

**Jackson County
Bridge No. 145 on US 23-74
(Great Smoky Mountains Expressway)
over SR 1705, Southern Railroad and Scott Creek
Federal Aid Project No. BRZ-1705(1)
W.B.S. No. 38408.1.1
T.I.P. No. B-4554**

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

2/2/12
DATE

For William F. Thorpe
Gregory J. Thorpe, PhD,
Manager, Project Development & Environmental Analysis Unit

2-6-12
DATE

For Michael C. Johnson
John F. Sullivan, III, Division Administrator
Federal Highway Administration

**Jackson County
Bridge No. 145 on US 23-74
(Great Smoky Mountains Expressway)
over SR 1705, Southern Railroad and Scott Creek
Federal Aid Project No. BRZ-1705(1)
W.B.S. No. 38408.1.1
T.I.P. No. B-4554**

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Unit By:

2/2/12
DATE


Dionne C. Brown, E.I.

Project Planning Engineer
Bridge Project Development Section

2/2/12
DATE


John L. Williams, P.E.

Project Engineer
Bridge Project Development Section



PROJECT COMMITMENTS:

**Jackson County
Bridge No. 145 on US 23-74
Over SR 1705, Southern Railroad and Scott Creek
Federal Aid Project No. BRZ-1705(1)
W.B.S. No. 38408.1.1
T.I.P. No. B-4554**

Division Fourteen Construction, Resident Engineer's Office – Onsite Detour

In order to have time to adequately reroute school busses, Jackson County Schools will be contacted at (828) 586-2456 at least one month prior to road closure.

Jackson County Emergency Services will be contacted at (828) 586-7592 at least one month prior to road closure to make the necessary temporary reassignments to primary response units.

All Design Groups/Division Resident Construction Engineer – Trout Issues

NCWRC has identified Scott Creek as supporting a trout population. Therefore a moratorium on all in water work will be in place from January 1 to April 15 of any given year.

NCDOT will implement Guidelines for Construction of Highway Improvements Adjacent to or Crossing Trout Waters in North Carolina in the design and construction of this project.

Structure Design – TVA Permit

The proposed project is located in the Tennessee Valley Authority's (TVA) Land Management District. If the bridge is replaced along existing alignment, as proposed, an approval under Section 26a of the TVA Act will not be needed. However, TVA will review final bridge design plans to confirm this determination.

Hydraulic Unit – FEMA Coordination

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Division Construction – FEMA

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

Roadway Design/Structure Design/ Division – Bicycle Accommodations

Bicycle accommodations will be designed on the bridge and approaches along with standard bicycle safe railing.

Roadway Design, Structure Design – Railroad

During final design, all utility providers and railroad operators will be coordinated with to ensure that the proposed design and construction of the project will not substantially disrupt service.

Right of Way Branch, Project Development – Voluntary Agricultural District (VAD)

This project is located within a VAD. If any property holders refuse settlement, before pursuing condemnation, the Right of Way Branch must contact Project Development in order to pursue a public meeting with the VAD. This does not mean that the Department cannot condemn but is a procedural requirement prior to condemnation.

Jackson County
Bridge No. 145 on US 23-74
(Great Smoky Mountains Expressway)
over SR 1705, Southern Railroad and Scott Creek
Federal Aid Project No. BRZ-1705(1)
W.B.S. No. 38408.1.1
T.I.P. No. B-4554

INTRODUCTION: Bridge No. 145 is included in the latest approved North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and is eligible for the Federal-Aid Highway Bridge Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion”.

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Management Unit records indicate Bridge No. 145 has a sufficiency rating of 23.0 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to superstructure condition of 3 out of 9 and substructure condition of 4 out of 9 according to Federal Highway Administration (FHWA) standards and therefore eligible for FHWA’s Highway Bridge Program.

Bridge No. 145 has a fifty- four year old reinforced concrete substructure. Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The bridge is currently not posted but underneath there have been maintenance repairs with several crutches to relieve the stress to the deck.

II. EXISTING CONDITIONS

The project is located in Jackson County on US 23-74 (Great Smoky Mountains Expressway) (see Figure 1). Development is primarily rural residences in a mountainous area.

US 23-74 is classified as a major arterial in the Statewide Functional Classification System and it is a National Highway System Route.

In the vicinity of the bridge, US 23-74 has a 72-foot pavement width with two 12-foot lanes in each direction with a 16-foot paved median and 4-foot paved outside shoulders in each direction (see Figures 3). The roadway grade is on a slight vertical curve through the project area. The existing bridge is on a tangent. The roadway is situated approximately 45.0 feet above the creek bed.

Bridge No. 145 is a seven-span structure that consists of reinforced concrete deck girders on I-beams and steel plate girders, supported by reinforced concrete abutments and post and beam

interior bents. The existing bridge (see Figure 3) was constructed in 1957. The overall length of the structure is 308 feet. The clear deck width is 41.0 feet on each side of the median.

There are no utilities attached to the existing structure, but power lines cross the south side of the bridge. Telephone lines run parallel to the bridge on the west side and underground on the north side. A fiber optic line is located on the north and south side to the west of the bridge and a gas pipeline is on the north side of the bridge. Utility impacts are anticipated to be low.

The current traffic volume of 22,900 vehicles per day (VPD) is expected to increase to 40,800 VPD by the year 2030. The projected volume includes one percent truck-tractor semi-trailer (TTST) and one percent dual-tired vehicles (DT). The current traffic volume on SR 1705 is 200 VPD and by year 2030 will be 400 VPD. The posted speed limit is 55 miles per hour in the project area. There is no posted weight limit on this bridge. EMS and Jackson County Schools have been contacted and are fine with the closing of SR 1705 during construction.

There were fifteen accidents reported in the vicinity of Bridge No. 145 during a three-year period. None of the accidents were associated with the alignment or geometry of the bridge or its approach roadway. Eight of the fifteen accidents on US 23-74 were due to wet conditions on the road. Traffic Safety Unit recommends a special consideration should be given to the pavement condition and drainage, installation of "Slippery When Wet" warning signs. On SR 1705, a barrier wall and/or guardrail should be added to protect motorists from the bridge structure. Also on SR 1705, trees should be removed from the Clear Zone to further reduce the number of roadside hazards. Division limits the installation of "Slippery When Wet" signage. The signs are not placed based solely on the number of accidents due to wet conditions but if the condition of the road warrants. Division will look into the pavement conditions. Since Scott Creek is a trout stream removal of trees are not typically practiced.

This section of US 23-74 is part of a designated bicycle route, NC Bicycling Route 2, Mountains to Sea. Sidewalks do not exist on the existing bridge and there is no indication of pedestrian usage on or near the bridge. Bicycle and Pedestrian Unit recommends AASHTO standard bicycle-safe bridge railing height and 4 foot paved shoulders in both directions for shoulder sections or 14 foot wide outside lanes in curb and gutter sections continued for at least 100 foot on either side of the improvements.

This bridge has approximately four freight trains per day operating on this section of track at speeds up to 25 mph, no passenger service currently exists on the Norfolk Southern Railway's T-line and has a vertical underclearance of 26 feet 2 inches, which exceeds the minimum requirement.

III. ALTERNATIVES

A. Project Description

The replacement structure will consist of a bridge approximately 300-foot long. The bridge length is based on preliminary design information. The bridge will be of sufficient width to

provide for four 12-foot lanes with 10-foot offsets on each side. The roadway grade of the new structure will be approximately the same as the existing grade.

Bridge No. 145 is located along a designated bicycle route and the NCDOT Division of Bicycle and Pedestrian Transportation indicated there are a high number of bicyclists crossing the bridge. As a result, 10-foot offsets and a bicycle-safe bridge railing height will be included in the design.

The existing roadway will be widened to a 88-foot pavement width to provide four 12-foot lanes and a 16-foot median divider. Twelve-foot shoulders will be provided; where 10 feet are paved shoulders on each side for bicycle accommodations in accordance with the current NCDOT Design Policy (The shoulder will include three additional feet where guardrail is required). This roadway will be designed as a major arterial.

Vertical clearance for a railroad is 23 feet and existing clearance is approximately 26 feet. The clearance for the railroad will be met.

B. Alternates Evaluated and Preferred

The “do-nothing” alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by US 23-74.

“Rehabilitation” of the old bridge is not practical due to its age and deteriorated condition. Bridge No. 145 has had several crutches in place to keep the sufficiency ratings up but it can no longer be maintained and must be replaced.

Alternate 1 (Preferred)

Alternate 1 involves replacement of the structure along the existing roadway alignment. Improvements to the approach roadways will be required for a distance of approximately 275 feet to the south and 400 feet to the north of the new structure. This alternate will be designed using AASHTO guidelines with a design speed of 60 miles per hour. No design exception will be required. Traffic for US 23-74 will be maintained onsite using staged construction. The traffic on SR 1705 will be detoured offsite using SR 1467 (Cagle Cove Rd) to SR 1537 to SR 1432 (Skyline Drive) to US 23-74 to ST 1472 (Old US 19A-23) to SR 1700 (Old Balsam Depot) (see Figure 1). The total length of this detour is 3.63 miles.

Bridge No. 145 will be replaced at the existing location as shown by Alternative 1 in Figure 2. Although the cost and environmental impacts may be high, concerns regarding public safety warrant the maintenance of traffic onsite.

NCDOT Division 14 concurs with the selection of Alternative 1 as the preferred alternative.

IV. ESTIMATED COSTS

The estimated costs, based on 2012 prices, are as follows:

	Alternative 1 Preferred
Structure	\$ 3,331,000
Roadway Approaches	\$ 796,000
Structure Removal	\$ 528,000
Misc. & Mob.	\$ 639,000
Eng. & Contingencies	\$ 806,000
Total Construction Cost	\$ 6,100,000
Right-of-way Costs	\$ 0
Right-of-way Utility Costs	\$ 115,000
Total Project Cost	\$ 6,215,000

V. NATURAL ENVIRONMENT

Physical Characteristics

Water Resources

Water resources in the study area are part of the Little Tennessee River Basin (U.S. Geological Survey [USGS] Hydrologic Unit 06010203). Two streams were identified in the study area (Table 1). The physical characteristics of these streams are provided in Table 2.

Table 1. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
Scott Creek	Scott Creek	2-79-39	C-Tr
Dark Ridge Creek	Dark Ridge Creek	2-79-39-3	C-Tr

Table 2. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Scott Creek	3	20	2	Sand, Gravel, Rock	Fast	Clear
Dark Ridge Creek	3.5	18	2.5	Sand, Gravel, Rock	Fast	Clear

Per letter from the North Carolina Wildlife Resource Commission (NCWRC) dated April 15, 2009, Scott Creek is a Hatchery Supported Designated Public Mountain Trout Water. Scott Creek supports rainbow trout reproduction in the project vicinity. A number of rare species, including the federal and state Endangered Appalachian elktoe, are found 10.5 miles

downstream in the Tuckasegee River near the mouth of Scott Creek. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1-April 15 to protect the egg and fry stages of rainbow trout. Sediment and erosion control measures should adhere to the Design Standards for Sensitive Watersheds.

There are no designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), water supply watersheds (WS-I or WS-II) or streams included on the 2010 Final 303(d) list as impaired for sedimentation or turbidity.

Biotic Resources

Biotic resources include terrestrial and aquatic communities. This section describes the biotic communities encountered in the project area, as well as the relationships between fauna and flora within these communities. The composition and distribution of biotic communities throughout the project area are reflective of topography, soils, hydrology, and past and present land uses. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakley (1990) where possible. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited.

Jurisdictional Topics

Permits

Section 404

In accordance with provisions of 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."

Actual impacts to streams are not known at this time, but it is expected that they will only be temporary. Assuming avoidance and minimization of impacts to the greatest practicable extent, potential impacts may be authorized under Nationwide Permit (NWP) 23, Approved Categorical Exclusions. This includes activities undertaken which are excluded because they are included within a category of actions which neither individually or cumulatively have a significant effect on the human environment.

Section 401

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 involve issuance of a federal permit or license or 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 DWQ for 401 certification as part of the permit process, which is typically handled as a joint permit application to both the USACE and DWQ. Since the proposed project is located in a designated "Trout" county, the authorization of a nationwide permit by the COE is conditioned upon the concurrence of the Wildlife Resource Commission (WRC).

Federally Protected Species

As of September 22, 2010, the USFWS lists six federally protected species for Jackson County (Table 3).

Table 3. Federally protected species listed for Jackson County.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Glyptemys muhlenbergii</i>	Bog turtle	T(S/A)	No	Not Required
<i>Myotis sodalis</i>	Indiana bat	E	No	No Effect
<i>Alasmidonta raveneliana</i>	Appalachian elktoe	E	No	No Effect
<i>Glaucmys sabrinus coloratus</i>	Carolina northern flying squirrel	E	No	No Effect
<i>Isotria medeoloides</i>	Small whorled pogonia	T	Yes	No Effect
<i>Gymnoderma lineare</i>	Rock gnome lichen	E	No	No Effect
<i>Helonias bullata</i>	Swamp pink	T	No	No Effect

E - Endangered

T - Threatened

T(S/A) - Threatened due to similarity of appearance

The 2005 NRTR lists the biological conclusion for Appalachian elktoe and small-whorled pogonia as “Unresolved”. A mussel screening was conducted on August 20, 2008 and concluded no habitat present for Appalachian elktoe. Habitat for small-whorled pogonia exists in the Pine-Oak/Heath community portions of the study area. A walking visual survey of all potential areas of habitat within the project study area was conducted by NCDOT biologists Bill Barrett, Jennifer Harrod and Brett Feulner on June 17, 2009. No individuals of this species were observed in 3.0 man-hours of survey time.

Bald and Golden Eagle Protection Act

A desktop-GIS assessment of the project study area, as well as the area within a 1 mile of the project limits was evaluated. No water bodies large enough or sufficiently open to be considered potential feeding sources were identified. Since there was no foraging habitat within the review area, a survey of the project study area and the area within 660 feet of the project limits was not conducted.

Due to the lack of habitat, known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect this species.

VI. HUMAN ENVIRONMENT

Section 106 Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

Historic Architecture

In a form dated January 27, 2009, the N.C. Historic Preservation Office (HPO) indicated no surveys for historic properties are required. The form is attached in the Appendix.

Archaeology

In a form dated January 27, 2009, the N.C. Historic Preservation Office (HPO) indicated no surveys for archaeology is required. The form is attached in the Appendix.

Community Impacts

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. All construction will take place along existing alignment. There are no soils classified as prime, unique, or having state or local importance in the vicinity of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

This project is located within a Voluntary Agricultural District. Appropriate measures are identified in the greensheet.

The project will not have a disproportionately high and adverse human health and environmental effect on any minority or low-income population.

Noise & Air Quality

The project is located in Jackson County, which has been determined to comply with the National 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.

This project will not result in any meaningful changes in traffic volume, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. As such FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently this effort is exempt from analysis for MSAT's.

Noise levels may increase during project construction; however, these impacts are not expected to be substantial considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

VII. GENERAL ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Jackson County is a participant in the National Flood Insurance Program. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

VIII. COORDINATION & AGENCY COMMENTS

NCDOT has sought input from the following agencies as a part of the project development: U.S. Army Corps of Engineers, N.C. Department of Natural Resources, U.S. Fish & Wildlife

Service, N.C. Wildlife Resource Commission, Tennessee Valley Authority, North Carolina State Historic Preservation Office, and N.C. Division of Parks & Recreation.

The **N.C. Wildlife Resource Commission** and **U.S. Fish & Wildlife Service** in standardized letters provided a request that they prefer any replacement structure to be a spanning structure.

Response: NCDOT will be replacing the existing structure with a new bridge.

The Army Corps of Engineers, N.C. State Historic Preservation Office and N.C. Division of Parks & Recreation had no special concerns for this project.

IX. PUBLIC INVOLVEMENT

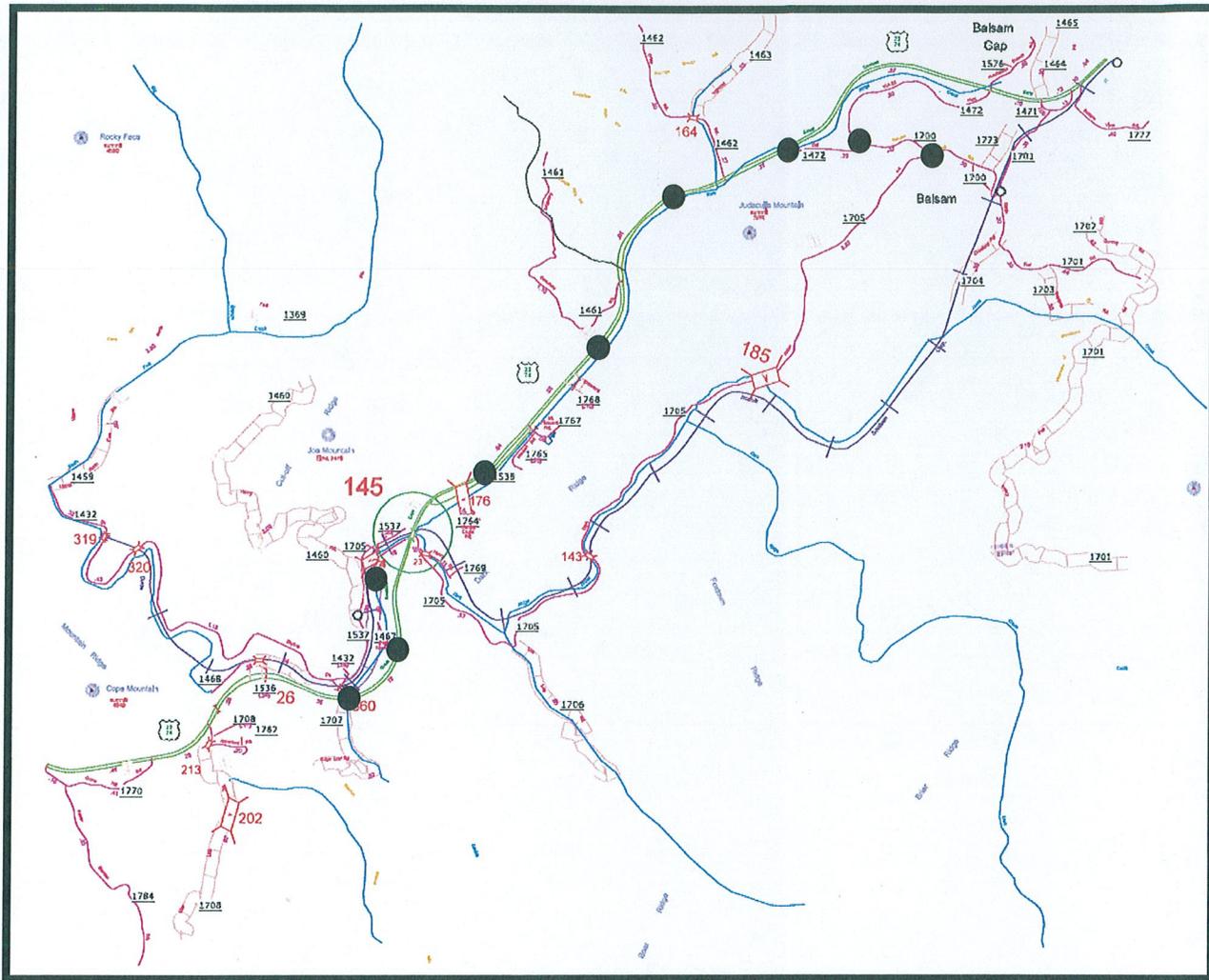
A newsletter has been sent to all those owning property along US 23-74 between the intersection with SR 1705 and the intersection with SR 1764. No comments have been received to date.

Based on lack of responses to the newsletter, a Citizen's Informational Workshop was determined unnecessary.

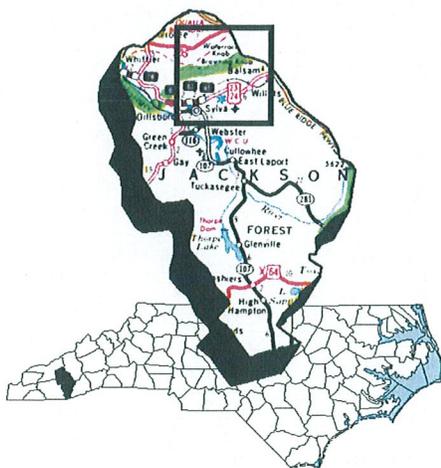
There is not substantial controversy on social, economic, or environmental grounds concerning the project.

X. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project. The project is therefore considered to be a federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.



Detour Route for SR 1705



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>
<p>JACKSON COUNTY REHABILITATE BRIDGE NO. 145 ON US 23-74 OVER SR 1705, SOUTHERN RR AND SCOTT CREEK B-4554</p>	
<p>Figure 1</p>	

B-4554



Figure 3

Bridge Construction CFY 2013-2014

SHPO Number	TIP	Project	County	Division	Project Engineer	Archaeological Survey	Architectural Survey
ER 08-2662	B-4554	Bridge 145 on US 23-74 over SR 1705, Southern Railroad, & Scott Creek	Jackson	14	D. Brown	NO	NO

A - Cleared,
LGH/BJS 1-7-09

S - (C)
11/7/08
DAS

Date 12/31/08

Pats B Sandbank

1/27/09