found.

Biological Conclusion

May Affect, Not Likely to Adversely Affect

During interagency meetings in October 2006, November 2007, and October 2008, NCDOT and USFWS representatives identified measures to avoid and minimize impacts to this plant population. As part of the Section 7 Informal Consultation process, the proposed Alternative 4 (recommended) alignment was designed to closely follow existing US 64 in the area of the plants to avoid direct impacts to the small whorled pogonia. Fish and Wildlife Service representatives are concerned about preserving the tree canopy, stabilizing the existing roadway slope, and planting native vegetation in this area. In response to these concerns, NCDOT proposes a retaining wall to limit the amount of excavation in this area. A retaining wall in this area will also help stabilize the slope and prevent erosion that could threaten the plants. Top-down construction and geotechnical fabrics will be considered to limit tree canopy removal. FHWA and NCDOT have determined the project May Affect, but Not Likely to Adversely Affect this species, and the USFWS concurs with this determination (refer to USFWS correspondence in the Appendix).

***Geum radiatum* (Spreading avens)**

Status: Endangered

Family: Rosaceae

Listed: April 5, 1990

Spreading avens is a perennial herb having stems with an indefinite cyme of bright yellow, radially symmetrical flowers. Flowers are present from June to early July. Spreading avens has basal leaves which are odd-pinnately compound; terminal leaflets are kidney shaped and much larger than the lateral leaflets, which are reduced or absent.

Spreading avens is found only in the North Carolina and Tennessee sections of the Southern Appalachian Mountains. Spreading avens occurs on high elevation scarps, bluffs, cliffs and escarpments on mountains, hills, and ridges at elevations greater than 4,600 feet (USFWS 1993). Other habitat requirements for this species include full sunlight and shallow acidic soils. These soils contain a composition of sand, pebbles, humus, sandy loam, clay loam, and humus. Most populations are pioneers on rocky outcrops (USFWS 1993).

Biological Conclusion:

No Effect

No habitat exists in the project area for spreading avens. Elevations of the project areas do not exceed 3,000 feet, while known populations occur above 4,600 feet, and no rock outcrops with full sun exposure supporting pioneer herbaceous species were observed during the site visit. Based on NCNHP records, this species has not been documented to occur within one mile of the study area. It can be concluded that the project will not impact this endangered species.

***Helonias bullata* (Swamp Pink)**

Status: Threatened

Family: Liliaceae

Listed: September 9, 1988

Helonias bullata is a perennial herb with thick rhizomes. The leaves are basal, form a rosette, are evergreen, spatulate or oblanceolate, and parallel-veined. Leaves are 3.5 to 9.8 inches long and 0.8 to 1.6 inches wide, being acute and attenuated at the base. The stem grows from a height of 7.9 to 35.4 inches at the time of flowering to 4.9 feet at the time of seed maturation. The inflorescence contains 30-50 flowers which are individual and approximately 0.4 inch wide. Pedicels are very short at first, elongating to 0.2 to 0.3 inch. The fruit capsule is three-lobed. The leaves of *Helonias* lie flat in winter and are often hidden by leaf litter; the flowerhead of the next season is visible, and leaves often become reddish-brown over winter. Flowering occurs in March and may last until May, while seed production occurs in June (USFWS 1991).

Swamp Pink occurs at 122 sites in New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia. In North Carolina, eight populations are known to occur in Jackson, Henderson, and Transylvania counties (USFWS 1991).

Biological Conclusion:

No Effect

Streams within the project area have narrow or absent floodplains, and none are characterized as having adjacent bogs or bog-like seepages. Based on NCNHP records, this species has not been documented to occur within one mile of the study area. It can be concluded that the project will not impact this threatened species.

***Gymnoderma lineare* (Rock Gnome Lichen)**

Status: Endangered

Family: Cladoniaceae

Listed: January 18, 1995

Rock gnome lichen is a squamulose lichen in the reindeer moss family. The lichen can be identified by its fruiting bodies which are born singly or in clusters, black in color, and at the tips of the squamules. The fruiting season of rock gnome lichen occurs from July through September. It is a narrow endemic, restricted to areas of high humidity. These high humidity environments occur on high elevation 4,000-foot mountaintops and cliff faces that are frequently bathed in fog, or at lower elevation

2,500-foot deep gorges in the Southern Appalachians. Rock gnome lichen primarily occurs on vertical rock faces where seepage water from forest soils above flows at (and only at) very wet times. Rock gnome lichen is almost always found growing with the moss *Adreaea* in these vertical intermittent seeps. The high elevation habitat occurs in the counties of Ashe, Avery, Buncombe, Graham, Haywood, Jackson, Mitchell, Rutherford, Swain, Transylvania, and Yancey. The lower elevation habitat of the rock gnome lichen can be found in the counties of Jackson, Rutherford and Transylvania (USFWS 1992a).

Biological Conclusion:

No Effect

No habitat exists in the project area for rock gnome lichen, as known populations occur above 4,000 feet. The project area is characterized pine and deciduous forest less than approximately 3,000 feet in elevation, and no low-elevation gorges are present. Based on NCNHP records, this species has not been documented to occur within one mile of the study area. It can be concluded that the project will not impact this endangered species.

Virginia Spiraea (Spiraea virginiana)

Status: Endangered

Family: Rose (Rosaceae)

Listed: September 26, 1991

Virginia Spiraea is a perennial shrub in the rose family that can grow between three and 10 feet tall. The alternating leaves are one to six inches long and one to two inches wide. The leaves are single-tooth serrated, occasionally curved, and have a narrow, slightly tapered base. The green leaves are darker on the top than on the bottom. The flowers are yellowish green to pale white in color, with the stamen twice the length of the sepal. The flowers bloom from May through early July, though flowering does not occur until after the first year of establishment. It has a clonal root system, which can fragment and produce more plants, a reproductive method more common than sexual reproduction for this species.

Virginia Spiraea typically grows along rivers and streams, relying on periodic disturbances, such as high-velocity scouring floods, to eliminate competition from trees and other woody vegetation. If storms produce greater frequency and intensity floods, however, plants may become dislodged and washed downstream.

Virginia Spiraea is found in Southern Appalachian states, with populations known in Georgia, North Carolina, Tennessee, Kentucky, Virginia, Ohio and West Virginia.

The primary is habitat destruction from impoundments, road construction, unmanaged recreational use of river corridors, industrial development, lack of watershed management and uncontrolled development of river corridors. Because Virginia Spiraea requires a specific habitat, it has become sparse in the mountain regions where it was once widespread. Once development moves into the habitat,

other threats from invasive exotic species and cattle grazing along stream and river corridors further inhibit growth.

Biological Conclusion:

No Effect

Biologists from The Catena Group performed a site visit on September 12, 2012 and concluded that suitable habitat for this species is not present within the project area. All of the streams within the alignment are characterized as small (first to third order), high gradient streams with a closed canopy dominated by White Pine and various hardwood tree species. Dense growth of shrub species such as Rhododendrons, and Mountain Dog Hobble are along the stream banks. In addition, there are no open areas maintained by periodic disturbance along these streams. No Virginia Spiraea was observed during the site visit.

4.12 FLOOD HAZARD EVALUATION

Executive Order 11988, entitled “Floodplain Management,” requires federal agencies to avoid making modifications to and supporting development in floodplains wherever practicable. Agencies are to take actions that reduce the risk of flood loss and impacts as well as protect natural and beneficial floodplain values. Prior to implementing an action, an agency will develop alternatives to locating in the base floodplain, avoid and minimize impacts where possible, identify opportunities to restore and preserve the floodplain, and present findings to the public. Potential encroachments on the 100-year floodplain were evaluated according to the requirements of 23 CFR 650.111 entitled “Location and Hydraulic Design of Encroachments on Floodplains.”

Transylvania County is a current participant in the National Flood Insurance Regular Program. With periodic flooding of the French Broad River and its tributaries, Transylvania County adopted a “Flood Damage Control Ordinance.” The ordinance prohibits all development within the floodway and places restrictions on the type and location of development in the 100-year floodplain. Indian Creek and Toxaway River are included in the detailed Flood Insurance Study, and both of these creeks have a regulated 100-year floodplain and mapped floodway with established base flood elevations determined.

The eastern end of the project is parallel to a short portion of the Indian Creek floodplain. The Toxaway River floodplain is outside of the project area. NCDOT will coordinate with the Federal Emergency Management Agency and local authorities in the final design stage of the project to ensure compliance with applicable floodplain management ordinances.

4.13 HAZARDOUS MATERIALS AND UST INVOLVEMENT

A hazardous materials inventory was performed to identify potential sources of toxic or hazardous materials and known sites involved with the usage, storage, transport or disposal of such materials. This included a field reconnaissance survey and a file search of records from appropriate federal, state, and local environmental agencies.

Based on the file review, there are no records of property contamination within the project area. There are no facilities with regulated Underground Storage Tanks (USTs), and no groundwater incidents have been reported in this area. No active or inactive landfills, solid waste facilities, or National Priorities List (NPL) sites exist within the project study area.

5.0 COMMENTS AND COORDINATION

5.1 COMMENTS RECEIVED FROM FEDERAL, STATE AND LOCAL AGENCIES

Input from the appropriate federal, state, and local agencies concerning effects of the R-2409C project on the environment was requested in a scoping letter (dated November 15, 2005) in preparation for the environmental document. Written comments were received from agencies noted with an asterisk (*) (see Appendix). The agencies contacted are listed below:

- Department of Army - Corps of Engineers
- Department of Interior - U.S. Fish and Wildlife Service
- Department of Interior - U.S. Geological Survey
- Department of Agriculture - US Forest Service
- Department of Transportation - Federal Highway Administration
- Environmental Protection Agency
- * Department of Cultural Resources
- * Department of Environment and Natural Resources
- * Division of Water Quality
- * Division of Parks and Recreation
- N.C. Wildlife Resources Commission
- Eastern Band of Cherokee Indians
- City of Brevard
- Town of Rosman
- Transylvania County
- * Transylvania County Board of Commissioners
- Transylvania County Schools
- Transylvania County Emergency Services
- * Transylvania County Planning and Economic Development
- Land of Sky Rural Planning Organization
- * Tennessee Valley Authority

On November 15, 2005, NCDOT initiated the project scoping process to invite input from federal, state, and local agencies. Responses from the agencies were collected, and no formal interagency scoping meeting was held for the project.

A meeting was held on June 12, 2006 with representatives from NCDENR Division of Parks and Recreation and NCDOT to review the potential effects of the US 64 improvements on Gorges State Park. All alternatives at the time would require temporary and / or permanent use of park land. NCDOT agreed to coordinate with the Division of Parks and Recreation to minimize park land impacts.

An interagency meeting was held on October 10, 2006 and included a project site visit. The intent of the meeting was to receive input from state and federal agencies on ways to reduce the project's effect on streams, the small-whorled pogonia plant

population, and Gorges State Park. Meeting participants included representatives from the US Fish and Wildlife Service, Army Corps of Engineers, Federal Highway Administration, Division of Parks and Recreation, Division of Water Quality, Gorges State Park, and the NCDOT. Three alternatives were presented, and options were discussed for reducing impacts to the plants, streams, and the park. The participants agreed that Alternative 3 should be modified to follow the existing road in the area of the plants. The NC Division of Parks and Recreation agreed with the proposed use of park land as long as the project minimizes water quality impacts and uses native plant species in its landscaping plans. Additional interagency coordination was requested to review the purpose and need and revised alternatives.

A second interagency meeting occurred on November 29, 2007 to discuss the refined project alternatives (Alternatives 2 and 4). Meeting participants included representatives from the US Fish and Wildlife Service, Army Corps of Engineers, Division of Parks and Recreation, Division of Water Quality, and NCDOT. Fish and Wildlife Service representatives agreed with the alignments near the small whorled pogonia plants and asked that the project include options to stabilize the roadway slope and preserve the tree canopy. Corps of Engineers and Division of Water Quality representatives asked for further refinements to minimize impacts to perennial streams, parallel tributaries, and the unnamed tributary near NC 281. Gorges State Park officials reiterated their interest in minimizing water quality impacts, using native plants on construction slopes, and adjusting the park boundaries to join the new highway right of way. A follow-up meeting was requested to review the project revisions.

A third interagency meeting occurred via conference call on October 31, 2008 and included representatives from the same agencies. Meeting participants discussed Alternatives 2 and 4. Alternative 2 was refined to have less impact to streams and the protected plants. However, it requires substantial grade differences compared to existing US 64, making temporary detours costly and difficult for maintaining traffic on site during construction. Alternative 4 was refined to minimize the stream and plant impacts to the extent possible. On site traffic maintenance for this alternative is less problematic. Representatives from the Corps of Engineers, Division of Water Quality, and Fish and Wildlife Service favor Alternative 2 due to lower stream impacts, less construction outside of existing right of way, and a further separation from the protected plants. Gorges State Park representatives favor Alternative 4 for more improved road conditions and taking less private property. Based on these comments, NCDOT agreed to further revise Alternative 4 in the area of the small whorled pogonia plants and to further reduce stream impacts to 300 feet or less per crossing. The revised Alternative 4 design includes a retaining wall in the area of the small whorled pogonia plants to limit the amount of required cut slope and help stabilize the slopes. Top-down construction and geotechnical fabrics will be considered to limit tree canopy removal. The revised design also includes measures such as retaining walls to reduce the stream impacts to 300 feet or less per crossing.

5.2 Public Involvement

A project newsletter was mailed to members of the public on July 22, 2013. It provided: a description of the project; the purpose and need; a description of alternatives considered and those carried forward for further study; a project schedule; and contact information for citizens wishing to comment or ask questions about the project. A copy of the newsletter is in the Appendix.

Responses to Public Comments

The following is a summary of comments received during the public involvement process for this project. Corresponding responses to the comments are also provided. All citizens who commented were in support of the project, and most of those expressed a preference for Alternative 4.

Comment: I strongly endorse Alternative 4 of Project 2409C. If I can be of any assistance let me know. I hope you can meet the goals stated in your recent letter.

Response: Comment noted.

Comment: As residents of Whetstone Gap Road, we are terrified of turning on to our street. The mirror [used to identify vehicles approaching the intersection] only works if it is dark and you can see headlights. We continue and turn around at Route 281 which is almost as dangerous. Alternative 4 is best, and Alternative 2 is good.

Response: The passing lane and improved alignment will substantially improve sight distance at both intersections.

Comment: My preference is for Alternative 4. This will make the passing lane more functional.

Response: Comment noted.

Comment: My wife and I have used the road nearly 70 years. We have seen and been in several near misses. It has been due to be straightened for most that time. Please hurry!

Response: Comments noted.

Comment: Being a life resident of Transylvania County and driving these roads, I very much welcome this change. This has been needed for years. Money well spent!

Response: Comments noted.

Comment: We agree with the recommendation for using Alternative 4. Who will be responsible for road maintenance for the proposed extension of Whetstone Gap Road as it meets at the new intersection with Route 64?

Response: The realigned portions of the Whetstone Gap Road intersection are located within NCDOT's existing or proposed right of way and will be maintained by NCDOT.

Comment: Alternative 4 seems like the best choice for all as long as Gorges [State Park] feels good about it.

Response: Comment noted.

Comment: We travel here from Florida in an RV so we will be very happy to see this improvement for safety. It seems best we agree. Will a lane be open or an alternate for us to get from our home to Brevard while construction is underway? How long will the road be closed [and for what] length?

Response: During construction, traffic on this 1.5 mile portion of US 64 will remain open using on-site temporary detours as needed.

Comment: We like Alternative 4. Fine planning. It's a win-win for everyone.

Response: Comment noted.

Comment: I am very pleased that the NCDOT is doing something about US 64 in the Lake Toxaway area! I totally agree with Alternative 4 which will give motorists a chance to pass slower moving vehicles. The curve [east of the NC 281] junction needs to be [straightened and the bank flattened to] allow motorists entering US 64 [from NC 281] a much better view of oncoming traffic. Signs [for slower traffic to move over should] be erected at the new truck/climbing lane and on the climbing lane on Quebec Mountain. Many motorists simply refuse to move over and allow others to pass.

Response: Comment noted. NCDOT will include signage for efficient and safe traffic operations.

Comment: Alternative 4 definitely appears to correct many of the problem areas better than Alternative 2. It will be very nice to have this stretch of the road redone as improvements have been needed for a very long time. It seems the project has been very well planned and studied, and we are very anxious to see it come to pass.

Response: Comments noted.

6.0 SECTION 4(f) RESOURCES

Section 4(f) of the D.O.T. Act of 1966 protects the use and function of publicly owned parks, recreation areas, wildlife/ waterfowl refuges, and historic properties. A transportation project can only use land from a 4(f) resource when there are no other feasible or prudent alternatives and when the project includes all possible planning to minimize harm to the resource.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amendment to the Section 4(f) requirements allows the U.S. Department of Transportation (DOT) to determine that certain uses of Section 4(f) land will have no adverse effect on the protected resource. When this is the case, and the responsible official(s) with jurisdiction over the resource agrees in writing, compliance with Section 4(f) is greatly simplified.

Gorges State Park is part of the North Carolina State Parks System and is located at the western end of the project on the south side of US 64. The park encompasses over 7,000 acres of rugged terrain in southwestern Transylvania County and is the only state park west of Asheville. In assessing the park's ecological importance, the North Carolina Natural Heritage Program considers the area and the park to be of national significance. This land is subject to the State Parks Act (General Statute 113-44.14). Any removal or addition of land to a state park requires approval from the NC General Assembly.

US 64 is between the park and a steep mountain on the north side. Due to numerous curves and steep terrain, there is no feasible alternative that will avoid the park. The project requires the permanent use of property from the park's northern boundary along US 64.

On October 9, 2006, the NC DENR Division of Parks and Recreation provided written concurrence that impacts to the park associated with the alternatives would have only a minimum effect and not adversely affect park activities as long as water quality impacts are minimized, native plant species are used for slope stabilization, and revised park boundaries join the roadway right of way with no private parcels in between. Subsequently, Alternative 4 was developed and Alternative 3 was eliminated from consideration. During an interagency conference call on October 31, 2008, Gorges State Park representatives commented that they favor Alternative 4 for improving road conditions and taking less private property in the vicinity of the park.

The public was given an opportunity to comment on the project and the proposed acquisition of park property. All citizens who commented were in support of the project, most prefer Alternative 4, and one expressed support as long as Gorges State Park agrees.

On September 20, 2013, the Division of Parks and Recreation concurred that the recommended improvements with Alternative 4 will have minimal impact on the park (refer to concurrence from NC DENR Division of Parks and Recreation in the Appendix). Park officials concurred that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f) with the following measures included to minimize harm:

- Minimization of water quality impacts through stringent erosion control.
- Use of native plant species (no invasive species) for stabilizing the construction slopes after construction in the area of the state park.
- Revision of new park boundaries to join the roadway right of way with no private parcels in between. The property affected by this project or the right of way needed from Gorges State Park will need to be removed from the NC State Parks System and the State Nature and Historic Preserve.

Approximately 7.26 acres of park property are located with the proposed right of way limits. A portion will be replaced by acquiring and transferring approximately 2.58 acres of private property between US 64 and the park. Where US 64 is realigned away from the park, unnecessary right of way may also be considered for park replacement. During final design, NCDOT will coordinate with the Division of Parks and Recreation to revise the boundary between the park and roadway right of way and determine compensation requirements. NCDOT will provide the documentation required for the NC General Assembly to authorize this land use. During construction in the area of the park, NCDOT will minimize water quality impacts through stringent erosion control and use native plant species to stabilize slopes.

FHWA considers the impacts from the project to this 4(f) protected site to be minimal. FHWA has made a 4(f) “de minimis” determination [23 CFR 774.17(5) (2)] based on concurrence from NC DENR Division of Parks and Recreation that the project will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

7.0 CONCLUSIONS

The project is expected to have an overall positive impact by improving safety and intersection operations. It is considered a Federal “Categorical Exclusion” due to its limited scope and environmental consequences.

The recommended alternative is not controversial from an environmental standpoint. No substantial impacts to natural, ecological, cultural, social, economic, or scenic resources are expected.

The project is not in conflict with any plan, existing land use, or zoning regulations. No significant changes in land use are anticipated. No residential or business relocations are anticipated. The project will not disproportionately impact any minority or low-income populations. There is to be no adverse effects on public facilities or services anticipated, nor is the project expected to adversely affect social, economic, or religious opportunities in the area.

No designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), or water supply watersheds (WS-I or WS-II) are located within one mile downstream of the study area. No streams in the project vicinity are included in the North Carolina Final 303(d) list of impaired waters.

Impacts are anticipated for crossing eight jurisdictional streams. Impacts at four streams range from 30 to 80 linear feet. Impacts at the other four streams range from 105 to 265 feet.

A colony of federally protected small whorled pogonia plants is located at the eastern end of the project within 50 feet of existing US 64. As part of the Section 7 Informal Consultation process, the proposed Alternative 4 (recommended) alignment closely follows existing US 64 in the area of the plants to avoid direct impacts to the small whorled pogonia. Fish and Wildlife Service representatives are concerned about preserving the tree canopy, stabilizing the existing roadway slope, and planting native vegetation in this area. In response to these concerns, NCDOT proposes a retaining wall to limit the amount of required cut slope. A retaining wall in this area will also help stabilize the slope and prevent erosion that could threaten the plants. Top-down construction and geotechnical fabrics will be considered to limit tree canopy removal.

Property will be acquired from the Gorges State Park, a Section 4(f) resource. FHWA considers the impacts from the project to this 4(f) protected site to be minimal. FHWA has made a 4(f) “de minimis” determination [23 CFR 774.17(5) (2)] based on concurrence from NC DENR Division of Parks and Recreation that the project will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

No impacts to historic or archaeological resources will occur. The project is an air quality and traffic noise neutral project. No hazardous materials resources are anticipated within the project corridor.

On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from implementation of the project.

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FIGURES

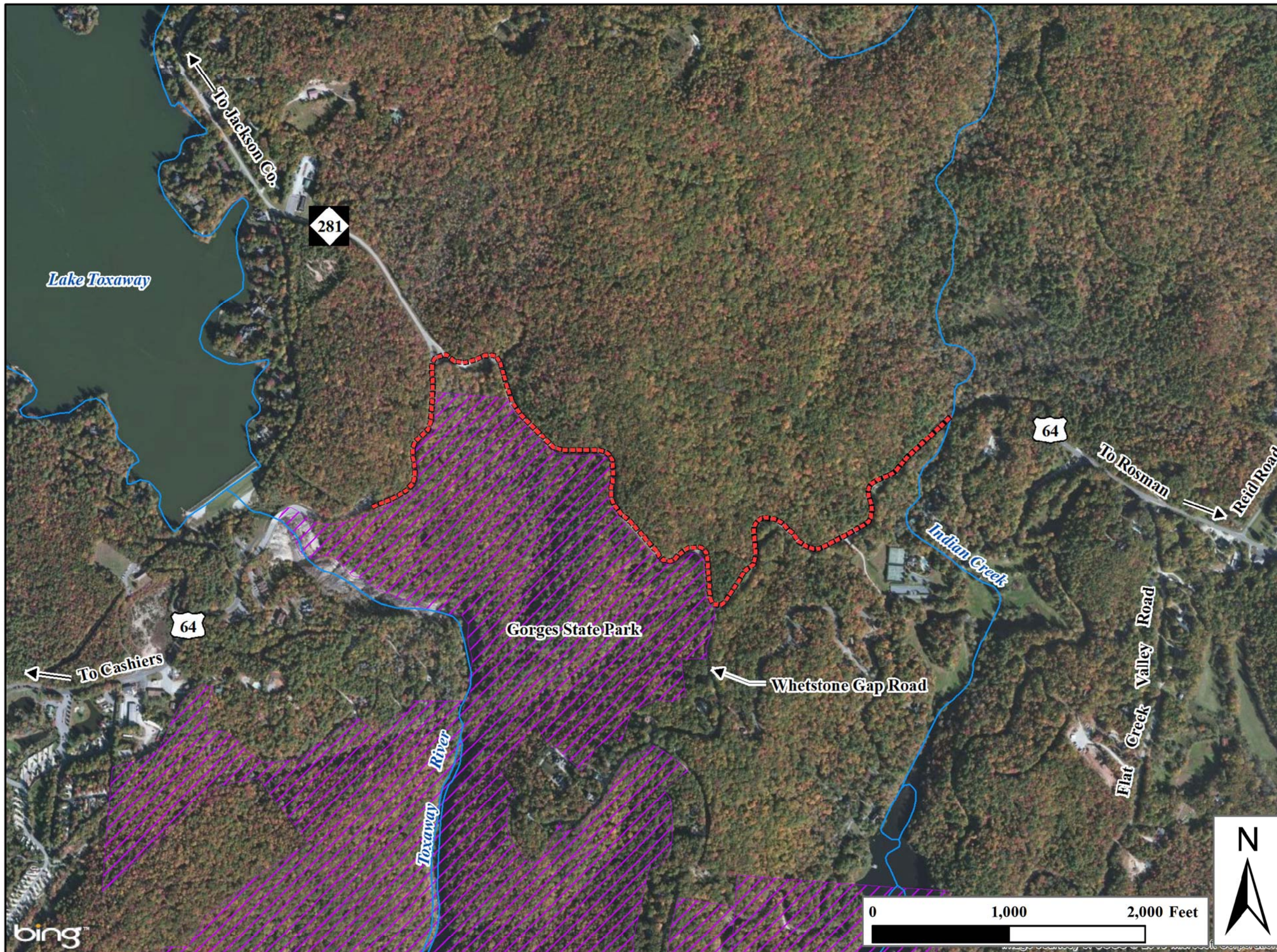
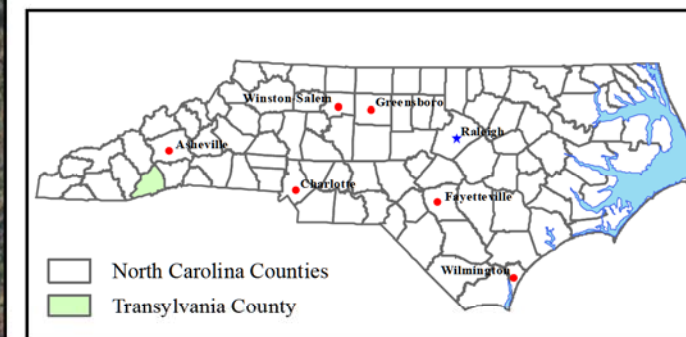
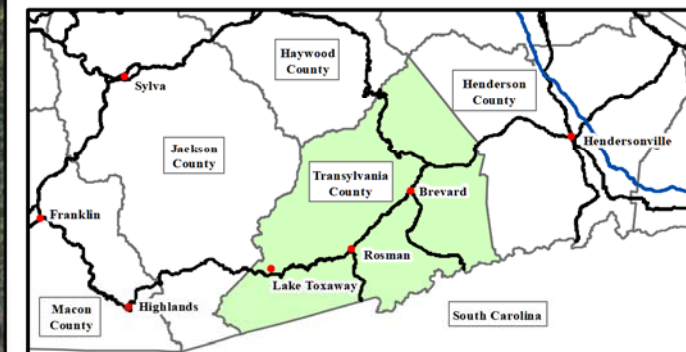
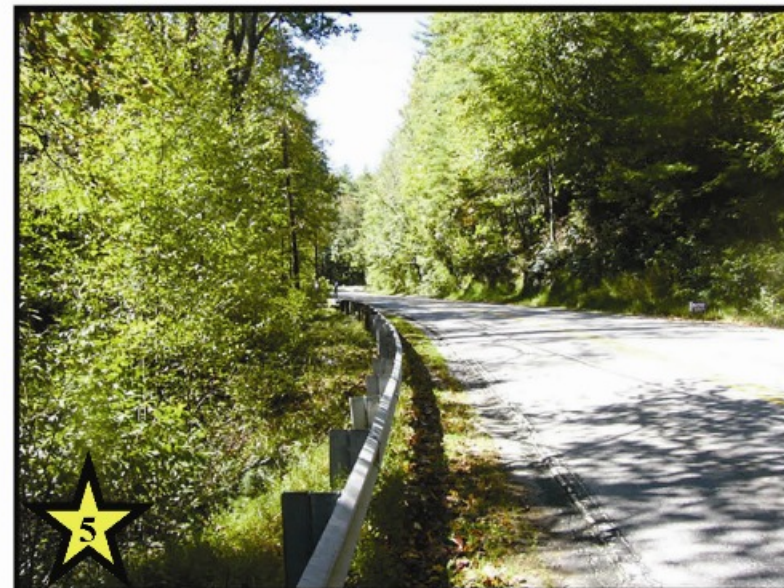
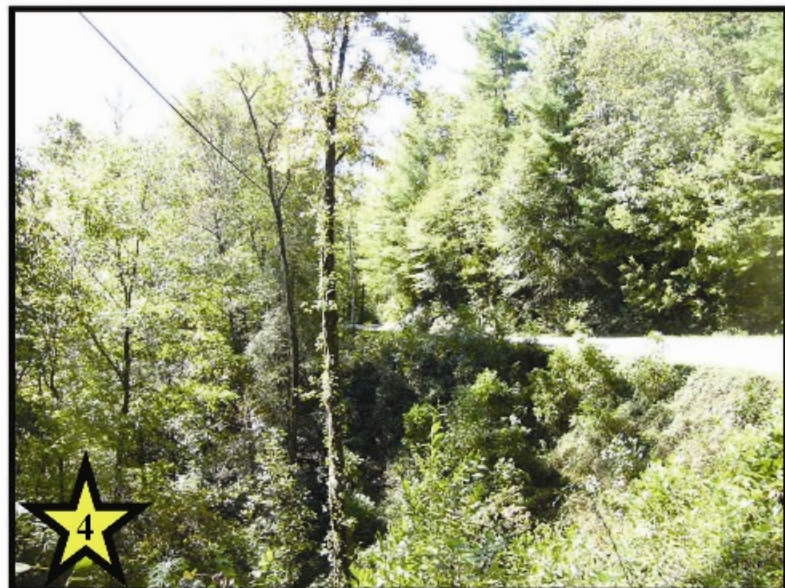
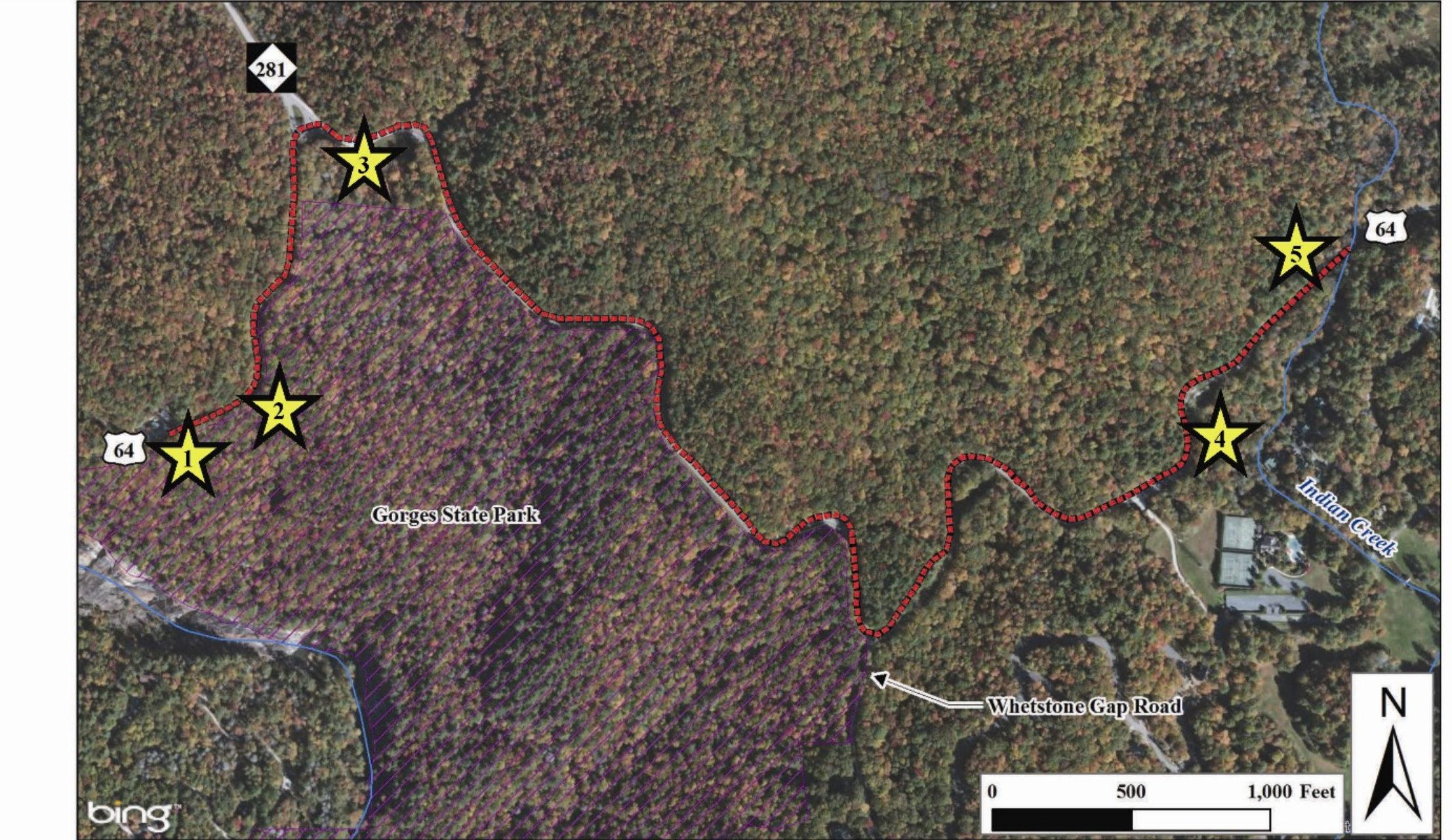


Figure 1 - Vicinity Map

- - - - - R-2409C
- Streams and Creeks
- ▨▨▨▨▨ Gorges State Park

Map Sources:
North Carolina Department of Transportation
North Carolina Division of Parks and Recreation
NC One Map
ICA Engineering, Inc.








	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION
Existing Roadway Conditions	
US 64 Safety Improvements Transylvania County	
Figure 2	



Figure 3A - Alternative 2

-  Right of Way (proposed)
-  Right of Way (existing)
-  Streams and Creeks
-  Proposed Paving
-  Gorges State Park

Map Sources:
North Carolina Department of Transportation
North Carolina Division of Parks and Recreation
NC One Map
Florence & Hutcheson, Inc.

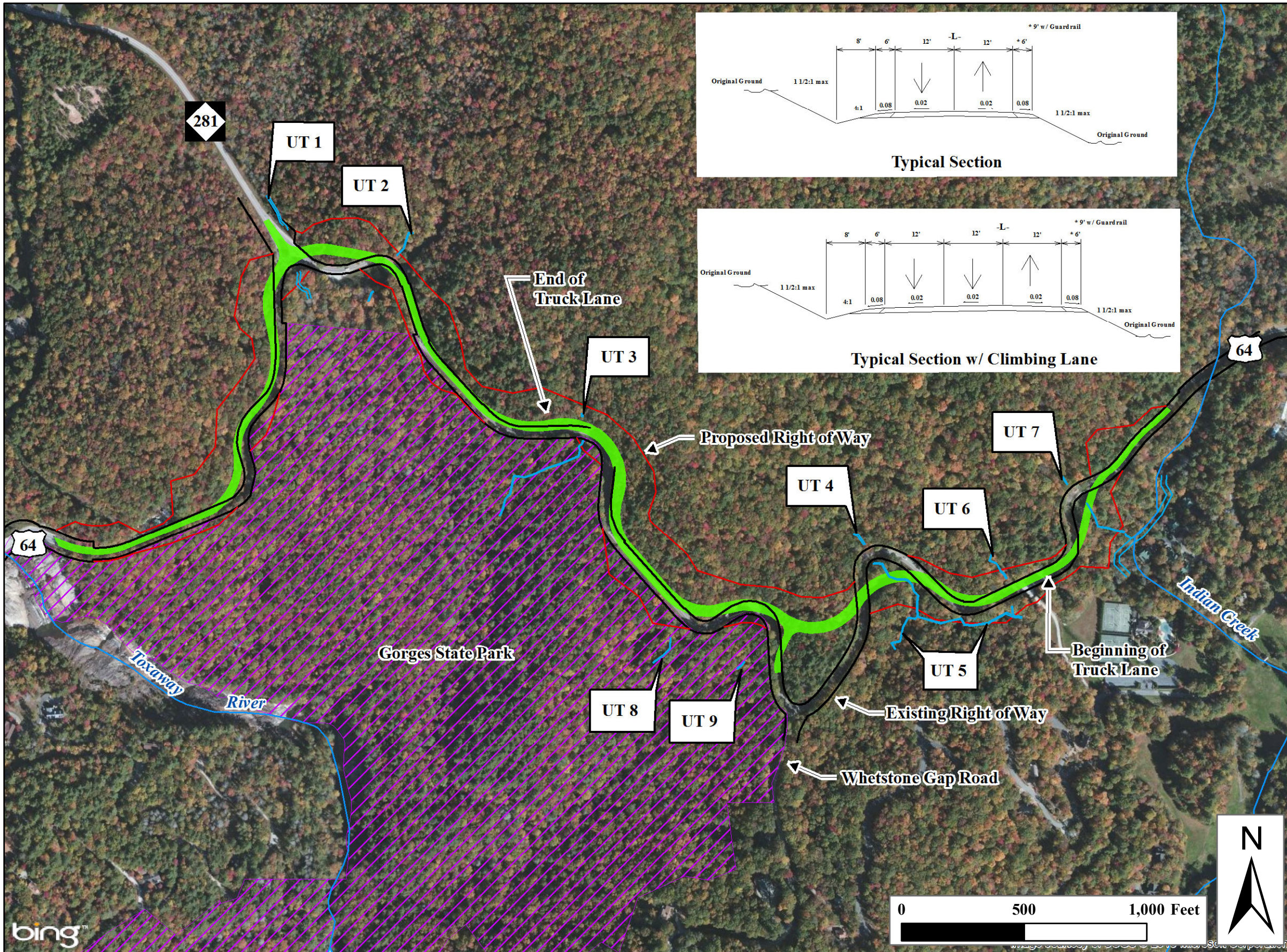
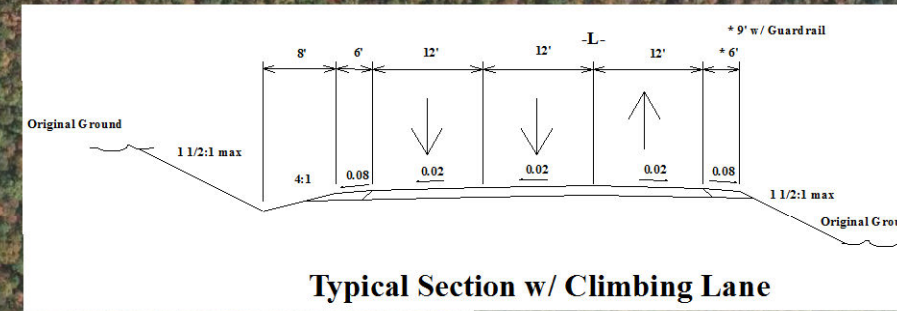
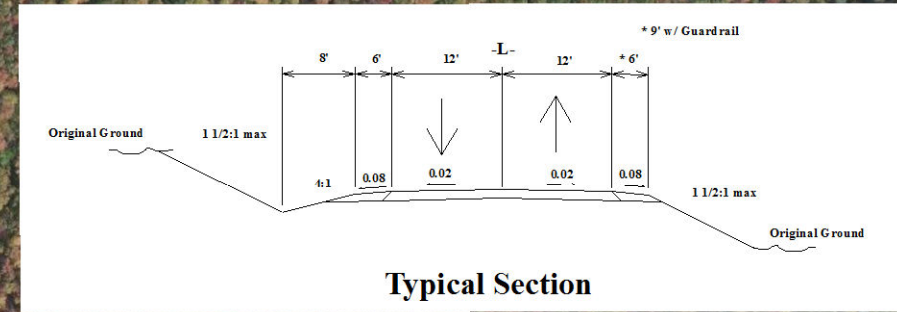
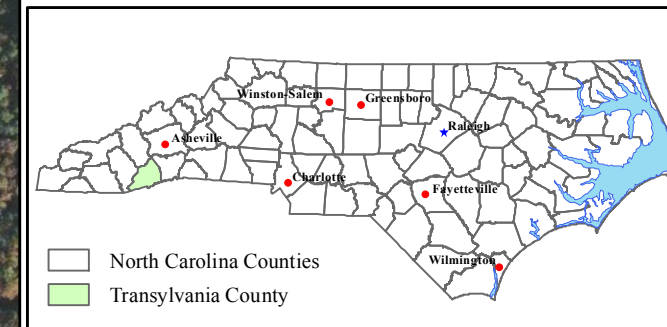
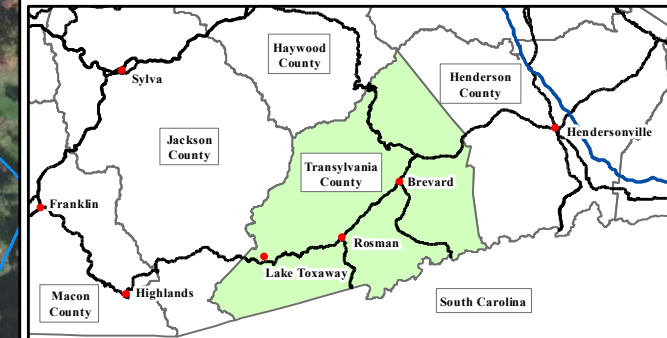





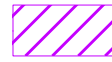
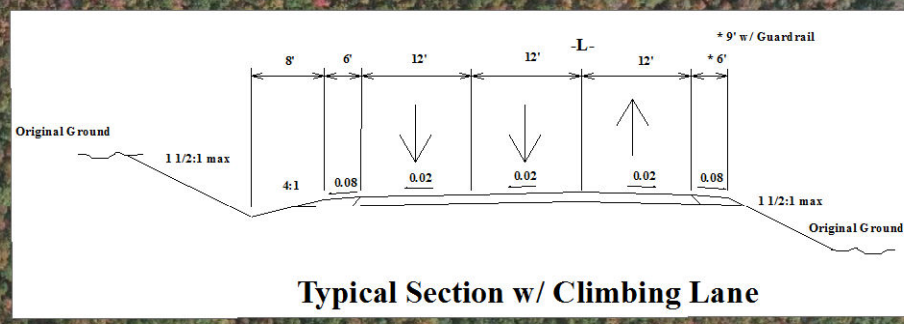
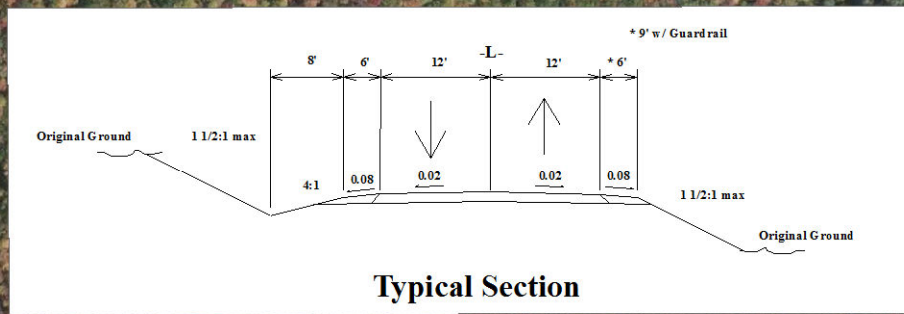
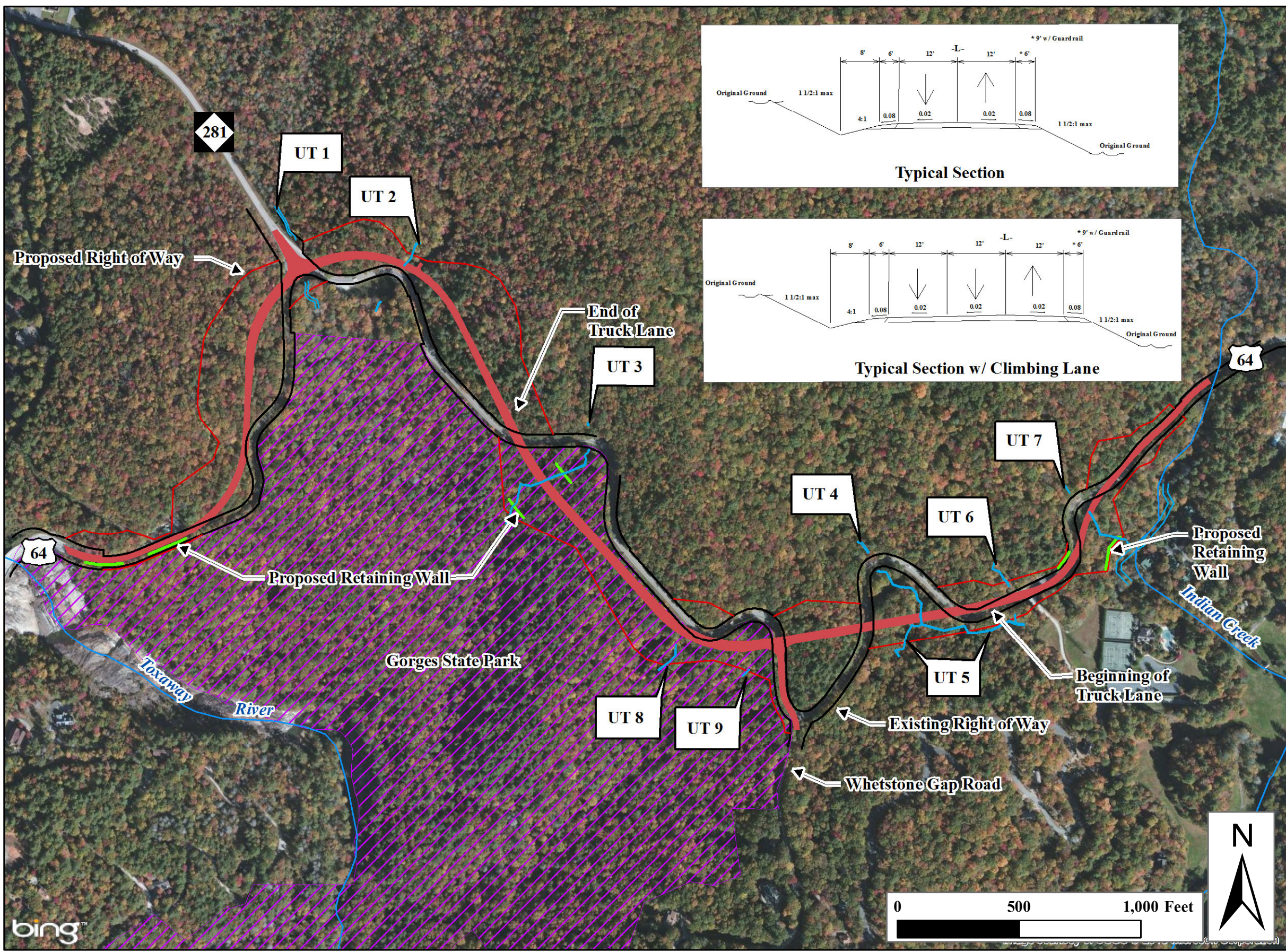


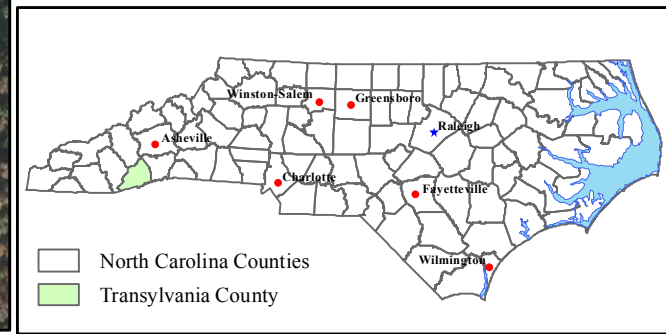
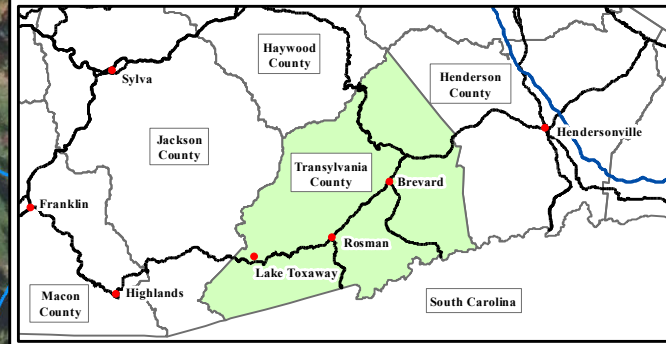


Figure 3B - Alternative 4

-  Right of Way (proposed)
-  Right of Way (existing)
-  Streams and Creeks
-  Proposed Retaining Wall
-  Proposed Paving
-  Gorges State Park



Map Sources:
North Carolina Department of Transportation
North Carolina Division of Parks and Recreation
NC One Map
Florence & Hutcheson, Inc.



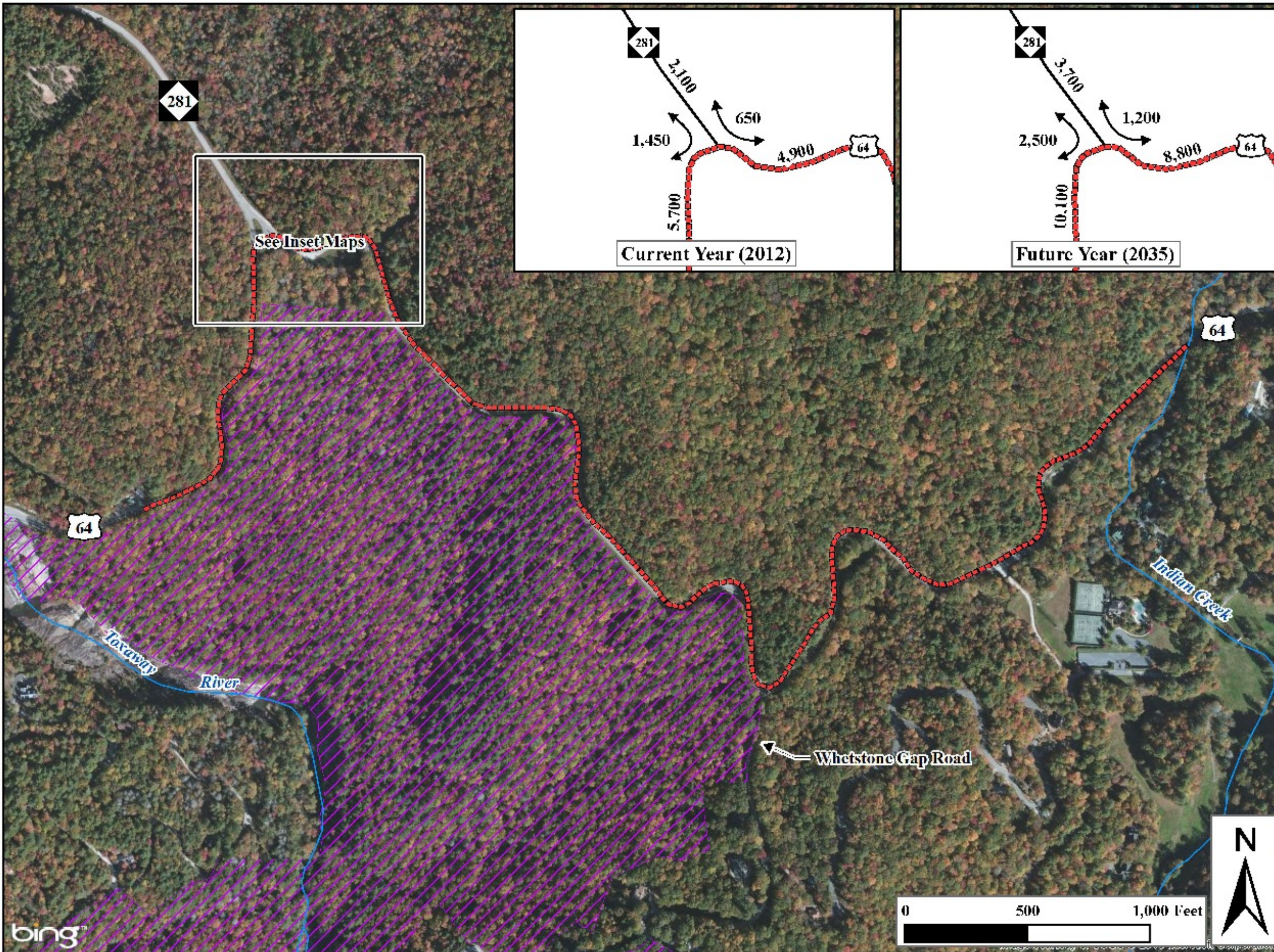
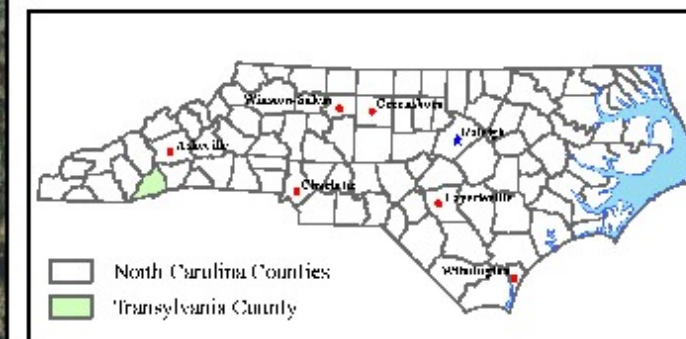


Figure 4 - Traffic Projections & Turning Movement Estimates

- R-2409C
- Streams and Creeks
- Gorges State Park

Map Sources:
North Carolina Department of Transportation
North Carolina Division of Parks and Recreation
NC One Map
TCA Engineering, Inc.



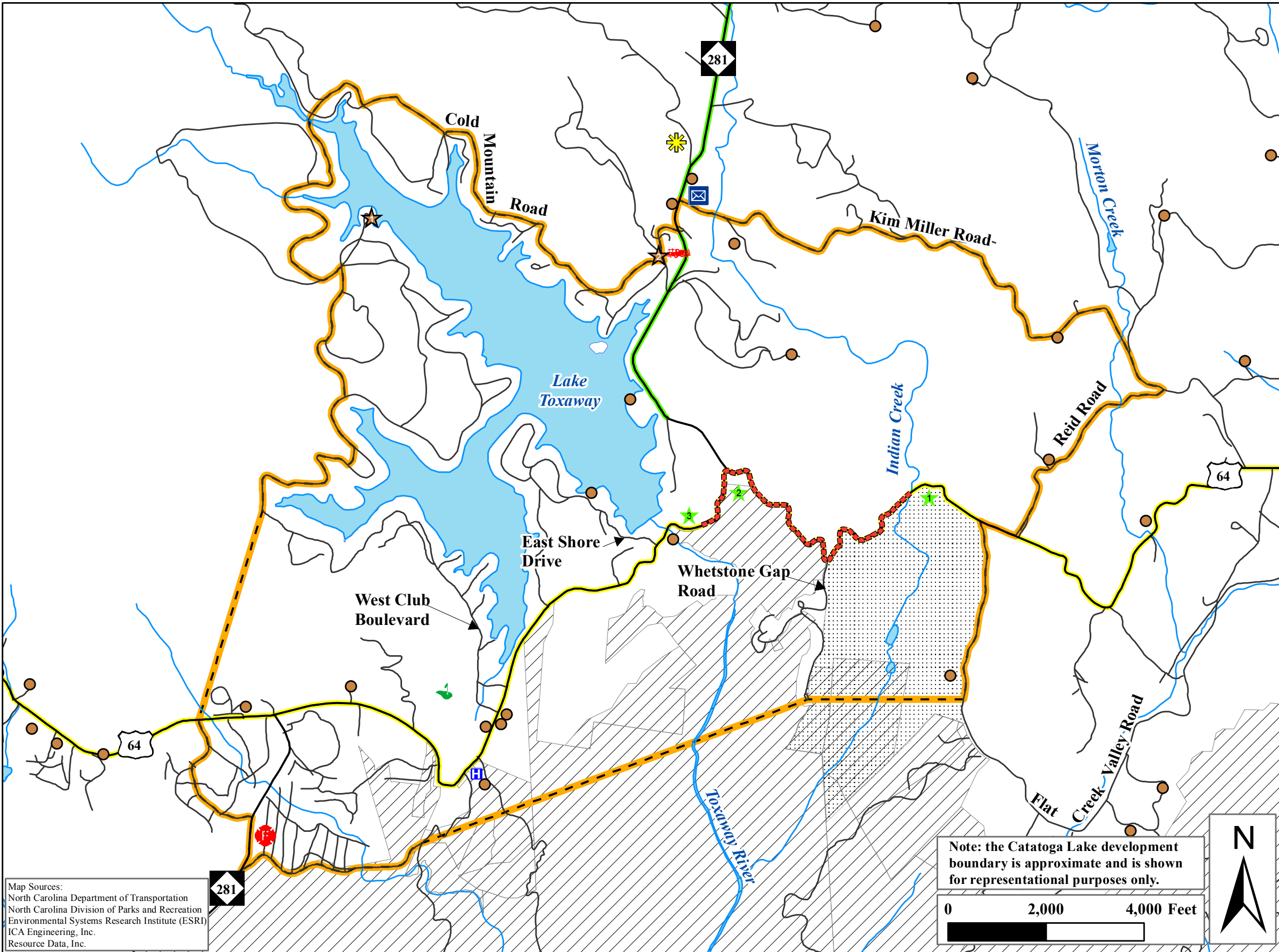
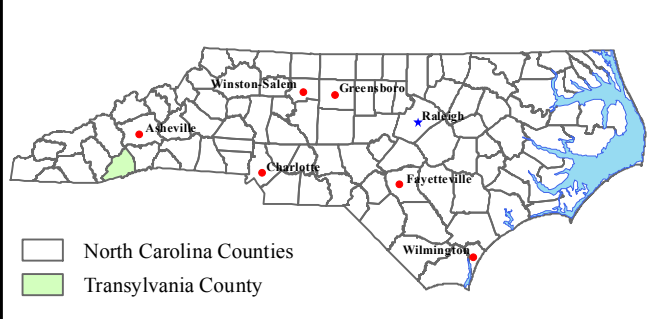
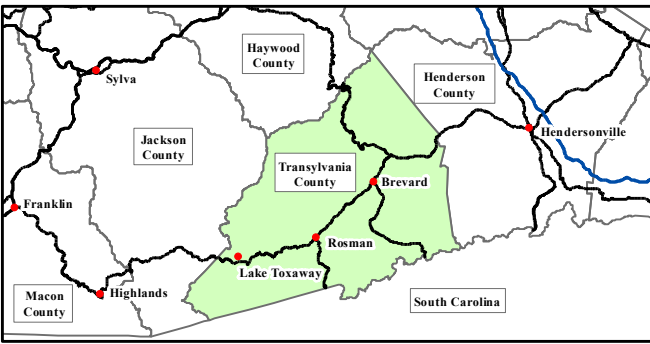


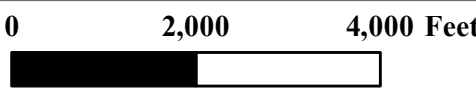
Figure 5 - Community Resources

- R-2409C
- Major Roads
- Roads
- Scenic Waterfall Byway
- Lake Toxaway Connector-Bike Route
- Streams and Creeks
- Water Bodies
- Direct Community Impact Area
- Gorges State Park
- Catatoga Lake
- Hillmont
- Lake Toxaway Methodist Church
- Local Historical Sites
- Lake Toxaway Fire Department
- Lake Toxaway Fire & Rescue
- Community Hospital
- Lake Toxaway United States Post Office
- Lake Toxaway Country Club
- Lake Toxaway Community Center
- Catatoga Lake Real Estate Sales Center
- Potential Seasonal Business
- Furniture / Craft Stand



Map Sources:
North Carolina Department of Transportation
North Carolina Division of Parks and Recreation
Environmental Systems Research Institute (ESRI)
ICA Engineering, Inc.
Resource Data, Inc.

Note: the Catatoga Lake development boundary is approximate and is shown for representational purposes only.



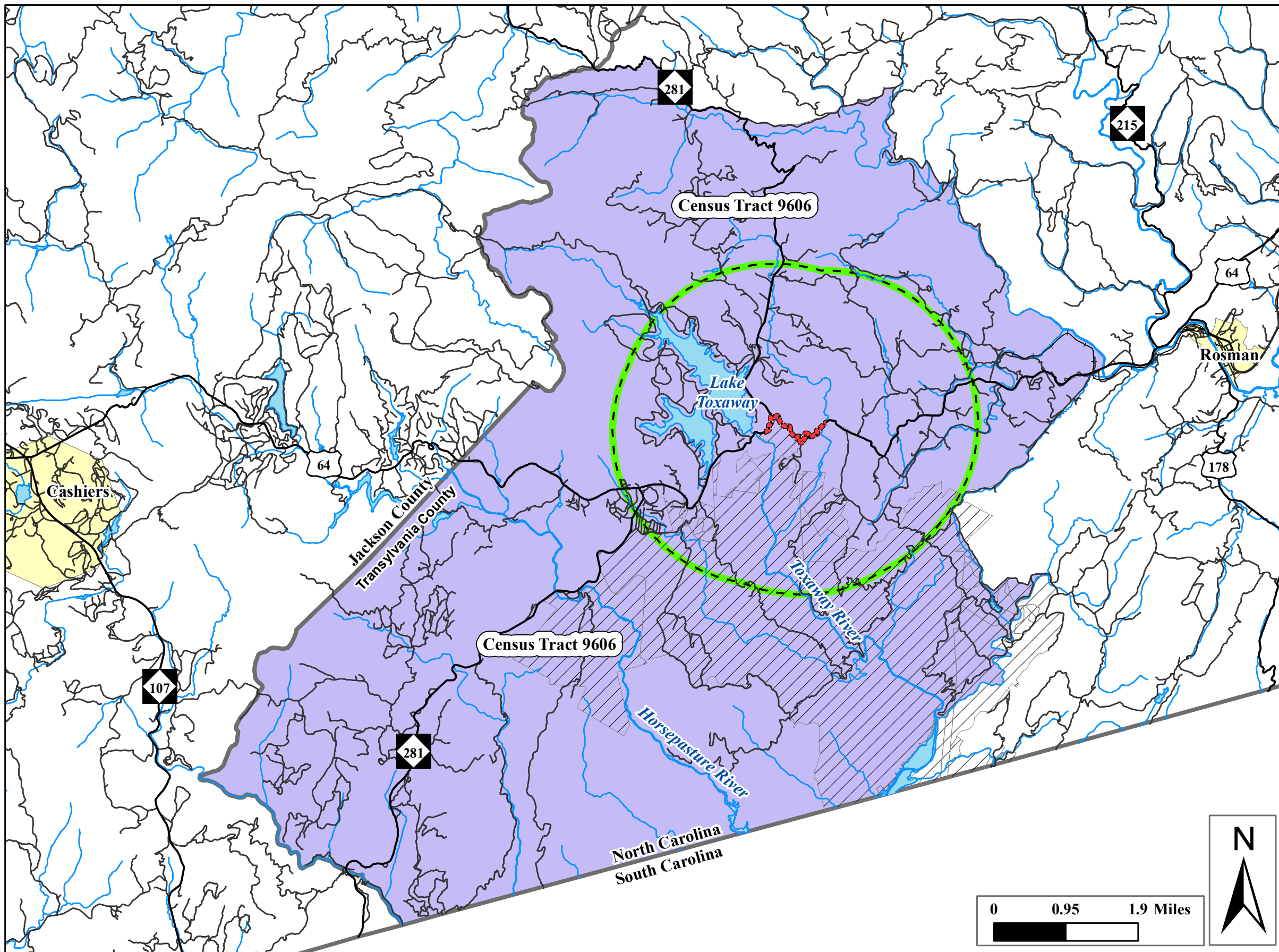
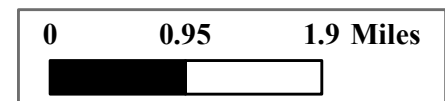
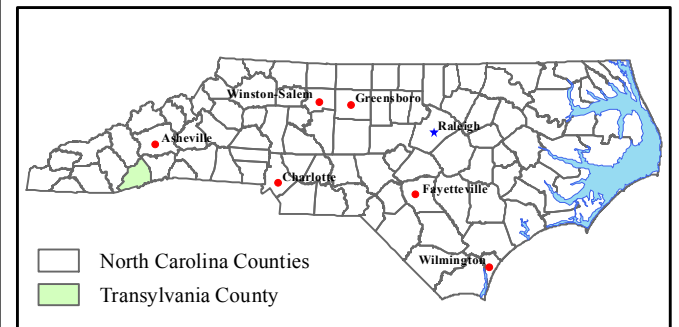
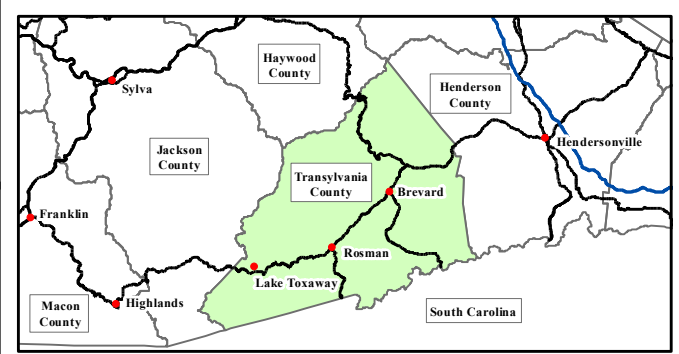


Figure 6 - Demographic & Indirect & Cumulative Effects Study Areas

- R-2409C
- Major Roads
- Roads
- Railroads
- Streams and Creeks
- Water Bodies
- Demographic Study Area
- Growth Impact Study Area (GISA)
- Gorges State Park
- Municipal Boundaries
- County Boundary and State Line

Map Sources:
North Carolina Department of Transportation
North Carolina Division of Parks and Recreation
Environmental Systems Research Institute (ESRI)
ICA Engineering, Inc.



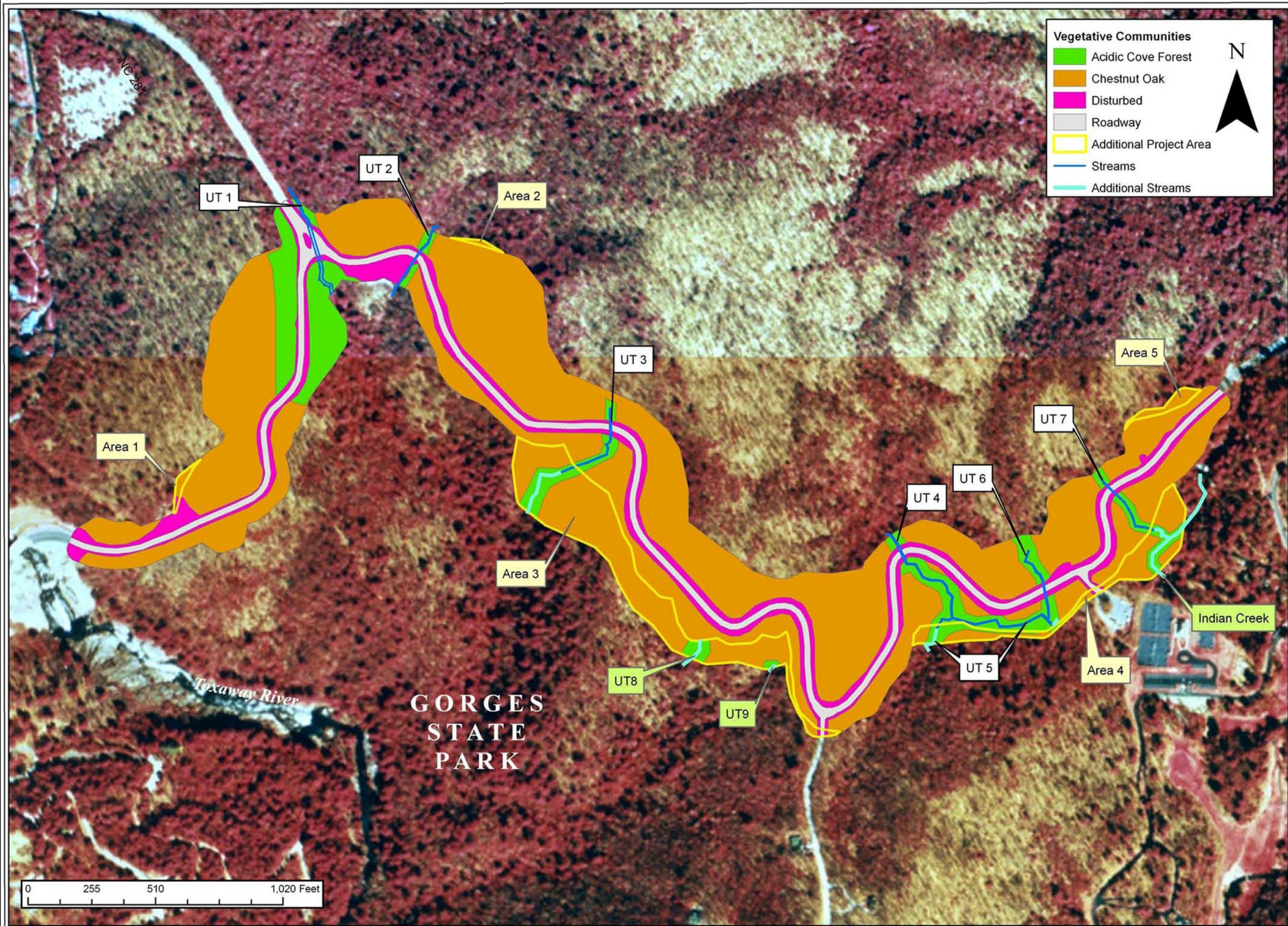
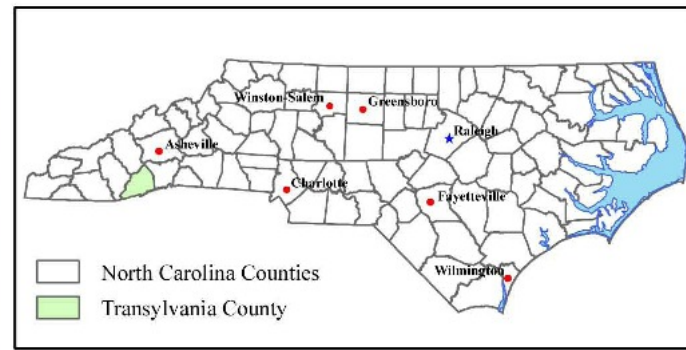
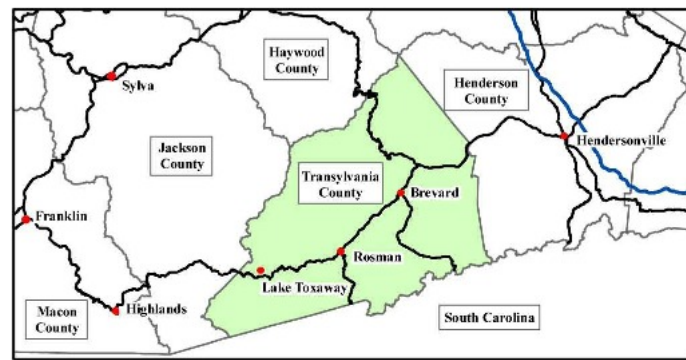


Figure 7 - Vegetated Communities

Map Source:
North Carolina Department of Transportation
ICA Engineering, Inc.
The Catena Group



APPENDIX



US 64

North Carolina Department of Transportation
Highway Division 14
Attn: Stephen Williams
253 Webster Road
Sylva, NC 28779

Address Label

US 64 Improvements

NCDOT proposes improvements to a 1.5-mile portion of US 64 from 0.3 mile west of NC 281 at Lake Toxaway to Indian Creek in Transylvania County. The project consists of straightening the roadway alignment, providing standard-width travel lanes and shoulders, and adding a westbound climbing lane. For more information about this project, contact:

Stephen Williams,
Design Construction Engineer
NCDOT Division 14
253 Webster Road
Sylva, NC 28779
828-586-2141
sjwilliams@ncdot.gov

Persons who speak Spanish and do not speak English, or have a limited ability to read, speak or understand English, may receive interpretive services upon request by calling 1-800-481-6494.



THIS ISSUE

- Project Description** p. 1
- Why Is It Needed?** p. 1
- The Environment** p. 1
- Contact Us** p. 1
- Alternatives** p. 2
- Project Schedule** p. 2

Project Description

The North Carolina Department of Transportation (NCDOT) proposes to improve a 1.5-mile portion of US 64 from 0.3 mile west of NC 281 at Lake Toxaway to Indian Creek in Transylvania County. The project consists of straightening the roadway alignment, providing standard-width travel lanes and shoulders, and adding a westbound climbing lane.

Why is it Needed?

This part of US 64 near Lake Toxaway has narrow lane and shoulder widths, many sharp curves, limited sight distance, and a design speed that is lower than the posted speed limits. Wide vehicles, such as tractor-trailer trucks, cross the road centerline into the opposing travel lane when moving through several sharp curves. The crash rates in the project area are higher than the average statewide crash rates for areas with similar road conditions. The purpose of the project is to improve safety and traffic flow by correcting roadway deficiencies and constructing a climbing lane to enable motorists to pass slower-moving cars or trucks.

Beginning with a Feasibility Study in 1989, NCDOT has been working to upgrade portions of US 64 between Cashiers in Jackson County and Rosman in Transylvania County. Some of the improvements have been completed under Projects R-2409A and R-2409B. Planning and design are nearly complete for R-2409C between Lake Toxaway and Indian Creek.

Planning and design are in progress for R-2409D to evaluate improving an adjoining 2.1-mile stretch of US 64 to the east between Indian Creek and Flat Creek Valley Road (SR 1147).

The Environment

NCDOT is evaluating the project's effects on the human and natural environment. The project is being designed in a way that it does not have an adverse effect on the human or natural environment. One notable resource in the area is Gorges State Park, located at the western end of the project on the south side of US 64. The park encompasses over 7,000 acres of rugged terrain in southwestern Transylvania County and is the only state park west of Asheville.

The Federal Highway Administration (FHWA) is considering a Section 4(f) de minimis determination for impacts to Gorges State Park. A 4(f) de minimis finding means that this project will have an impact on the resource, but that the FHWA, in consultation with NCDOT and the officials with jurisdiction over the resource, has made a preliminary determination that the impacts are so minor that they will not adversely affect the resource's character, activities, or attributes. The FHWA will consider public comments before making its final determination.



CONTACT US

For more information about this project, contact:

Stephen Williams,
Design Construction Engineer
NCDOT Division 14
253 Webster Road
Sylva, NC 28779
828-586-2141
sjwilliams@ncdot.gov

Please send your comments and questions by August 9, 2013. A comment form is enclosed for your use.

Maps displaying the location and design of the project are available on NCDOT's website at:

<http://www.ncdot.gov/projects/publicmeetings/>

The Environment (Continued)

Due to numerous curves and steep terrain, there is no feasible alternative that will avoid the park. The project would require permanent land and temporary construction easements from the park property (approximately 1.0 acre).

NCDOT proposes to reduce effects on water quality by strictly following erosion control methods during construction. Native, non-invasive plants will be used to stabilize the slopes after construction in the area of the park boundaries.

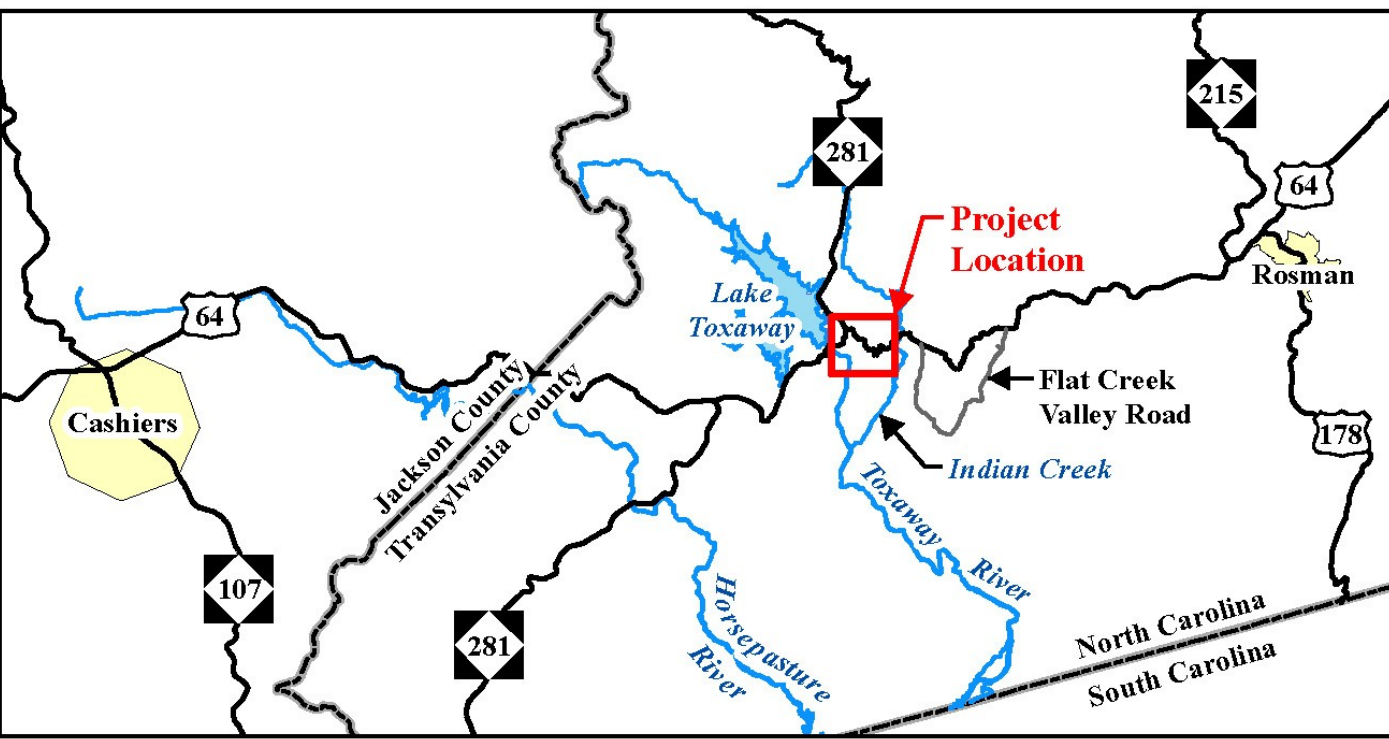
NCDOT will work with park officials to ensure the park's property boundaries directly join the highway right of way so that no private parcels remain in between.

Project Schedule

Environmental Document	Summer 2013
Right of Way Acquisition	Fall 2013
Construction	Late 2014

* Schedules are subject to funding.

US 64 Vicinity Map



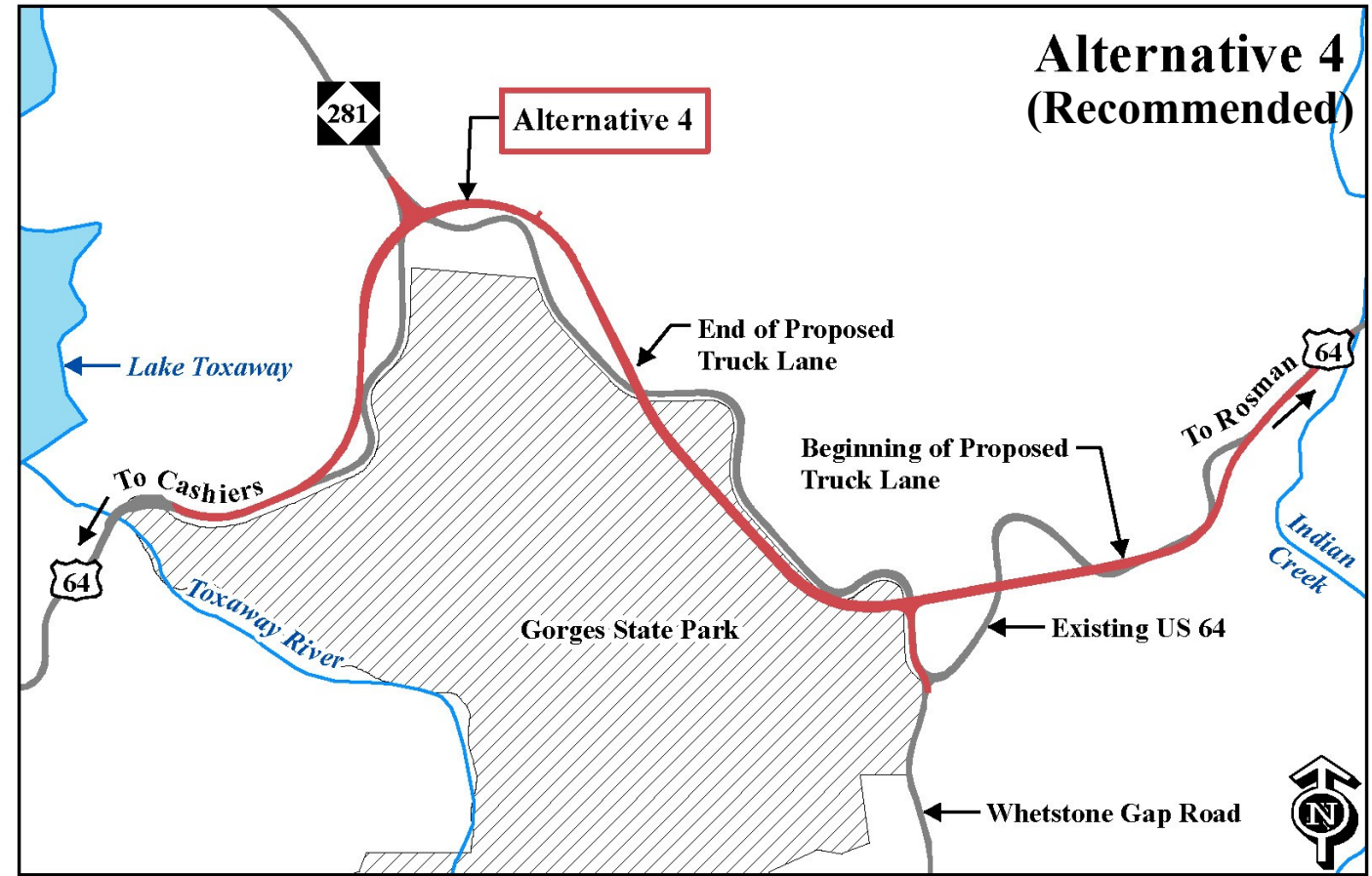
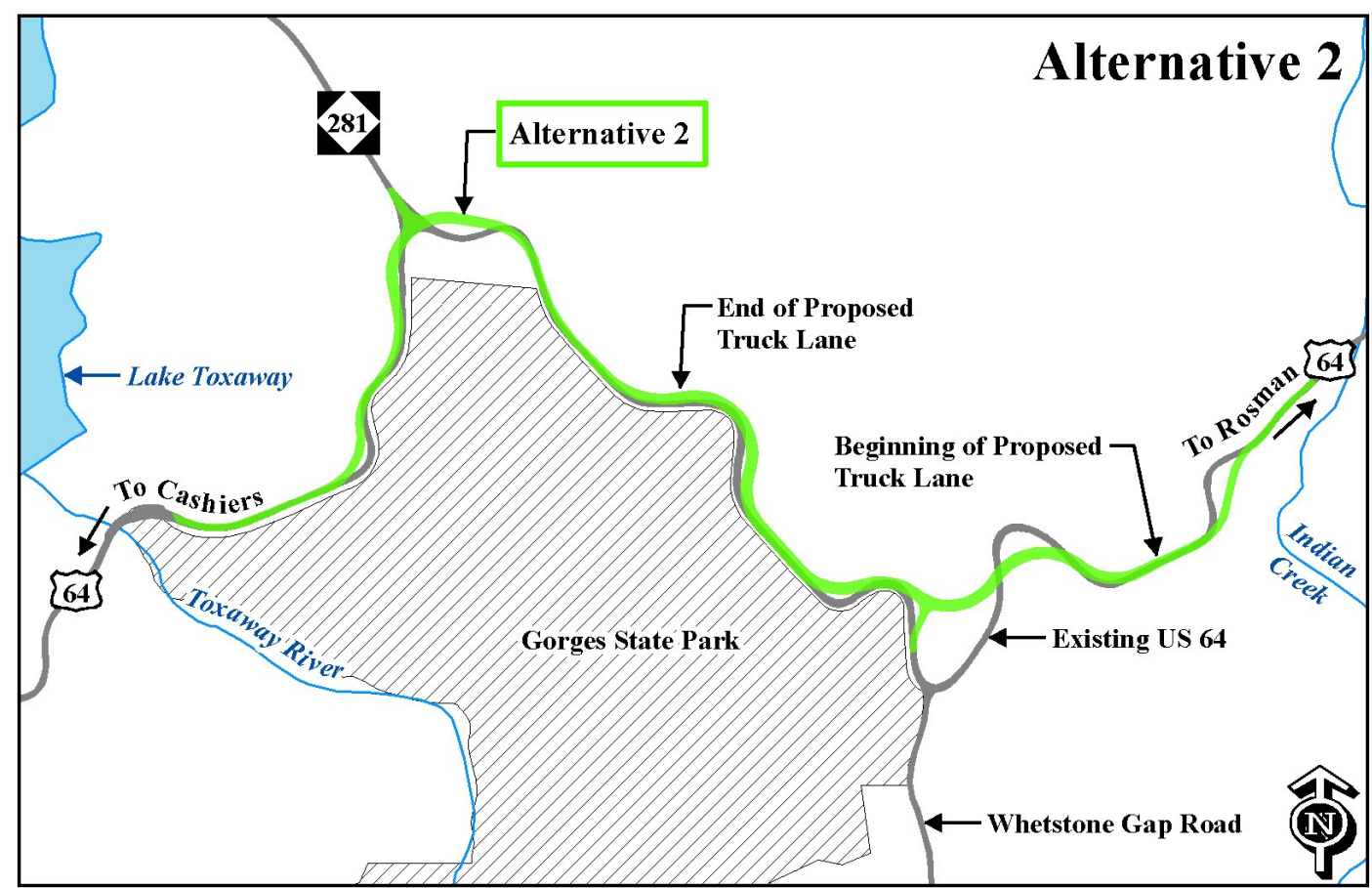
Alternatives

Four alternatives were evaluated early in the study. Two of these (Alternatives 1 and 3) were eliminated because of engineering factors or substantial environmental impacts. Alternatives 2 and 4 are being studied in detail because they have more desirable design features and impact fewer environmental resources.

Alternative 2 realigns portions of the roadway to provide flatter horizontal curves and achieves a minimum design speed of 30 mph.

Alternative 4 corrects more of the alignment, straightens curves, and increases the design speed to 40 mph.

Alternative 4 is recommended because it better meets the purpose of the project by correcting more alignment deficiencies, has a higher design speed, and has fewer disruptions to traffic during construction.



**COMMENT SHEET
US 64
From West of NC 281 at Lake Toxaway to Indian Creek**

TIP Project No. R-2409C

Transylvania County

NAME: _____
(please print)

ADDRESS: _____
(please print)

CITY: _____ STATE: _____ ZIP: _____

COMMENTS and/or QUESTIONS:

Please send your comments by August 9, 2013 to:
Stephen Williams, Design Construction Engineer
NCDOT Highway Division 14
253 Webster Road
Sylva, NC 28779
Phone: 828-586-2141
Email: sjwilliams@ncdot.gov



**Stephen Williams,
Design Construction Engineer
NCDOT Highway Division 14
253 Webster Road
Sylva, NC 28779**



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

October 24, 2013

Ms. Deborah Barbour, P.E.
North Carolina Department of Transportation
Project Development and Environmental Analysis Unit
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Ms. Barbour:

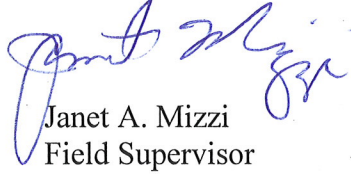
Subject: Endangered Species Concurrence for the Proposed Construction of North Carolina
Department of Transportation Project R-2409C - Improvement to US 64 from West of
NC 281 to Indian Creek, Transylvania County, North Carolina

On September 17, 2013, we received your letter (via email) requesting section 7 concurrence on effects the subject bridge project may have on the federally threatened small whorled pogonia (*Isotria medeoloides*). The following comments are provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

Your concurrence request letter states that the small whorled pogonia is present adjacent to the existing right-of-way and could be affected by some of the project alternatives. It appears that the selection of the recommended alternative, plus the addition of a retaining wall to avoid a cut slope which may have affected small whorled pogonia habitat, will allow for the avoidance of all known small whorled pogonias at this site. With these conservation measures, we believe the probability that there will be negative effects to the species is low and concur with your biological conclusion of may affect, not likely to adversely affect. Therefore, we believe the requirements under section 7(c) of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

If we can be of assistance or if you have any questions about these comments, please contact Mr. Jason Mays of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-07-001.

Sincerely,

A handwritten signature in blue ink, appearing to read "Janet Mizzi".

Janet A. Mizzi
Field Supervisor



North Carolina Department of Cultural Resources
State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
 Lisbeth C. Evans, Secretary
 Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
 Division of Historical Resources
 David Brook, Director

January 4, 2007

MEMORANDUM

TO: Matt Wilkerson, Archaeology Supervisor
 Division of Highways
 North Carolina Department of Transportation

FROM: Peter Sandbeck *PBS for Peter Sandbeck*

SUBJECT: Safety Improvements to US 64, TIP R-2409C, Transylvania County, ER 05-2705

Thank you for your letter transmitting the archaeological survey report by TRC Garrow Associates, Inc. for the above project. The report meets our guidelines and those of the Secretary of the Interior.

During the course of the survey, no sites were located within the project area. The report authors have recommended that no further archaeological investigation be conducted in connection with this project. We concur with this recommendation since the project will not involve significant archaeological resources.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763 ext. 246. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Paul Webb, TRC Garrow Associates; Inc.

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-4763/733-8653
RESTORATION	515 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-6547/715-4801
SURVEY & PLANNING	515 N. Blount Street, Raleigh, NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-6545/715-4801



FILE COPY

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 11, 2006

Mr. Peter Sandbeck, Deputy SHPO
Historic Preservation Office
4617 Mail Service Center
Raleigh, North Carolina 27699-4617

Dear Mr. Sandbeck:

Subject: Archaeological Survey for Three Alternatives for Improvements to US 64,
Transylvania County, North Carolina. TIP Project R-2409C; WBS #34428.1.1;
ER 05-2705.

Enclosed are two copies of the technical report prepared by our consultant, TRC Garrow Associates, Inc, after completing the archaeological investigations of the referenced project. This work was done in compliance with Section 106 of the National Historic Preservation Act and the guidelines issued by the Advisory Council on Historic Preservation. No archaeological sites were identified. No further work is recommended. We request your concurrence on these recommendations.

Any questions regarding the report findings should be directed to Mr. Jesse Zinn, at (919) 715-1554.

Sincerely,

Matthew T. Wilkerson, Archaeology Supervisor
Human Environment Unit

MTW/jdz

Enclosures (2 copies of technical report)

cc: Clay Oliver (Ko & Associates)
John F. Sullivan, III (FHWA)



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

TO: Paul R. White, PE
Design Construction Engineer, Division 14

FROM: Courtney Foley, Historic Architecture Group *CF*

SUBJECT: TIP Project No R-2409C, Transylvania County

DATE: 14 June 2006

CC: Brian Wiles, PE, Ko & Associates, P. C.
Project File

Attached is a signed concurrence form which states that NCDOT and HPO, agree that:

- There are no properties over fifty years old within the project's Area of Potential Effects (APE).
- There are no National Register-listed properties within the project's area of potential effects.

Since there are no historic properties within the proposed project area, compliance with Section 106 of the National Historic Preservation Act for historic architecture is complete. Please notify us in writing if the scope of this project changes. A change in scope may necessitate a new survey of the APE.

Federal Aid #

TIP# **R-2409C**

County: **Transylvania**

**CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR
THE NATIONAL REGISTER OF HISTORIC PLACES**

Project Description: **Upgrading 1.5 miles of US 64 from 0.3 miles west of NC 281 to Indian Creek**

On **13 June 2006** representatives of the

- North Carolina Department of Transportation (NCDOT)
- Federal Highway Administration (FHWA)
- North Carolina State Historic Preservation Office (HPO)
- Other

Reviewed the subject project at

- Scoping meeting
- Historic architectural resources photograph review session/consultation
- Other

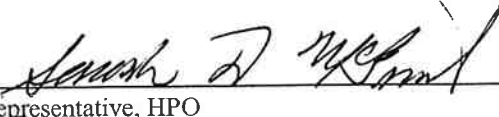
All parties present agreed

- There are no properties over fifty years old within the project's area of potential effects.
Note: The Chapman House (TV 172) is outside of the project APE
- There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the properties identified as _____ are considered not eligible for the National Register and no further evaluation of them is necessary.
- There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

 _____ **13 JUNE 2006**
 Representative, NCDOT Date

 FHWA, for the Division Administrator, or other Federal Agency Date

 _____ **6/13/06**
 Representative, HPO Date

 _____ **6-13-06**
 State Historic Preservation Officer Date



North Carolina Department of Cultural Resources
State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

February 6, 2006

Brian Wiles, PE
Ko & Associates, P. C.
1011 Schaub Drive, Suite 202
Raleigh, NC 27606

Re: Safety Improvements to US 64, TIP R-2409C, Transylvania County, ER 05-2705

Dear Mr. Wiles:

Thank you for your letter concerning the above project. We apologize for the delay in our response.

We conducted a search of our maps and files and located the following structures of historical or architectural importance within the general area of this project:

(TV 135) Toxaway River Bridge, US HWY 64 at Toxaway Falls 1.8 mile W of SR 1147.
(TV 172) Chapman House, N side US HWY 64 0.4 mile W of junction with SR 1317.

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area and report the findings to us.

The project area is at, or in close proximity to a previously recorded archaeological site, TCAS 224 (temporary site number). The project area has never been systematically surveyed to determine the location or significance of archaeological resources. Based on the topographic and hydrological situation, there is a high probability for the presence of prehistoric or historic archaeological sites.

We recommend that a comprehensive survey be conducted of by an experienced archaeologist to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. The archaeological survey should focus on the eastern terminus of the project area near TCAS 224, and the portion of the project area with slopes of fifteen percent or less. Potential effects on unknown resources must be assessed prior to the initiation of construction activities.

Two copies of the resulting archaeological survey report, as well as one copy of the appropriate site forms, should be forwarded to us for review and comment as soon as they are available and well in advance of any construction activities.

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-4763/733-8653
RESTORATION	515 N. Blount Street, Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-6547/715-4801
SURVEY & PLANNING	515 N. Blount Street, Raleigh, NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919)733-6545/715-4801

A list of archaeological consultants who have conducted or expressed an interest in contract work in North Carolina is available at www.arch.dcr.state.nc.us/consults. The archaeologists listed, or any other experienced archaeologist, may be contacted to conduct the recommended survey.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



Peter Sandbeck

cc: Matt Wilkerson, NCDOT
Mary Pope Furr, NCDOT



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

December 7, 2005

Mr. Brian Wiles
KO & Associates, P.C.
1011 Schaub Dr., Suite 202
Raleigh, NC 27606

Subject: US 64 – Safety Improvements and Climbing Lanes from Lake Toxaway to Indian Creek;
Transylvania County
Project R-2409C

Dear Mr. Wiles:

The Natural Heritage Program database shows that the property boundary of Gorges State Park extends north to the southern alignment of US 64 in the project area (see enclosed map). Much of the area south of the highway is also part of the Nationally significant state park as well as a site named Toxaway River Gorge by our Program, also of National significance. Though two rare species are mapped just south of the highway near the Toxaway River, as shown by a dot on the enclosed map, these species are not likely present now at that specific location. Alexander's rock aster (*Eurybia avita*) was reported a few decades earlier, though experts have questioned the identity of the species. The green salamander (*Aneides aeneus*), a State Endangered species, was reported from the gorge in 1967 near US 64 but has not been found there recently, though there are many other locations for the species currently known in the state park farther to the south. Thus, this species potentially could be present in the study area, if there are vertical, shaded, damp rock faces.

Because of the presence of State Park land on the south side of the road, we strongly encourage any road widening and other alterations to US 64 be done along the north side of the road. In addition, as the Toxaway River is part of a State significant aquatic habitat identified by our Program as the Savannah River Headwaters Aquatic Habitat (due to the presence of several rare fishes limited in the state just to these Savannah River drainage streams), it is imperative that sedimentation be avoided to the Toxaway River and its tributaries, both for natural heritage and for aesthetic reasons.

You may wish to check the Natural Heritage Program database website at www.ncsparks.net/nhp/search.html for a listing of rare plants and animals and significant natural communities in the county and on the topographic quad map. Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

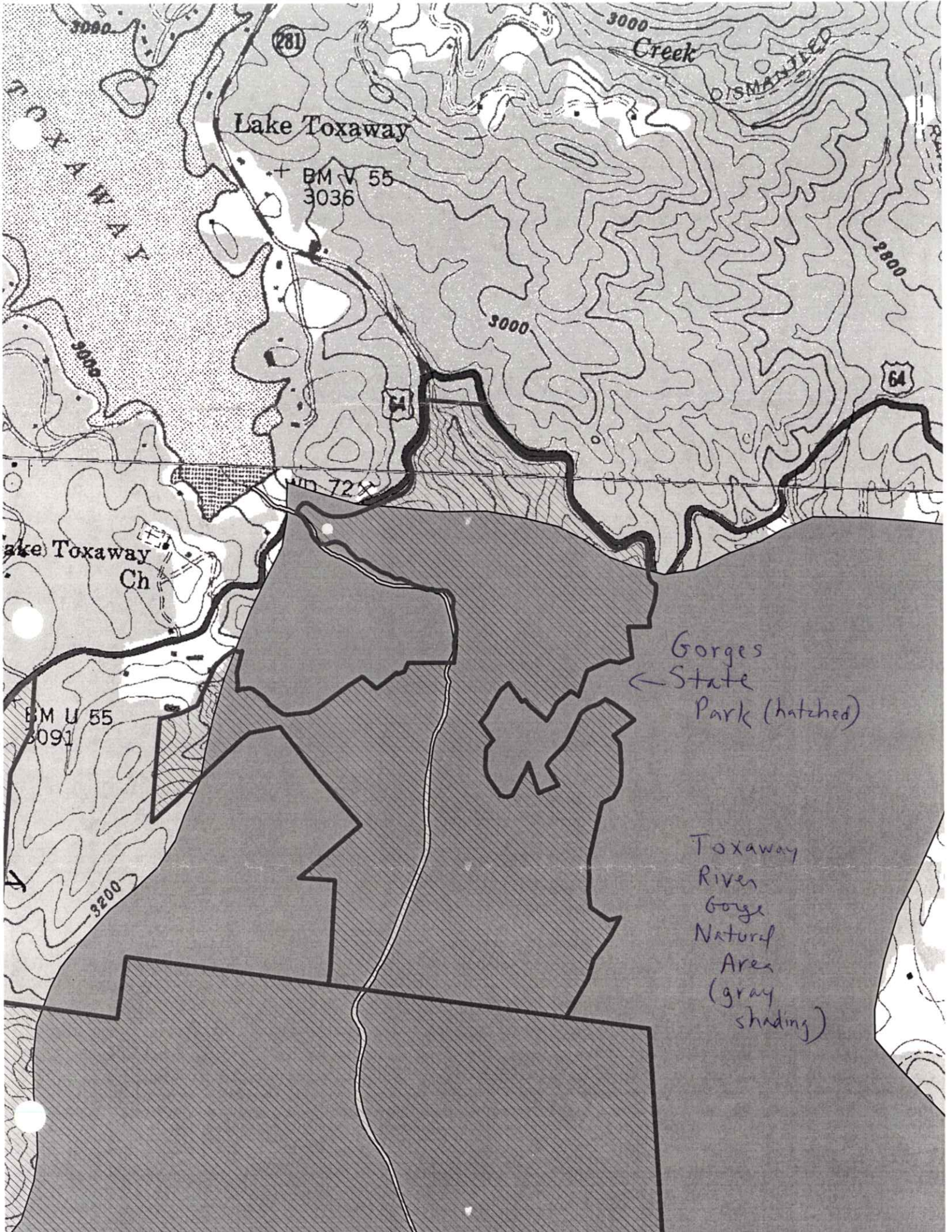
Sincerely,

A handwritten signature in blue ink that reads "Harry E. LeGrand, Jr." with a stylized flourish at the end.

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

cc: Carol Tingley, Chief, Planning and Natural Resources, NC Div. of Parks and Recreation
Steve Pagano, Superintendent, Gorges State Park

Enclosure



Lake Toxaway

+ BM V 55
3036

Creek

DISMANTLED

TOXAWAY

3000

2800

64

72X

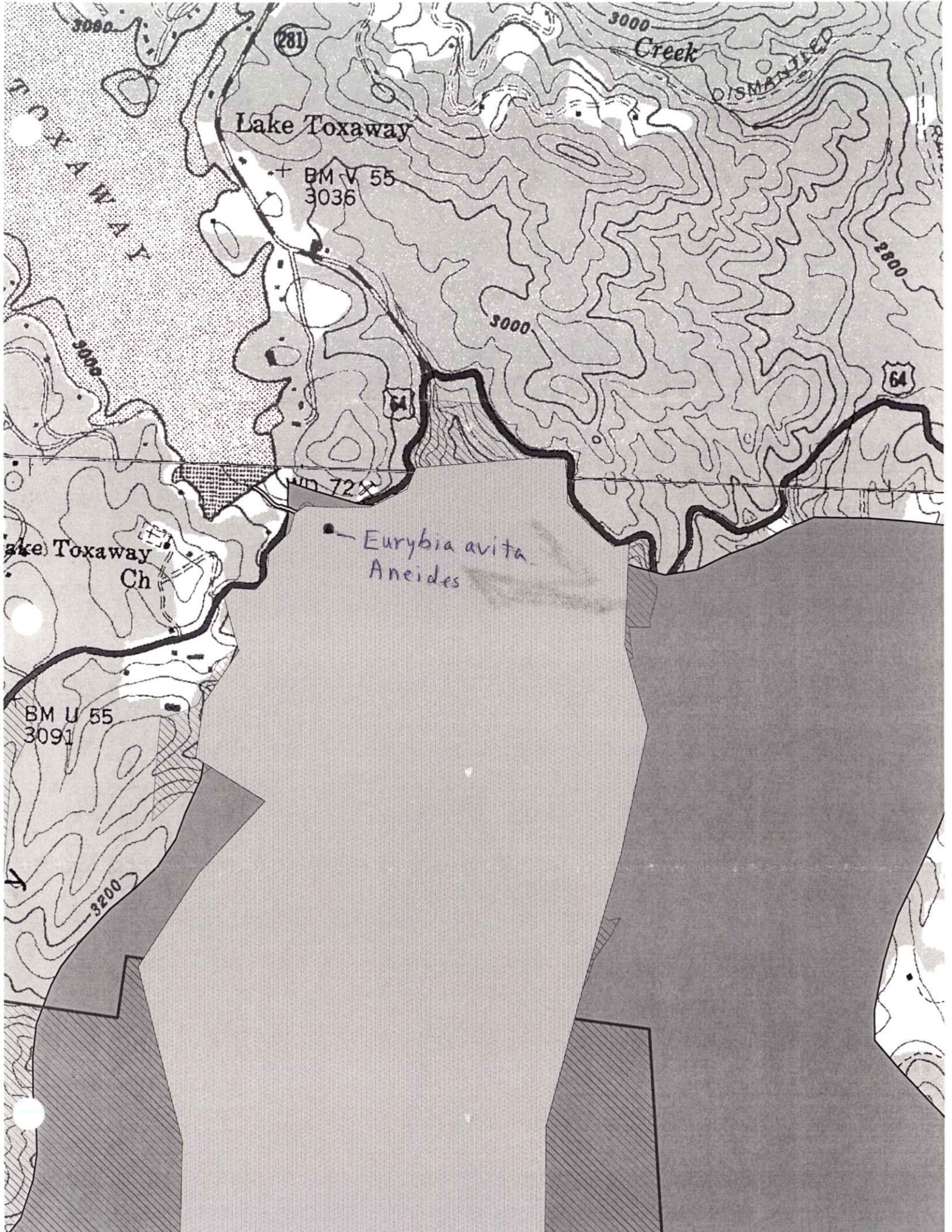
Lake Toxaway
Ch

BM U 55
3091

Gorges
← State
Park (hatched)

Toxaway
River
Gorge
Natural
Area
(gray
shading)

3200



Lake Toxaway

+ BM V 55
3036

Creek

DISMANTLED

TOXAWAY

64

3000

2800

3000

72

Lake Toxaway
Ch

• Eurybia avita
Aneides

BM U 55
3091

3200



December 28, 2005

MEMORANDUM

To: Brian Wiles, PE, Project Manager, KO& Associates, PC,
1011 Schaub Dr., Suite 202, Raleigh, NC 27606

From: Brian L. Wrenn, Transportation Permitting Unit, NCDWQ *BW*

Subject: Request for Scoping Comments for the Proposed Safety Improvements and Climbing Lanes from Lake Toxaway to Indian Creek in Transylvania County, TIP Project No. R-2409C.

This office has reviewed the referenced document. The Division of Water Quality (DWQ) is responsible for the issuance of the Section 401 Water Quality Certification for activities that impact Waters of the U.S., including wetlands. Based on a preliminary review of the project study area, tributaries, wetlands and riparian buffers associated with the following named streams could be impacted by the proposed project:

Stream Name	River Basin	Stream Classification	Stream Index Number
Toxaway River	Savannah	C	4-(4)
Indian Creek	Savannah	C; Tr	4-5-(3)

DWQ has the following comments:

Project Specific Comments:

1. Any temporary or permanent impacts that would be associated with this project could potentially require a 404 permit and a 401 Water Quality Certification. The Army Corps of Engineers will make the determination for the type of permit required. DWQ would issue a corresponding 401 Water Quality Certification for the impacts based on a complete and accurate application.
2. DWQ has concerns regarding the potential for acidic rock in the project corridor. Pre-construction geotechnical testing should be conducted for the presence of acidic rock. If any acidic rock is found, efforts should be made to avoid and minimize disturbance of these areas. As part of the 401 Water Quality Certification, DWQ will require a treatment and mitigation plan for handling and disposing of acidic rock.
3. Indian Creek are Class C; Tr waters of the State. DWQ recommends that the most protective sedimentation and erosion control BMPs be implemented to reduce the risk of turbidity violations in trout waters. In addition, all disturbances within trout buffers should be conducted in accordance with NC Division of Land Resource and NC Wildlife Resources Commission requirements.
4. Stormwater should not be permitted to discharge directly into streams or surface waters. Stormwater should be directed in to site-appropriate control measures such as, grassed swales, pre-formed scour holes, vegetated buffers, etc.

General Comments:

1. DWQ prefers spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation is required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506 (h)(3)}, the NC Ecosystem Enhancement Program may be available for use as stream mitigation. A discussion of potential mitigations strategies should be included in the EA.
3. Bridge deck drains should not discharge directly into the stream. Stormwater should be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to NCDOT Best Management Practices for the Protection of Surface Waters
4. Live concrete should not be allowed to contact the water in or entering into the stream. Concrete is mostly made up of lime (calcium carbonate) and when in a dry or wet state (not hardened) calcium carbonate is very soluble in water and has a pH of approximately 12. In an unhardened state concrete or cement will change the pH of fresh water to very basic and will cause fish and other macroinvertebrate kills.
5. Sedimentation and erosion control measures sufficient to protect water resources must be implemented prior to any ground disturbing activities. Structures should be *maintained regularly*, especially following rainfall events.
6. Bare soil should be stabilized through vegetation or other means as quickly as feasible to prevent sedimentation of water resources.
7. Sediment and erosion control measures should not be placed in wetlands.
8. Borrow/waste areas should avoid wetlands to the maximum extent practicable. Impacts to wetlands in borrow/waste areas could precipitate compensatory mitigation.
9. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.
10. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
11. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, to minimize the need for clearing, and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should **not** be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Brian Wrenn 919-733-5715.

pc: Angie Pennock, USACE Asheville Field Office
Mike Parker, NCDWQ, Asheville Regional Office
Chris Militscher, USEPA
Marla Chambers, NCWRC
Marella Buncick, USFWS
File Copy



North Carolina Department of Environment and Natural Resources
State Parks and Recreation

Michael F. Easley, Governor

William G. Ross Jr., Secretary

Lewis R. Ledford, Director

December 19, 2005

Mr. Brian Wiles
KO & Associates, P.C.
1011 Schaub Dr., Suite 202
Raleigh, NC 27606

Dear Mr. Wiles,

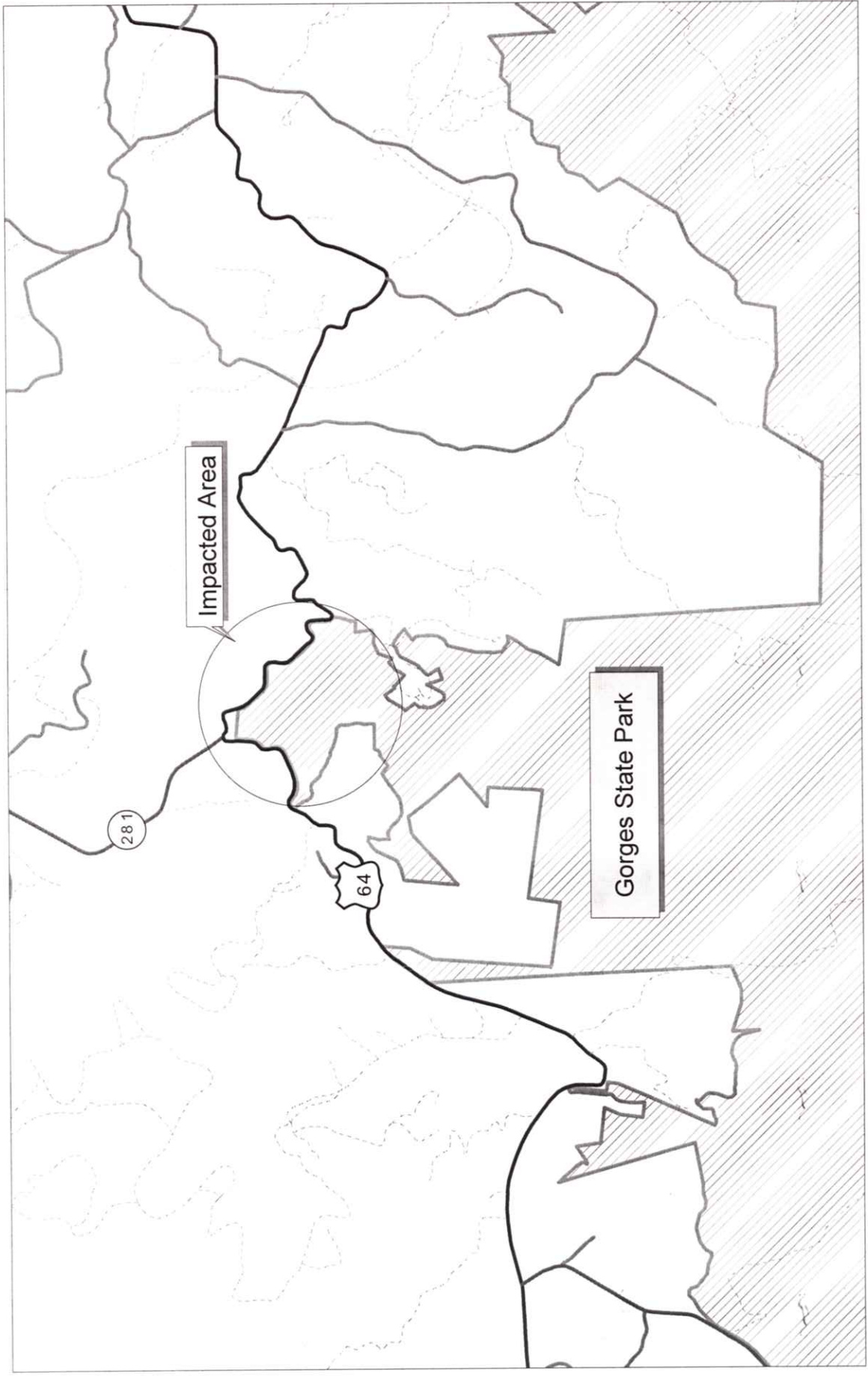
Thank you for your letter, dated 11/15/05, informing our Division of NC DOT's plans to improve US 64 in Transylvania County, in the vicinity of Gorges State Park. From the map provided us, it appears this project has the potential to impact state park property in the form of right-of-way (ROW) needed to widen the road (see attached map).

In order for the Division to grant a ROW easement to DOT across state park property, the affected land needs to be removed from the State Parks System through legislative action. Therefore, approximate projections of state park acreage needed for the US 64 project are needed well in advance of actual construction.

If you have additional questions or need more information, please feel free to contact me in the Division's land protection office at 919-715-8701 or by email at amy.e.james@ncmail.net.

Sincerely,

Amy James
Land Protection Specialist



0 2000 4000 6000 Feet



State Parks Unit

Gorges State Park

Division of Parks and Recreation
December 2005

August 9, 2006

Ms. Susan Regier
Land Protection Program
DENR Division of Parks and Recreation
1615 Mail Service Center
Raleigh, North Carolina 27699-1615

Dear Ms. Regier:

SUBJECT: US 64, Safety Improvements and Climbing Lanes from Lake Toxaway to Indian Creek, Transylvania County, North Carolina, TIP No. R-2409C;

Thank you for meeting with NCDOT and Ko & Associates staff on June 12, 2006 to discuss the planned safety improvements on US 64 in Transylvania County (see attached meeting summary). These improvements focus on the portion of US 64 from Lake Toxaway to Indian Creek, a distance of about 1.5 miles (TIP Project R-2409C). We discussed three alternatives that are being considered to upgrade and straighten the roadway, where possible, to provide wider travel lanes and shoulders, and add a westbound climbing lane.

These improvements would require temporary and/or permanent use of Gorges State Park land (see the attached preliminary design concepts). The areas potentially affected by the project are identified on the design maps for each alternate and summarized as follows:

Alternate	Number of Affected Areas	Quantity (acres)
Alternate 1	6	1.75
Alternate 2	6	1.10
Alternate 3	3	0.92

In addition to the design maps, we have included the Natural Resources Technical Report and Protected Species Survey results.

To help us in our planning efforts, we ask for your written comments on the following issues:

- Confirmation of the significance of Gorges State Park in the State Park System.
- Concurrence that the proposed use of park land is considered to be minor since the widening of US 64 would take place along the perimeter of the park.
- Identification of ways to design the project to minimize harm to the park.
- Concurrence that the proposed improvements will have only a minimal effect and not adversely affect park activities or its land as long as the plans to minimize harm are included in the design and mitigation.

Your written comments on these items are needed to satisfy Section 4(f) requirements of the 1966 DOT Act, which protects the use and function of publicly owned parks, recreation areas, wildlife/waterfowl refuges and historic properties. A transportation plan can only use land from a 4(f) resource when there are no other feasible or prudent alternatives and when the planning minimizes all possible harm to the resource.

This project could be found to have a “de minimis” impact by the Federal Highway Administration (FHWA) if the Parks and Recreation Division agree that the project will not “adversely affect the activities, features, and attributes” of the park. The de minimis provision from the federal SAFETEA-LU legislation amends the Section 4(f) requirements and allows the U.S. Department of Transportation to determine that certain uses of Section 4(f) land will have no adverse effect on the protected resource. When this is the case and the responsible official(s) with jurisdiction over the resource agrees in writing, compliance with Section 4(f) is greatly simplified.

We would appreciate your input so we can ensure that the proposed US 64 safety improvements will not have an adverse effect on the Gorges State Park land. Please address your comments to Paul White, P.E., NCDOT Highway Division 14 Design Construction Engineer. His contact information is as follows:

Paul White, P.E., Design Construction Engineer
NCDOT Highway Division 14 Office
253 Highway 116
Sylva, NC 28779
(828) 586-2141
paulwhite@dot.state.nc.us

We would appreciate receiving your input by October 9, 2006. We will contact you in the near future to discuss these alternatives. Prior to that time, please contact Mark Reep of Ko & Associates at (919) 851-6066 or mreep@koassociates.com. You may also contact Paul White.

Sincerely,

Ko & Associates, P.C.
Brian Wiles, P.E.

BW/co
Enclosures

cc: Brian Strong, DENR Division of Parks and Recreation
Paul White, P.E., Division Construction Engineer
Neal Strickland, NCDOT Right-of-Way Branch
Mark Reep, P.E., Ko & Associates, P.C.



North Carolina Department of Environment and Natural Resources
Division of Parks and Recreation

Michael F. Easley, Governor

William G. Ross Jr., Secretary

Lewis R. Ledford, Director

October 9, 2006

Paul White, P.E.
Design Construction Engineer
NCDOT Highway Division 14 Office
253 Highway 116
Sylva, NC 28779

Re: US 64 – Safety Improvements and Climbing Lanes from Lake Toxaway to Indian Creek, Transylvania County, TIP No. R-2409-C.

Dear Mr. White,

I am the mountain region biologist for the North Carolina Division of Parks and Recreation, and I writing in response to Brian Wiles's letter dated August 9, 2006 requesting the Division's written comments on this project. Specifically, we have been requested to address the following issues in order to satisfy Section 4(f) of the 1966 DOT Act regarding the use and function of publicly owned parks, recreation areas, wildlife/waterfowl refuges, and historic properties:

1. Confirmation of the significance of Gorges State Park in the state park system.

Gorges State Park encompasses over 7,000 acres of extremely rugged terrain in southwestern Transylvania County and is the only state park west of Asheville. The park is located on the Blue Ridge Escarpment, and the topography is extremely steep, with a drop of nearly 3,000 feet in a distance of approximately three miles. Consequently, the park has an unusual combination of mountain and piedmont ecosystems. Approximately two dozen natural community types have been documented, and biodiversity is unusually high. There are more rare species found in the Gorges region than in any comparably-sized area in the state, and the park's rare species include a number of disjunct tropical species. In assessing the park's ecological importance, the North Carolina Natural Heritage Program considers the area and the park to be of national significance.

2. Concurrence that the proposed use of park land is considered to be minor since the widening of US 64 would take place along the perimeter of the park.

The Division agrees that the projected impacts to the park are not major and will involve small amounts of property along the park's northernmost boundary, which is contiguous with US 64 for a portion of the project. Alignment 3, which is the Division's preferred alignment, appears to create the least amount of impact to the park, as it would fill only a small area on the south side of the existing alignment.

3. Identification of ways to design the project to minimize harm to the park.

The Division has three primary concerns regarding the minimization of impacts:

1. Impacts to water quality and aquatic species. The Natural Systems Report generated by The Catena Group identified three unnamed tributaries to the Toxaway River and four unnamed tributaries to Indian Creek that will be affected by this project. As noted in the report, all waters in the park are designated as Public Mountain Trout Waters/Wild Trout Waters by the NC Wildlife Resources Commission. Potential impacts addressed in the report include increased sedimentation, alterations of stream discharge, changes in water temperature, increased nutrient loading, and potential for the release of toxic materials.

Division biologists have documented increased aquatic diversity in the lower reaches of many park streams, meaning that poorly controlled impacts would likely have detrimental effects on the park's downstream water quality and aquatic diversity. The Division requests that the project engineers give scrupulous attention to avoidance and minimization measures and that all appropriate measures be taken to prevent short or long term impacts to water quality.

2. Post Construction Stabilization. The Division requests that filled slopes and other disturbed areas not be stabilized or revegetated with highly invasive non-native species, such as *Lespedeza cuneata*. The Division requests to review all planting schedules and also requests that any non-native species selected should be non-invasive. This project will involve large disturbed areas immediately adjacent to the park's boundary, which will leave the park unusually susceptible to invasive species. Lespedeza is among the most undesirable and most difficult species to eradicate. Given the unusually high biodiversity present in the park, it is the Division's strong position to avoid introducing undesirable species at this park.

3. Post-Construction Boundaries. The park's current boundary is contiguous with US 64 in those areas involving park property. Alternatives 2 and 3 will result in the alignment being shifted north in several locations, which will produce several long, narrow islands of property between the current park boundary and the new alignment. The Division is concerned about boundary and other management issues on these islands. Impacts to the park and its operations would be minimized if all property between the current park boundary and the new road alignment were transferred to the park on completion of the project. This will make boundary maintenance and property delineation much cleaner.

4. Concurrence that the proposed improvements will have only a minimal effect and not adversely affect park activities or its land as long as the plans to minimize harm are included in the design and mitigation.

If it is agreed that if the park's concerns in point #3 are addressed and resolved so that the park's short and long-term protection are assured, then the Division will readily concur with this point.

Thank you for the opportunity to respond on this matter and to be included in the review. We greatly appreciate your awareness of the Division's obligation to protect its resources, and we look forward to working with you on this project. Please contact me at 704-528-6514, or marshall.ellis@ncmail.net if you have any questions.

Sincerely,

Marshall Ellis
Mountain Region Biologist
NC Division of Parks and Recreation



North Carolina Department of Environment and Natural Resources
Division of Parks and Recreation

Pat McCrory, Governor

Lewis R. Ledford, Director

John E. Skvarla, III, Secretary

September 20, 2013

Mr. Stephen Williams, Design Construction Engineer
NCDOT, Fourteenth Division Office
253 Webster Road
Sylva, NC 28779

Dear Mr. Williams:

SUBJECT: US 64 Improvements and Climbing Lanes from Lake Toxaway to Indian Creek,
Transylvania County, North Carolina, TIP No. R-2409C

The NC DENR Division of Parks and Recreation (Division) has reviewed your letter of August 30, 2013 concerning the US 64 Safety Improvements near Gorges State Park and your request for Section 4(f) concurrence of minimal impact to Gorges State Park. The Division concurs that the recommended US 64 improvements with Alternative 4 will have a minimal impact on Gorges State Park and will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f) with the following measures included to minimize harm:

1. Minimization of water quality impacts through stringent erosion control.
2. Use of native plant species (no invasive species) for stabilizing the construction slopes after construction in the area of the state park. We can share our planting guidelines for state parks projects.
3. Revision of new park boundaries to join the roadway right-of-way with no private parcels in between. The property affected by this project or the right-of-way needed from Gorges State Park will need to be removed from the NC State Parks System and the State Nature and Historic Preserve. This will require a deletion bill approved by at least two-thirds of the NC General Assembly. This can be coordinated for the short session in 2014. A legal description (survey of the right-of-way needed) is usually referenced in the deletion bill. Supporting documents to the deletion bill include compensation for the right-of-way and/or replacement property.

Thank you for the consultation on this project. If you need additional information or clarification, please contact Sue Regier at 919-707-9363.

Sincerely,

Carol Tingley, Deputy Director

cc: Brian Strong, Chief of Planning and Natural Resources
Zahid Baloch, NCDOT Project Development and Environmental Analysis Branch

From: Tingley, Carol [mailto:carol.tingley@ncparks.gov]
Sent: Friday, October 25, 2013 2:20 PM
To: Moore, Reuben E
Cc: Reep, Mark; Baloch, Zahid M; Williams, Stephen J; Regier, Sue
Subject: RE: R-2409C US 64 Transylvania Co, Draft Concurrence Request - Gorges State Park

Although we did not notice the discrepancy in acreage between the letter and the map, we did carefully study the map and our concurrence that the impact to the park will be minimal is still valid. Please let us know if you have any questions concerning the deletion bill, the replacement property or any of the other items in our previous letter.

From: Moore, Reuben E
Sent: Friday, October 25, 2013 11:51 AM
To: Tingley, Carol
Cc: mreep@flohut.com; Baloch, Zahid M; Williams, Stephen J
Subject: FW: R-2409C US 64 Transylvania Co, Draft Concurrence Request - Gorges State Park

Dear Ms. Tingley:

Thank you for speaking with me just now regarding project R-2409C and the upcoming changes to US 64 around Gorges State Park. We discussed how our letter to Superintendent Steve Pagano misstated the acreage of area to be taken from the Park as 1.0 acre when the actual acreage to be taken is 7.26 acres; and that the correct acreage was labeled and shown on the map, which is part of the attachment to this message.

There is also acreage that will be acquired by NCDOT that will be added to the Gorges State Park, again as shown on the attached map.

In our conversation you agreed that your concurrence would not change based on whether the amount is 1.0 acre or 7.26 acres. You agreed to reply to this message stating that Gorges State Park still concurs with this project, and that your letter of September 20, 2013, to NCDOT DDC Engineer Steve Williams is still valid. In particular, the Department is responsible for furnishing the legal land description that you will need for the deletion bill that needs to go to the short session of the General Assembly next year, as described in bullet point 3 of your letter.

Thank you for your quick reply to this message. If you need any additional information or have any questions, please let me know.

Reuben E. Moore, PE, Division Operations Engineer
NCDOT – Div. 14 – Sylva
“Delivering Planning, Programs & Technical Services in Division 14”
253 Webster Road
Sylva, NC 28779
828-586-2141
reubenmoore@ncdot.gov



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 30, 2013

Mr. Steve Pagano
Park Superintendent
Gorges State Park
976 Grassy Ridge Road
Sapphire, NC 28774

Dear Mr. Pagano:

SUBJECT: US 64, Safety Improvements and Climbing Lanes from Lake Toxaway to Indian Creek, Transylvania County, North Carolina, TIP No. R-2409C;

This follows our past coordination with the representatives from the NC DENR Division of Parks and Recreation regarding the proposed improvements to a 1.5-mile portion of US 64 from Lake Toxaway to Indian Creek (TIP Project R-2409C). US 64 is between Gorges State Park and a steep mountain. Due to numerous curves and steep terrain, there is no feasible alternative that will avoid the park. These improvements would require approximately 1.0 acre of permanent right of way and temporary easement from the park (see attached maps).

Section 4(f) of the D.O.T. Act of 1966 protects the use and function of publicly owned parks, recreation areas, wildlife/waterfowl refuges and historic properties. A transportation plan can only use land from a 4(f) resource when there are no other feasible or prudent alternatives and when the planning minimizes all possible harm to the resource.

The Federal Highway Administration (FHWA) is considering a Section 4(f) de minimis determination for impacts to Gorges State Park. A 4(f) de minimis finding means that this project will have an impact on the resource, but that the FHWA, in consultation with NCDOT and the officials with jurisdiction over the resource, has made a preliminary determination that the impacts are so minor that they will not adversely affect the resource's character, activities, or attributes. The public was given an opportunity to comment on the project and the proposed acquisition of park property. All citizens who commented were in support of the project, most prefer Alternative 4, and one expressed support as long as Gorges State Park agrees.

In a letter dated October 9, 2006 letter, the Division of Parks and Recreation agreed that the project's proposed use of land from Gorges State Park would not have a major impact on the park (see attachment). It also agreed that if NCDOT addressed your concerns about water quality, use of non-invasive vegetation, and park boundary revision, you would concur that the project will have only a minimal effect and not adversely affect the park activities.

During subsequent coordination meetings on November 29, 2007 and November 5, 2008, we discussed the proposed improvement in more detail. Four alternatives have been considered, and two have been evaluated in detail. Alternative 2 realigns portions of the roadway to provide flatter horizontal curves and achieves a minimum design speed of 30 mph. Alternative 4 corrects more of the alignment deficiencies, straightens curves, and

increases the design speed to 40 mph. Alternative 4 is recommended because it better meets the purpose of the project by correcting more alignment deficiencies, has a higher design speed, and has fewer disruptions to traffic during construction. The following measures are proposed to minimize harm:

- Minimization of water quality impacts through stringent erosion control;
- Use of native plant species (no invasive species) for stabilizing the construction slopes after construction in the area of the park boundaries; and
- Revision of new park boundaries to join the roadway right of way with no private parcels in between.

This is to request your agency's concurrence that Alternative 4 will have a minimal impact on the park and will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f). Concurrence can be provided by signing the statement below or by a separate letter. We would appreciate receiving your input by September 13, 2013. If you have questions or wish to discuss this further, please contact Mark Reep of ICA Engineering at 919-900-1635 or mreep@icaeng.com. You may also contact me at (828) 586-2141 or sjwilliams@ncdot.gov.

Sincerely,



Stephen Williams
Design Construction Engineer

SW/mr
Enclosures

cc: Michael Batuzich, Federal Highway Administration
Zahid Baloch, NCDOT Project Development and Environmental Analysis Branch
Mark Reep, ICA Engineering

NC DENR Division of Parks and Recreation Concurrence:

The NC DENR Division of Parks and Recreation concurs that the recommended US 64 improvements with Alternative 4 will have a minimal impact on Gorges State Park and will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f) with the following measures included to minimize harm:

- Minimization of water quality impacts through stringent erosion control;
- Use of native plant species (no invasive species) for stabilizing the construction slopes after construction in the area of the park boundaries; and
- Revision of new park boundaries to join the roadway right of way with no private parcels in between.

Signature
NC DENR Division of Parks and Recreation

Date

E-mail Correspondence - NC Wildlife Resources Commission

From: Marla Chambers [mailto:chambersmj@carolina.rr.com]
Sent: Monday, November 20, 2006 1:24 PM
To: 'Shay Garriock'
Subject: RE: Your message

I don't believe I've formally commented, I'm way behind on scoping comments. But I have checked with our biologists and we don't have trout or smallmouth bass concerns for this project. However, blackbanded darter, *Percina nigrofasciata* (NCSR); rosyface chub, *Hybopsis rubrifrons* (NCT); yellowfin shiner, *Notropis lutipinnis* (NCSC); turquoise darter, *Etheostoma inscriptum* (NCSC); and Oconee stream crayfish, *Cambarus chaugaensis* (NCSC) are known from the Toxaway River in NC downstream from the project area (upstream from Lake Jocassee). Additionally, Oconee stream crayfish occurs in Indian Creek. Sediment and erosion control for sensitive watersheds should apply to reduce impacts to these aquatic resources occurring downstream.

NCSR - state Significantly Rare
NCT - state Threatened
NCSC - state Special Concern

I hope this is helpful. Let me know if you need anything further.

Marla J. Chambers
Western NCDOT Permit Coordinator
N.C. Wildlife Resources Comm.
4614 Wilgrove-Mint Hill Rd., Suite M
Charlotte, NC 28227
chambersmj@carolina.rr.com
phone: 704-545-3841 fax: 704-545-3812 cell: 704-984-1070

-----Original Message-----

From: Shay Garriock [mailto:shayg@mindspring.com]
Sent: Monday, November 20, 2006 12:29 PM
To: Marla Chambers
Subject: Re: Your message

Hi Marla,

Thanks for the update. I am contacting you to inquire if you have formally commented on R-2409C, the widening of a section of US 64 between Indian Creek and Lake Toxaway in Transylvania Co. We are doing the NRTR and have received comments on the draft from NCDOT. They questioned if we had corresponded on the project with WRC concerning trout waters and if a construction moratorium would be required.

Thank you,

Shay Garriock
The Catena Group
Office: 919-732-1300
Mobile: 919-417-0456

BOARD OF COMMISSIONERS

Raymond D. Miller, Chairman
W. David Guice, Vice Chairman
Jason Chappell
Jeff Duvall
Kelvin Phillips
828-884-3107



COUNTY MANAGER

Arthur C. Wilson, Jr.
828-884-3100
Fax 828-884-3119

**28 East Main Street
Brevard, NC 28712**

Transylvania County

November 29, 2005

Mr. Brian Wiles, Project Manager
Ko & Associates, Consulting Engineers
1011 Schaub Drive, Suite 202
Raleigh, NC 27606

Re: R-2409C, US 64, Safety Improvements and Climbing Lanes from Lake Toxaway
to Indian Creek, Transylvania County, North Carolina

Dear Mr. Wiles:

Thank you for your letter dated November 15, 2005, regarding the planning and designing of proposed improvements of US 64 from just east of Lake Toxaway to just west of Indian Creek in Transylvania County. The Board of Commissioners considered your request for information in helping you to evaluate the project and unanimously endorsed the alternative of upgrading the existing two-lane roadway, including climbing lanes at selected locations. Please find enclosed Resolution 34-05 stating our position on the matter.

If there is any other information we can provide to aid you in your evaluation, please do not hesitate to let us know.

Sincerely,

W. David Guice, Vice Chairman
Transylvania County Board of Commissioners

kc

Enclosure

cc: Members, Board of Commissioners
County Manager
File

BOARD OF COMMISSIONERS

Raymond D. Miller, Chairman
W. David Guice, Vice Chairman
Jason Chappell
Jeff Duvall
Kelvin Phillips
828-884-3107



COUNTY MANAGER

Arthur C. Wilson, Jr.
828-884-3100
Fax 828-884-3119

28 East Main Street
Brevard, NC 28712

Transylvania County

Resolution 34-05

RESOLUTION SUPPORTING UPGRADE OF THE EXISTING TWO-LANE ROADWAY, INCLUDING CLIMBING LANES, AT SELECTED LOCATIONS

WHEREAS, the North Carolina Department of Transportation (NCDOT) has retained the services of Ko & Associates, PC, in planning and designing the proposed improvements of US 64 from just east of Lake Toxaway to just west of Indian Creek in Transylvania County (approximately 1.5 miles); and

WHEREAS, according to the NCDOT's 2006-2012 Transportation Improvement Program, this project is scheduled for right-of-way acquisition in fiscal year 2006 and construction in fiscal year 2007; and

WHEREAS, the alternatives available for the completion of this project are to do nothing or to upgrade the existing two-lane roadway to include climbing lanes at selected locations; and

WHEREAS, the Board of Commissioners of Transylvania County believes it is in the best interest of the citizens of Transylvania County to proceed with this project;

NOW THEREFORE, BE IT RESOLVED that the Transylvania County Board of Commissioners, through the adoption of this resolution, fully supports the available alternative of upgrading the existing two-lane roadway along US 64 from just east of Lake Toxaway to just west of Indian Creek in Transylvania County, including climbing lanes at selected locations; and

FURTHER, for the safety and well-being of the citizens of Transylvania County and those using its highways, the Board of Commissioners requests that this project be completed as expeditiously as possible.

Approved this 28th day of November, 2005.

W. David Guice, Vice Chairman

ATTEST:

Kimberly T. Conover, Clerk to Board



"An Equal Opportunity Employer"



Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee 37902-1401

December 2, 2005

Mr. Brian Wiles, P.E.
Project Manager
Ko & Associates, P.C. Consulting Engineers
1011 Schaub Drive, Suite 202
Raleigh, North Carolina 27606

Dear Mr. Wiles:

R-2409C, US 64, SAFETY IMPROVEMENTS AND CLIMBING LANES FROM LAKE
TOXAWAY TO INDIAN CREEK, TRANSYLVANIA COUNTY, NORTH CAROLINA

TVA has reviewed information provided in your letter of November 15, 2005 on the proposed climbing lanes on US 64 in the Lake Toxaway area. The project is out of the TVA watershed and it appears that there would be no TVA involvement with this project.

Should you have any questions, please contact Harold M. Draper at (865) 632-6889 or hmdraper@tva.gov.

Sincerely,

A handwritten signature in cursive script that reads "Jon M. Loney".

Jon M. Loney, Manager
NEPA Administration
Environmental Policy and Planning