Proposed US 321 Widening
From US 70 in Hickory to Southwest Boulevard (SR 1933) in Lenoir
Catawba, Burke, and Caldwell Counties
NCDOT Divisions 11, 12 & 13

WBS Element 35993.1.1
Federal Aid Project NHF-321(18)
STIP Project No. U-4700

ADMINISTRATIVE ACTION
ENVIRONMENTAL ASSESSMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

February 2016

Submitted Pursuant to National Environmental Policy Act 42 U.S.C. 4332(2)(C)

APPROVED:

2/25/16
Date

FOR **Richard W. Hancock, P.E., Unit Head**
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation

2/25/16
Date

for **John F. Sullivan III, P.E., Division Administrator**
Federal Highway Administration

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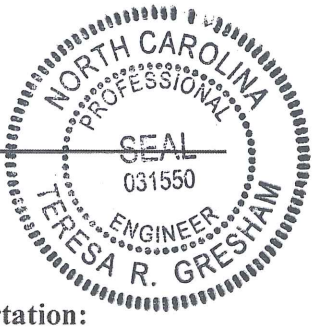

For The North Carolina Department of Transportation:

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Project Commitments

The following special commitments have been agreed to by NCDOT:

Hydraulic Unit – FEMA Coordination
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP) to determine the status of the 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 Coordination
This project involves construction activities on or adjacent to FEMA-regulated streams. Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures 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 and Hydraulic Design Units
As part of the Concurrence Point 2A agreement to narrow the 46' median option, NCDOT committed to treat storm water in designated places throughout the project. These locations will be identified during final design.

PDEA - Northern Long-Eared Bat & Dwarf-Flowered Heartleaf
Construction authorization will not be requested until ESA compliance is satisfied for the northern long-eared bat and dwarf-flowered heartleaf.

Right of Way Unit - Houck's Chapel: The property near -L- Sta 115+00 (currently shown as THE ROSEMYR CORPORATION) will be purchased and have control of access extended around its entire property. Also a note will be put in the Final Roadway Plans reading:

> "Property acquired for avoidance of impacts to Houck's Chapel; if ever sold, height of buildings/structures restricted to 25 feet."

SUMMARY

A. Type of Action

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, an Environmental Assessment (EA) has been prepared to evaluate the potential impacts of this proposed transportation improvement project. According to Federal Highway Administration's (FHWA) toolkit on NEPA Documentation, an EA is prepared when the significance of a transportation project's impact is uncertain. The EA will disclose the project benefits and environmental impact to the public and to other local, state, and federal agencies to obtain their comments on the proposed action and assist the North Carolina Department of Transportation (NCDOT) and FHWA in the decision-making process. If at any point in the process of preparing an EA, it is discovered that the project would result in significant impacts, an Environmental Impact Statement will be prepared. If after completing the EA, it is determined that there are no significant impacts associated with the project, a Finding of No Significant Impact (FONSI) will be prepared, addressing comments received on the EA from the public and local, state, and federal agencies.

B. Description of Proposed Action

The NCDOT and FHWA propose to widen US 321 to a six lane median divided facility from just north of the US 70 interchange in Hickory (Catawba County) to the Southwest Boulevard (SR 1933) interchange in Lenoir (Caldwell County). The proposed improvements involve approximately 13.5 miles of existing US 321 with a majority of the roadway located in Catawba and Caldwell Counties and 0.3 mile in Burke County, as shown in Figure 1 in Appendix A. There are five municipalities that are located along the project corridor: City of Hickory, Town of Granite Falls, Town of Sawmills, Town of Hudson, and City of Lenoir.

C. Summary of Purpose and Need

Segments of US 321 between Hickory and Lenoir are currently experiencing congestion and operate at level of service (LOS) E and F. Also, a majority of intersections along the project area currently operate at LOS E and F. In 2035, 12 of 13 segments along the mainline and 16 of 18 intersections are projected to operate at LOS F.

The purpose of this project is to reduce congestion on US 321 in order to achieve LOS of D or better in the Design Year (2040).

D. Alternatives Considered

A full range of alternatives were considered, including a No-Build Alternative, a Public Transportation Alternative, a Transportation Systems Management (TSM)

Alternative, and improvements to the existing facility. The No-Build, Public Transportation, and TSM Alternatives were eliminated for the following reasons:

The No-Build Alternative would not meet the purpose and need identified for the proposed project. It would not improve the traffic flow or LOS of US 321 through the project study area.

The project study area is not well served by mass transit. Based on the project context, improvements to public transportation would not improve vehicle flow on US 321 and would not eliminate the need for adding capacity. Therefore, the Public Transportation Alternative does not satisfy the purpose and need for this project and was eliminated from further study.

TSM improvements involve increasing the available capacity of the roadway within the existing right-of-way with minimum capital expenditures and without reconstructing or adding additional through lanes to the existing road. TSM improvements will not increase capacity or improve levels of service enough to prevent failing traffic conditions in the design year. Therefore, the TSM Alternative was eliminated from further study.

E. Detailed Study Alternatives

The original limits of Project U-4700 were from US 70 in Hickory to US 64 in Lenoir. The northern terminus was changed in October 2015 from US 64 to Southwest Boulevard to provide additional time for the Department and the City of Lenoir to study alternatives at the US 321 with US 64/NC 18-90 intersection. The intersection project will move forward as a separate project, although it could be recombined with U-4700 in the future depending on schedules and funding. To allow for consideration of improvements either at the intersection or to allow consideration of a full range of alternatives, the project limits for U-4700 were shortened to Southwest Boulevard, a distance of 3.3 miles.

In consideration of the right-of-way impacts, environmental constraints, and sound engineering principles, the Merger Process Team agreed at the October 20, 2009 meeting for Concurrence Point 2 (Detailed Study Alternatives Carried Forward) to the “Best Fit” Widening Alternative. This was reconfirmed for the new project limits at a Merger meeting on October 14, 2015. This alternative will widen US 321 at locations that “best fit” the current road location and surrounding land uses. “Best fit” locations were evaluated and selected to improve the existing roadway alignment, minimize impacts, and permit traffic maintenance during construction.

Four typical sections for the widening of US 321 were evaluated. These typical sections are shown in Figure 6 of Appendix A. On February 26, 2014, the Merger Team revisited alignment review and agreed to remove Typical Section 4 (46-foot depressed grassed median) from further consideration. On October 14, 2015, the Merger Team agreed to use a combined 22-foot median (Typical Section 1) and 30-foot raised median (Typical Section 2) for the segment from

US 70 to just north of 2nd Avenue NW in Hickory. A 30-foot raised median (Typical Section 3) is proposed along the remainder of the corridor.

Three different designs are under consideration at the intersection of US 321/Grace Chapel Road in Hickory: trumpet interchange, flyover with an at-grade directional movement type intersection, and signalized full movement at-grade intersection. Three different designs are under consideration at the interchange of US 321/Falls Avenue in Granite Falls: partial clover interchange, tight diamond interchange, and a superstreet type at-grade intersection.

The remaining alignment and interchange options for the proposed US 321 widening improvements are shown in Figure 2 of Appendix A.

F. Summary of Environmental Effects

The project will result in the displacement of approximately 56 homes, 77 businesses, and 0 religious facilities (worst case). It crosses seven named streams and their tributaries, with a total of 22 major stream crossings, and will impact approximately 7,229 linear feet of jurisdictional stream and 0.6 acres of wetlands. Approximately 108 receptors will experience traffic noise impacts as a result of this project. Two historic properties in the project study area were identified as listed on or eligible for National Register listing. The project will have "No Effect" or "No Adverse Effect with conditions" on these properties.

Thirteen federally protected species are listed for Caldwell, Burke and Catawba Counties. The project is anticipated to have "No Effect" on nine of those species, including the Carolina northern flying squirrel, spruce-fir moss spider, rock gnome lichen, Schweinitz's sunflower, Heller's blazing star, mountain golden heather, small whorled pogonia, white irisette, and spreading avens. A biological determination was not required for the bog turtle. The dwarf-flowered heartleaf received a "May Affect, Likely to Adversely Affect" conclusion. The Virginia big-eared bat and northern long-eared bat remained "Unresolved."

A summary of the project impacts is provided in Table 1 (on page S-5).

G. Permits Required

Discharges of dredge or fill material into jurisdictional wetlands, streams, or open waters associated with the construction of the roadway project will require a Section 404 permit from the United States Army Corps of Engineers (USACE). Since project impacts are anticipated to exceed Nationwide Permit (NWP) thresholds, then an Individual Section 404 Permit will likely be required. Final determination of permit applicability lies with the USACE and North Carolina Division of Water Resources (NCDWR).

Section 401 General Water Quality Certification – A Section 401 General Water Quality Certification from NCDWR will be required for any activity that may result in a discharge into "Waters of the United States" or for which an

issuance of a federal permit is required. The project impacts are anticipated to exceed the NWP thresholds and an Individual Section 401 Water Quality Certification will likely be required.

H. Coordination

Federal, state, and local government agencies were consulted at the outset of this study. The written comments that were received from these agencies are presented in Appendix B. Continued coordination with US Fish and Wildlife Service (USFWS) is currently underway.

Two local official's informational meetings (LOIMs) and two public meetings were held on July 14 and 15, 2008. Additional LOIMs were held on January 15, 2014. (see Appendix D for information regarding the meetings and workshops).

The project is going through the NEPA/Section 404 Merger process. A meeting was held on March 17, 2009 for Concurrence Point 1 (Purpose and Need and Study Area). A Merger meeting was held on October 20, 2009 for Concurrence Point 2 (Alternatives to Carry Forward for Detailed Studies). A Merger meeting for Concurrence Point 2A (Bridging Decisions and Alignment Review) was held on February 26, 2014. Concurrence was reached on each of these points. (See Appendix E for details.)

This document will be sent to federal, state, and local government agencies for review and comment, including the agencies represented in the NEPA/Section 404 Merger Team. NEPA/Section 404 Merger will continue throughout the project studies.

I. Contact Information

Additional information concerning this proposal and document can be obtained by contacting the following individuals:

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Table 1: Summary of Anticipated Direct Project Impacts for STIP Project U-4700

Feature	Anticipated Impacts					
	Section A		Section B			Section C
	US 70 to Grace Chapel Rd	US 321 & Grace Chapel Rd Interchange	Grace Chapel Rd to Falls Ave	US 321 & Falls Ave Interchange	Falls Ave to Mission Rd	Mission Rd to Southwest Blvd
Project Length – miles	2.9	0.6	3.1	0.7	3.3	3.3
Residential Relocations	13	At Grade - 3 Flyover - 2 Trumpet – 4	3	At Grade - 14 Partial Clover - 33 Tight Diamond - 13	3	0
Business Relocations	43	At Grade - 3 Flyover - 3 Trumpet – 5	5	At Grade - 7 Partial Clover - 7 Tight Diamond - 10	6	8
Total Relocations	56	At Grade - 6 Flyover - 5 Trumpet – 9	8	At Grade - 21 Partial Clover - 40 Tight Diamond - 23	9	8
Major Utility Crossings	0	0	0	0	0	0
Historic Properties	No Effect or No Adverse Effect with conditions					
Archaeological Sites	None of significance					
Cemeteries	0	0	0	0	0	0
Stream Impacts – linear feet (see Note 1)	5,097	1,921	2,311	7,820	5,886	1,197
Wetland impacts – acres (See Note 1)	0.1	0	0	0	0.2	0.3
Water Supply/Watershed Protected Area Major Crossings	1 (Site 2)	0	1 (Site 3)	0	1 (Site 4)	0
Hazardous Spill Basin Areas	0	0	2	0	0	0
Impacted Noise Receptors, No Build / Build (See Note 2)	26 / 29	0	23 / 27	2 / 3	20 / 29	10 / 14
Federally Protected Species (see Note 3)	0	0	0	0	0	0
Hazardous Material Sites (see Note 4)	1	0	8	At Grade - 5 Partial Clover - 5 Tight Diamond - 5	7	8
Voluntary Agricultural District Impacts (acres)	0	0	0	0	0	0

Notes: (1) = Shown acreage includes 25-foot clearing limits outside slope stake lines (2) = Based upon preliminary traffic noise analysis (3) = Biological conclusions: **"No Effect"** for Carolina northern flying squirrel, spruce-fir moss spider, rock gnome lichen, schweinitz's sunflower, Heller's blazing star, mountain golden heather, small whorles pogonia, white irisette, and spreading avens; **"Not Required"** for the bog turtle; **"May Affect, Likely to Adversely Affect"** for the dwarf-flowered heartleaf; **"Unresolved"** for the Virginia big-eared bat and northern long-eared bat. (4) = Current GeoEnvironmental study begins at the Catawba River and heads north along US 321. A new GeoEnvironmental study is being conducted for the whole study area and will be included in the FONSI.

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LIST OF TABLES

APPENDICES

Copies of the following documents:

Air Quality Analysis
Archaeology Survey
Capacity Analysis
Community Characteristics Report
Community Impact Assessment
GeoEnvironmental Impact Evaluation
Hydraulic Technical Memorandum
Indirect and Cumulative Effects Screening Assessment
Intensive-Level Historic Architecture Analysis
Natural Resources Technical Report (Updates and Addendums)
Noise Analysis
Traffic Forecast

may be attained by contacting: NCDOT PDEA, 1548 Mail Service Center, Raleigh NC 27699-1548 or by calling (919) 707-6000.

I. DESCRIPTION OF PROPOSED ACTION

A. General Description

The North Carolina Department of Transportation (NCDOT), in consultation with the Federal Highway Administration (FHWA), proposes to widen US 321 from just north of the US 70 interchange in Hickory (Catawba County) to the Southwest Boulevard (SR 1933) intersection in Lenoir (Caldwell County). The project encompasses approximately 13.5 miles of existing US 321 with the majority of the roadway located in Catawba and Caldwell Counties and 0.3 miles in Burke County. There are five municipalities that border the project area: City of Hickory, Town of Granite Falls, Town of Sawmills, Town of Hudson, and City of Lenoir. The study area and environmental features are shown in Figures 5 and 3, respectively. The current alignments and interchange options are shown in Figure 2 in Appendix A.

B. Historical Resume and Project Status

In July 2001, NCDOT prepared a Feasibility Study to evaluate the impacts and cost of converting US 321 from Hickory to Lenoir into a freeway facility. US 321 was designated as a Principal Arterial by NCDOT and Strategic Highway Corridor 15 in the Strategic Highway Corridor Plan. The feasibility study concluded that converting US 321 to a freeway was the best alternative to reduce delays and congestion. However, the construction cost and relocation impacts of converting US 321 into a freeway are substantial. Therefore, the feasibility study considered an alternative to lessen the cost and relocation impacts by widening US 321 to a six-lane divided roadway with intersection and interchange improvements.

The first public meeting and local officials' informational meetings for the US 321 project were held on July 14, 2008 in Lenoir at the Broyhill Center and on July 15, 2008 in Hickory at the Winkler Activity Center.

The *NCDOT 2016-2025 State Transportation Improvement Program (STIP)* includes the proposed widening of US 321 from US 70 in Hickory to Southwest Boulevard in Lenoir to a six-lane divided facility, with a total project length of 13.5 miles. The project is divided into the following segments in the *NCDOT 2016-2025 STIP*:

Section A: US 70 in Hickory to US 321A
Section B: US 321A to SR 1108 (Mission Road)
Section C: SR 1108 (Mission Road) to Southwest Boulevard in Lenoir
Section CA: SR 1160 (Mount Herman Road) intersection

The STIP shows right-of-way acquisition beginning in Fiscal Year (FY) 2018 for Sections A and CA with construction beginning in FY 2020 for Section CA and FY 2021 for Section A. Right of way and construction for Sections B and C are unscheduled in the STIP. The NCDOT Current STIP includes total funding of

$319,400,000 for the project, including $174,100,000 for right-of-way acquisition and utilities and $145,300,000 for construction.

C. Project Cost

Table 2 summarizes anticipated project costs based on preliminary designs.

Table 2: Estimated Project Costs

Estimated Cost (millions)	Section A		Section B		Section C
	US 70 to Grace Chapel Rd	**US 321 & Grace Chapel Rd Interchange**	**Grace Chapel Rd to Falls Ave, Falls Ave to Mission Rd**	**US 321 & Falls Ave Interchange**	**Mission Rd to Southwest Blvd**
Construction Cost	$104.8	At Grade: $5.7 Flyover: $11.6 Trumpet: $13.9	$39.2	At Grade: $13.8 Partial Clover: $18.4 Tight Diamond: $18.3	$11.8
Utility Relocation Cost	$1.9	At Grade: $0 Flyover: $0.5 Trumpet: $0.6	$3.2	At Grade: $0.4 Partial Clover: $0.5 Tight Diamond: $0.6	$1.8
Right of Way Cost	$39.0	At Grade: $3.1 Flyover: $4.0 Trumpet: $5.2	$31.0	At Grade: $5.0 Partial Clover: $7.6 Tight Diamond: $6.6	$9.4
Total Cost	$145.7	At Grade: $8.8 Flyover: $16.1 Trumpet: $19.7	$73.4	At Grade: $19.2 Partial Clover: $26.5 Tight Diamond: 25.5	$23.0

II. PURPOSE AND NEED FOR PROJECT

A. Purpose of Project

The Merger Team concurred on the following Purpose and Need Statement on March 17, 2009:

The purpose of this project is to reduce congestion on US 321 in order to achieve a level of service (LOS) D or better in the Design Year (2035). [Since that time, traffic has been updated for a 2040 design year.]

B. Need for Project

Segments of US 321 between Hickory and Lenoir are currently experiencing congestion and operate at LOS E and F. Also, a majority of intersections along the project area currently operate at LOS E and F. In the Design Year (2035), 12 of 13 segments along the mainline and 16 of 18 intersections are projected to operate at LOS F.

III. DESCRIPTION OF EXISTING CONDITIONS

A. Functional Classification

US 321 is classified as an urban principal arterial from US 70 in Hickory to 2nd Avenue in Hickory. From 2nd Avenue to Southwest Boulevard in Lenoir, US 321 is classified as a principal arterial on the Statewide Functional Classification System.

B. Physical Description of the Existing Facility

The 13.9 miles of proposed improvements for US 321 are from its junction with US 70 in Hickory, Catawba County to the Southwest Boulevard intersection in Lenoir, Caldwell County (see Figure 1). Catawba, Burke, and Caldwell Counties are located in Western North Carolina in the foothills of the Appalachian Mountains. Catawba, Burke, and Caldwell Counties are part of the Hickory-Morganton-Lenoir Metropolitan Statistical Area (MSA), the fourth largest MSA in North Carolina. This MSA has a population of over 300,000 people. The project area is starts approximately 1 mile north of Interstate 40 in a commercial & industrial part of Hickory. The project moves north and crosses the Catawba River. The project passes through and terminates in a more rural area which is dotted with businesses, towns, communities, and farmlands.

The Western Piedmont Council of Governments (WPCOG) is designated as the Lead Planning Agency for the Greater Hickory Metropolitan Planning Organization (MPO). The Greater Hickory MPO and NCDOT assist the four counties and 24 municipalities in developing a regional transportation plan. Planning efforts connect the entire region to develop a cohesive multi-modal transportation system.

1. Roadway Cross-Section

US 321 is a four-lane highway with a 30-foot grass median and 4-foot paved shoulders. Median breaks have been provided at intersections and some large driveways.

2. Right of Way and Access Control

The existing right of way ranges from 150 to 700 feet in width. The right of way also varies from full control of access to no control of access.

3. Speed Limits

The posted speed limit on US 321 varies from 45 to 55 miles per hour (mph) within the project area.

4. Intersections/Interchanges

The project area contains two interchanges, 12 signalized intersections, and five grade separations across US 321. The locations of these intersections and a brief description are listed below:

The project begins just north of Hickory's interchange at US 70 and US 321. Hickory has eight signalized intersections with US 321 at the following locations:

- Alex Lee Boulevard / Huffman Mills Inc. Driveway
- Grace Chapel Road (SR 1751)
- Old Lenoir Road (SR 1314) / 14th Street, SR 1371
- Clement Boulevard
- 9th Avenue NW
- 7th Avenue NW
- 2nd Avenue NW (SR 1306)
- 13th Street SW

There are four grade separations with US 321 in Hickory:

- 1st Avenue SW
- 2nd Avenue SW
- 14th Street SW
- 7th Avenue SW

Granite Falls has a grade separation at Dudley Shoals Road (SR 1102) and an interchange at Falls Avenue (SR 1107) with US 321. Pinewood Road (SR 1109) and US 321A / River Bend Road have signalized intersections with US 321 in Granite Falls.

Hudson has two signalized intersections with US 321, at Mount Herman Road (SR 1160) and Pine Mountain Road.

Lenoir has one interchange along the project corridor, at Southwest Boulevard (SR 1933) and US 321.

5. Railroads

Norfolk Southern Railroad is grade separated over US 321 just north of 1st Avenue in Hickory.

Catawba County Railroad operates between Hickory and Lenoir. There is an at-grade crossing with a railroad siding and US 321 just south of the Catawba River in Hickory. This siding continues parallel to US 321 and ends at Sealed Air Corporation north of Lenoir.

6. Structures

Ten major hydraulic structures are currently located along the US 321 project. Major crossings are identified by NCDOT as a bridge or a culvert 72" or larger.

7. Existing and Planned Bicycle and Pedestrian Facilities

The following plans support bicycle and greenway facilities: *Catawba County Parks Master Plan and the Catawba County UDO, the Burke County Strategic Plan, the Greater Hickory Recreation/Tourism Plan* and *Burke County Comprehensive Parks & Recreation Plan.*

There are several regional projects proposed to provide additional pedestrian and bicycle facilities in the area. These include the Carolina Thread Trail, Over Mountain Victory Trail and the proposed multi-use trails of Caldwell Pathways.

a. Bicycle Facilities

There are currently no bicycle or planned facilities on US 321, and US 321 is not included in a state-designated bicycle route system.

b. Pedestrian Facilities

There are a few sections of sidewalks along the US 321 corridor that have been built by new developments as a requirement of the local land use plans and development ordinances.

c. Greenways

In the City of Hickory, a trail is proposed as part of the Inspiring Spaces development initiative immediately south of Lake Hickory that would connect under the existing US 321. The east side of US 321 near 15th Avenue is a City-owned property that they are working on converting into a new park. The proposed trail is envisioned as a 'River Walk.' The west side of US 321 has an existing baseball stadium within Winkler Park with which the proposed trail would connect (existing access off of Clement Boulevard NW).

8. Utilities

Utilities in the project area include natural gas, water, sewer, electric, telephone, fiber-optic cable, and cable television. Duke Power, Blue Ridge EMC, Piedmont Natural Gas, AT&T, CenturyLink Communication, Charter Communications have utility lines in the study area.

City of Hickory
Utilities are provided throughout the City of Hickory and a few outlying areas to approximately 30,000 households and businesses. The City of Hickory owns and maintains two municipal wastewater treatment plants and provides service to customers within the municipal limits.

The City of Hickory obtains raw water from one source point located in the Lake Hickory watershed. The watershed for the intake at Lake Hickory is classified as WS-IV west of the N.C. 127 bridge and WS-V east of the N.C. 127 bridge. The Lake Hickory water treatment plant provides water service to customers within the City of Hickory.

Town of Granite Falls
The Town of Granite Falls Wastewater Treatment Plant currently provides service to all customers within the municipal limits. Granite Falls has 1,597 residential customers and 177 commercial customers.

The Town of Granite Falls Water Treatment Facility provides water service to customers within the city limits.

City of Lenoir
The City's Lake Rhodhiss Water Treatment Facility is located in the Sawmills area of Caldwell County. Water service is provided to Lenoir, the Towns of Hudson, Baton, Sawmills, Joyceton, and much of Caldwell County.

The City of Lenoir operates two wastewater treatment facilities that serve Lenoir, Hudson, and Sawmills.

C. School Bus Usage

According to the Catawba County school system, school buses are only permitted to travel along US 321 within the project study area if an accident occurs on a side street or a road is blocked, in which case the school bus would be allowed to travel along US 321 for a short distance to bypass the accident or blocked roadway before continuing on its normal assigned route.

The Caldwell County school systems noted that 52 buses travel along US 321 between Lenoir and the Burke County line. School Transportation Managers felt this project would have a low impact on the bus service during construction.

D. Traffic Carrying Capacity

1. Existing Traffic Volumes

Current growth patterns in the region suggest that traffic along US 321 will continue to increase at a moderate but steady pace. Table 3 shows the 2011 average daily traffic (ADT) and the projected 2040 ADT for each major link along US 321.

Existing 2011 ADT ranges from a low of 30,800 vehicles per day (vpd) to a high of 42,200 vpd. The projected 2040 ADT ranges from 44,800 vpd to 66,900 vpd.

Table 3: Average Daily Traffic in 2011 and 2040

Link Description	Figure Reference	Average Daily Traffic		
		2011	2040	Percent Change
US 321/ US 70 Business Interchange to 13th St. SW	Figure 2-2	40,000	58,200	46%
13th St. SW to 2nd Ave. NW	Figure 2-2	34,600	51,800	50%
2nd Ave. NW to 7th Ave. NW	Figure 2-2 – 2-3	34,400	50,000	45%
7th Ave. NW to 9th Ave. NW	Figure 2-3	32,000	49,300	54%
9th Ave. NW to Clement Blvd.	Figure 2-3	30,800	53,200	73%
Clement Blvd. to 14th Ave. NW	Figure 2-3	33,400	56,000	68%
14th Ave. NW to Grace Chapel Rd.	Figure 2-4	42,200	66,900	59%
Grace Chapel Rd. to Alex Lee Blvd.	Figure 2-4 – 2-5	38,800	63,300	63%
Alex Lee Blvd. to US 321A /Wal-Mart Shopping Center	Figure 2-5	37,400	61,000	63%
Wal-Mart Shopping Center to Pinewood Rd.	Figure 2-5 – 2-8	38,800	61,500	59%
Pinewood Rd. to Lower Cedar Valley Rd.	Figure 2-8 – 2-10	30,800	47,400	54%
Lower Cedar Valley Rd. to Pine Mountain Rd.	Figure 2-10 – 2-11	33,700	50,400	50%
Pine Mountain Rd. to Mount Herman Rd.	Figure 2-11 – 2-12	31,700	44,800	41%
Mount Herman Rd. to Fairwood Dr.	Figure 2-12 – 2-13	36,000	45,400	26%
Fairwood Dr. to Southwest Blvd.	Figure 2-13	36,600	46,100	26%

Source: Traffic Forecasts for U-4700, prepared by NCDOT (May 11, 2011).

2. Existing Levels of Service

Capacity analyses were performed for this project following the NCDOT Congestion Management Unit's *Capacity Analysis Guidelines for the TIP Projects*, dated February 15, 2006. The highway capacity analyses are based on methodologies from the *Highway Capacity Manual (HCM 2000), Special Report 209*. Modeling software used in the capacity analyses were *Highway Capacity Software (HCS-Plus)*, *Synchro 7.0*, and *SimTraffic 7.0*.

A summary of the *Capacity Analysis Report For Purpose and Need: U-4700* is presented below. The original analysis considered future scenarios in 2035. An updated analysis analyzed the future build scenario for 2040. Table 4 presents comparisons of the LOS for the existing, no-build (2035), and build (2040) conditions.

Table 4: Intersection Capacity Analysis Results

Intersection	Figure Reference	Traffic Control	2009 Existing		2035 No-Build		2040 Build 6 Lane Super-street	
			AM	PM	AM	PM	AM	PM
US 321 at 13th St SW	Figure 2-2	Signalized	C	C	**E**	**F**	D	D
US 321 at Main Ave Dr NW	Figure 2-2	Unsignalized	**F**	**F**	**F**	**F**	C	C
US 321 at 2nd Ave NW	Figure 2-2	Signalized	**F**	**E**	**F**	**F**	C	C
US 321 at 7th Ave NW	Figure 2-3	Signalized	B	C	**F**	**F**	B	C
US 321 at 9th Ave NW	Figure 2-3	Signalized	C	D	**F**	**F**	B	C
US 321 at Clement Blvd	Figure 2-3	Signalized	C	C	**F**	**F**	C	B
US 321 at 15th Ave NW	Figure 2-4	Signalized	**F**	**F**	**F**	**F**	C	**E**
US 321 at Grace Chapel Rd	Figure 2-4	Signalized	C	C	**F**	**F**	**F**	**F**
US 321 at Alex Lee Blvd	Figure 2-5	Signalized	C	B	**F**	**F**	D	**E**
US 321 at Pooveys Grove Church Rd	Figure 2-5	Unsignalized	B	C	B	C	C	**E**
US 321 at US 321 A & Wal-Mart	Figure 2-5	Signalized	**E**	**F**	**F**	**F**	D	**E**
US 321 at Pinewood Rd	Figure 2-8	Signalized	**E**	**E**	**F**	**F**	D	D
US 321 at N. Highland Ave	Figure 2-8	Unsignalized	**F**	**F**	**F**	**F**	D	B
US 321 at Mission Rd/Lower Cedar Valley Rd	Figure 2-10	Signalized	**E**	D	**E**	D	D	C
US 321 at Quarry Estates Rd	Figure 2-10	Unsignalized	C	C	**F**	**F**	**E**	D
US 321 at Pine Mountain Rd	Figure 2-11	Signalized	**E**	**E**	**F**	**F**	C	D
US 321 at Mount Herman Rd	Figure 2-12	Signalized	C	C	**F**	**F**	D	D
US 321 at Fairwood Dr	Figure 2-13	Unsignalized	D	C	**F**	**E**	C	B
Falls Ave at US 321 Eastside Ramps	Figure 2-7	Unsignalized	**E**	C	**E**	**F**	C	C
US 321 Westside Ramps at Falls Ave	Figure 2-7	Unsignalized	B	B	B	B	B	B

Source: Capacity Analysis Report For Purpose and Need for U-4700, prepared by AECOM (August 20, 2009, November 16, 2011, and September 26, 2013).

Note: Levels of service of E or F are shown in **bold**.

As noted in Table 4, the existing four-lane highway analysis (for the year 2009) indicates that of the 18 mainline intersections analyzed, 8 (44%) operate at an unacceptable LOS (E or F) during the morning or afternoon peak traffic periods.

3. Future Levels of Service No-Build Scenario – year 2035

A No-Build traffic analysis was performed to assess how the existing roadway network would perform in the year 2035 if no improvements were made to the US 321 corridor. The 2035 No-Build highway analysis (see Table 4) indicates that of the 18 mainline intersections analyzed, 17 (94%) operate at an unacceptable LOS (E or F) during the morning or afternoon peak traffic periods.

4. Future Levels of Service – Build Scenario – year 2040 – 6 Lane Superstreet

The year 2040 Build Scenario for a 6 Lane Superstreet, indicates that 6 of the 18 (33%) mainline intersections would operate at an unacceptable LOS (E or F) during the morning or afternoon peak traffic periods.

E. Traffic Crash Data

A crash analysis was performed for US 321 from the southern project terminus at US 70 to the northern terminus at Southwest Boulevard. Along this section of roadway, the total number of crashes during the five year period from January 1, 2010 to December 31, 2014 was 1,645, with 5 being fatal, 460 being non-fatal injury crashes, and 1,180 involving property damage only (PDO). The US 321 crash data was compared to NC Statewide crash data for similar facilities to determine whether the project area is particularly vulnerable to crashes.

As shown in Table 5, the US 321 total crash rate of 189.52 is lower than the NC Statewide Accident Rate (SWAR) of 206.55. The crash rate is defined in terms of the number of crashes per 100 million vehicle miles traveled.

Table 5: Summary of Crash Data for US 321

Crash Rate (per 100 Million Vehicle Miles Travelled)		
Exposure Type	**US 321 Project (2010-2014)**	**2010-2014 Statewide Rate**
Total Crash Rate	189.52*	206.55
Fatal Crash Rate	0.60	1.22
Non-Fatal Injury Crash Rate	53.13	104.35
Severity Index	3.62	4.23*

* The crash rate for the US 321 corridor was calculated based on the original project limits (US 70 to US 64).

Source: NCDOT, Traffic Engineering and Safety Systems Branch, Crash Data for 1/01/10 to 12/31/14; Statewide Reportable Crashes 2010-2014, **All US Routes – 4 Lanes Divided with no Control of Access:* 2010-2012 North Carolina Crash Data.

Based on these results, a more detailed analysis of the crash data was completed to identify specific areas that are particularly susceptible to crashes. The results of this analysis are shown in Table 6. There are three segments with crash rates that are higher than the SWAR (a safety ratio greater than 1).

Table 6: Crash Data for Roadway Segments, 2010-2014

US 321 Segment	Length (miles)	Total No. of Crashes	ADT	Total Crash Rate*	State-wide Ave Accid. Rate*	Critical Crash Rate**	Safety Ratio ***	No. of Fatal Accid.	No. of Injury Accid.	No. of Property Only Accid.
US 70 to 15th Ave NW	2.47	603	40,000	418.03	206.55	226.58	1.84	3	132	466
15th Ave NW to US 321A	2.13	402	42,200	306.32	206.55	227.57	1.35	0	122	280
US 321A to Pinewood Rd	3.00	205	38,800	120.63	206.55	224.98	0.54	1	68	137
Pinewood Rd to Lower Cedar Valley Rd	2.30	183	30,800	176.94	206.55	230.28	0.77	0	64	119
Lower Cedar Valley Rd to Mt Herman Rd	1.83	140	33,700	155.49	206.55	232.02	0.67	0	40	100
Mt Herman Rd to Southwest Blvd	1.32	112	36,600	158.79	206.55	235.41	0.67	1	34	78
Total	13.05	1,645						5	460	1,180

* Crash Rate = Number of Crash / Million Vehicle Miles Traveled. Statewide Averages from NCDOT Traffic Engineering Branch for 2010-2012

** Critical Crash Rate is used to screen for high accident locations and accounts for exposure on each segment (from *Guidelines for Utilizing NC Statewide Crash Rates*)

*** Safety Ratio = Crash rate versus critical crash rate

It is helpful to investigate the types of crashes occurring on a particular roadway facility. The rates of occurrence of particular types of crashes at a site will often indicate some deficiency in the design or capacity of the facility and may lend understanding to the contributing factors. Along the US 321 corridor, approximately 59% of crashes were rear ends, with the next most common type (sideswipe) at only 8.5%.

F. Airports

The Hickory Regional Airport is located approximately one mile west of US 321 and is owned by the City of Hickory.

G. Public Transportation

The Western Piedmont Regional Transit Authority (WPRTA) provides urban fixed route transit services in the Hickory, Newton, and Conover area. The WPRTA has two bus routes that operate within the area, but there are no bus stops along US 321. The Catawba and Caldwell County Departments of Social Services provide on-demand service transportation. There are a number of other private transportation services operating throughout the region.

H. Transportation and Land Use Plans

1. NCDOT State Transportation Improvement Program

The *NCDOT 2016-2025 STIP* includes several other projects in the vicinity of STIP Project U-4700. These projects are presented in Table 7.

Table 7: STIP Projects Near U-4700

STIP Number	Figure Reference	Project Description	Status
B-4450	Figure 2-4	Catawba River. Replace Bridge No. 367	Has been included with this project
U-3437	Near Figure 2-2	Intersection of SR 1160 (MT. Herman Road) and Roy E. Coffey Drive in Hudson. Intersection improvements.	Under construction
U-2211	N/A	SR 1933 (Southwest Boulevard) to SR 1712 (Starcross Road) East of US 321 in Lenoir. Widen to multilanes with curb and gutter, part on new location and construct an interchange at US 321.	Under construction
U-5776	Near Figure 2-7	Intersection of SR 1106 (Duke Street) and US 321A. Realign Intersection	Construction in FY 2020

2. NCDOT Strategic Transportation Corridors

The subject portion of US 321 is identified as a segment of Strategic Transportation Corridor (STC) D connecting I-85 near Gastonia to Johnson City, TN.

The STC Policy identifies a network of critical multimodal transportation corridors considered the backbone of the state's transportation system. These 25 corridors move most of our freight and people, link critical centers of economic activity to international air and sea ports, and support interstate commerce. They must operate well to help North Carolina attract new businesses, grow jobs and catalyze economic development.

NCDOT worked with a broad-based advisory group comprised of stakeholders, including local planning organizations, members of local and regional governments, and area business leaders to develop the NC Transportation Network and STC Policy and map.

The STC Policy and map were adopted by the N.C. Board of Transportation's (BOT) on March 4, 2015.

3. Local Thoroughfare Plans

The 2040 Greater Hickory Urban Area Long Range Transportation Plan (LRTP) was adopted by the Hickory-Conover-Newton MPO's Transportation Advisory Committee (TAC) on January 22, 2014.

- The LRTP recommends that a 4-lane divided facility be constructed that connects US 321 with US 64/NC18 to provide a continuous route between US 64/NC 18 and US 321 (Southeast Boulevard (US 321/US 64/NC 18 Connector));

4. Other Infrastructure Projects in the Vicinity

The Hickory Public Utilities Department has Capital Improvement Program (CIP) projects that include Cripple Creek sewer line replacements and a rehabilitation project planned for the Southgate Outfall which crosses US 321 near US 70;

5. Land Use Plans

The following section summarizes the local land use plans along the corridor. **Section VI.F Land Use** details the specific recommendations related to Project U-4700.

a. City of Hickory

The *Hickory by Choice 2030 Comprehensive Plan* is an update of the *Comprehensive Land Use and Transportation Plan* that was adopted by City Council in 1999. The 2030 comprehensive plan provides a framework for making development and zoning decisions, promoting orderly land use, implementing public improvements, and generating private investment.

According to the plan, most of Hickory's commercial establishments and industrial development is located along US 321 and other major thoroughfares. These locations require Hickory residents to travel from all quadrants of the city to reach a commercial or industrial establishment. These major thoroughfares are also the gateways to the city and are an important factor in developing a community image in the minds of residents and visitors. The plan also notes that commercial development in Hickory is not well connected to surrounding residential neighborhoods, especially for pedestrians. While pedestrian access needs

improvement, there is an abundance of automobile access to retail establishments. Commercial areas along major road corridors have at least one curb cut for each business. The plan recommends a more equitable distribution between pedestrian access and automobile access to commercial areas and for access to be safe and efficient.

The plan also recommends industrial districts along US 321 and Highland Avenue east of Springs Road to focus on redevelopment opportunities. Because of the projected growth for corporate aircraft, compatible industrial land uses are recommended near the airport, while residential development is discouraged in the vicinity of the airport. Industrial development in the vicinity of the airport will also be required to adhere to watershed protection regulations to protect the water quality of the Catawba River, which is the primary source of drinking water for the city.

b. Caldwell County

Caldwell County's Comprehensive Plan was adopted in May 2007. This plan provides a basis for decision making; establishes policies and priorities for government projects; and serves as a guide for future growth and development within unincorporated Caldwell County.

c. Town of Granite Falls

Granite Falls adopted the *Granite Falls Horizons: Land Development Plan* in February 1999 as an official guide to the physical growth and development within the Town.

d. Town of Sawmills

The Town of Sawmills with assistance from Caldwell County developed a Land Use Plan that was adopted in 2005. The *Land Use Plan* provides policy guidance for land use and development within the Town of Sawmills.

e. Town of Hudson

The Town of Hudson adopted the *Hudson Land Development Plan* in March 2008. The Land Development Plan provides guidance on rezoning decisions, transportation regulations and the subdivision of land. The plan is intended to provide long-range policy guidance for land-use and growth management issues.

f. City of Lenoir

The City's *Comprehensive Plan* was adopted in May 2007. The plan notes the City has made significant investments in the redevelopment of its downtown, with public art, fountains and pedestrian facilities along West Avenue and Main Street. Major commercial development is located along

US 321, US 64 and NC Highway 18, as well as downtown areas. The plan identifies strategies to enhance these commercial areas to include architectural standards for new and redeveloping businesses to enhance the visual attractiveness of these commercial areas.

g. Regional Transportation Plans/Goals

Transportation goals of the *Hickory by Choice 2030 Comprehensive Plan* include:

- providing connectivity for pedestrians and vehicles;
- managing increased traffic volumes and pressure on transportation infrastructure through a combination of system improvements, demand management and land use actions as an alternative to capacity improvements alone;
- improving aesthetics of community gateways and corridors;
- providing a transportation network that serves automobiles, pedestrians, bicyclists, and public transit;
- considering industrial requirements in transportation decisions.

The *US 321 Highway Corridor Plan* was created by a planning committee that consisted of planners from Caldwell County and the municipalities of Hickory, Granite Falls, Sawmills, Hudson, and Lenoir. The US 321 *Highway Corridor Plan* provides a framework to guide development along the corridor from Hickory to Lenoir. The plan was prepared in 2005 in response to a request of the Greater Hickory Metropolitan Planning Organization (MMPO) and Unifour Rural Planning Organization (URPO).

A *Sidewalk, Bicycle, Greenway, and Trail Master Plan* was jointly developed by the Hickory Planning Commission and the Hickory Recreation Commission and was adopted in 2000. The plan promotes pedestrian facilities as a vital part of a city's transportation system, providing access to transit routes and business centers, and offering commuting alternatives for work and non-work related trips.

IV. ALTERNATIVES

A. Preliminary Study Alternatives

Preliminary study alternatives for the proposed action included the Public Transportation, Transportation System Management (TSM), Improve Existing Facility, and No-Build Alternatives.

1. No-Build Alternative

The No-Build Alternative would not provide any substantial improvements to the US 321 study corridor. Only typical maintenance activities would be provided along US 321, which would remain a four-lane facility. The No-Build Alternative would not incur right-of-way or construction costs. There would be no short-term disruptions along existing roadways during construction. There would be no impacts to streams, wetlands, or other natural and cultural resources, nor would there be any residential or business relocations. However, the No-Build Alternative would not meet the purpose and need identified for the proposed project. It would not improve the traffic flow or LOS of US 321 through the project study area. The No-Build Alternative was studied because it illuminates the need for improvements and serves as a baseline for comparing the other alternatives.

The No-Build Alternative offers limited improvements to the project study area and assumes that all other projects currently planned or programmed in the STIP will be constructed in the area as proposed. These improvements include continued roadway maintenance and minor improvements on US 321. As such, they would not improve capacity within the study area and thus do not meet the purpose of or need for this project.

2. Public Transportation Alternative

The project study area is not well served by mass transit. The Western Piedmont Regional Transit Authority (WPRTA) provides urban fixed route transit services in the Hickory, Newton and Conover area. The WPRTA has two bus routes that operate within the area of US 321, but there are no bus stops along US 321. Based on the project context, improvements to public transportation would not improve vehicle flow or safety on US 321, nor would they eliminate the need for widening the existing facilities. Therefore, the Public Transportation Alternative does not satisfy the purpose and need for this project and was eliminated from further study.

3. Transportation Systems Management (TSM) Alternative

Transportation Systems Management (TSM) improvements involve increasing the available capacity of the roadway within the existing right of way with minimum capital expenditures and without reconstructing or adding additional through lanes to the existing road. The addition of turn lanes, striping, signing, signalization, and minor realignments are examples of physical TSM improvements. Examples of operational TSM improvements include traffic law enforcement, speed restrictions, access control, and signal timing changes. However, TSM improvements will not increase the capacity or improve the LOS by a sufficient amount to prevent failing traffic conditions in the design year. Therefore, the TSM Alternative was eliminated from further study.

4. Improve Existing Facility

Widening alternatives were developed and carried forward for further study. The next section summarizes these.

B. Detailed Study Alternatives

The original limits of Project U-4700 were from US 70 in Hickory to US 64 in Lenoir. The northern terminus was changed in October 2015 from US 64 to Southwest Boulevard to provide additional time for the Department and the City of Lenoir to study alternatives at the US 321 with US 64/NC 18-90 intersection. The intersection project will move forward as a separate project, although it could be recombined with U-4700 in the future depending on schedules and funding. The project limits for U-4700 were shortened to Southwest Boulevard, a distance of 3.3 miles.

During the October 20, 2009 meeting for Concurrence Point 2 (Design Options for Detailed Study) it was decided that the best fit alignment for the original project length (US 70 to US 64) could be broken into 8 Segments (A through H – for design purposes, not for STIP funding) and that a choice of four Typical Sections would be analyzed for each. NCDOT would also investigate several different interchange alternatives. Table 8 summarizes the decisions made at the meeting.

Grace Chapel Road and US 321 in Hickory has three different alternatives (see Appendix A Figures 2-4 thru 2-4B for preliminary designs):

- Signalized full movement at-grade intersection
- A flyover with an at-grade directional movement type intersection
- A trumpet interchange

Falls Avenue and US 321 in Granite Falls has three different alternatives (see Appendix A Figures 2-7 thru 2-7B for the Preliminary Designs):

- A superstreet type at-grade intersection
- A partial clover interchange
- A tight diamond interchange

Initial Alternatives to Study in Detail:

Typical Section 1: Six-lane divided with 22-foot raised median with a concrete barrier with curb and gutter in outside lanes

Typical Section 2: Six-lane divided with 30-foot raised grassed median with curb and gutter in median and outside lanes

Typical Section 3: Six-lane divided with 30-foot raised grassed median with curb and gutter in median and grassed shoulder

Typical Section 4: Six-lane divided with 46-foot depressed grassed median and grassed shoulder

Table 8: Initial Typical Sections

U-4700 Segments*	Typical Section Alternatives for Detailed Study
Segment A: US 70 to 800 feet north of 2nd Avenue NW in Hickory (1.24 miles)	Typical Section 1 with Interchange at 13th Street SW Typical Section 2 with Interchange at 13th Street SW
Segment B: 800 feet north of 2nd Ave. NW to 1300 feet north of Clement Blvd. (0.95 miles)	Typical Section 3 with Interchange at Clement Blvd. Typical Section 4 with Interchange at Clement Blvd.
Segment C:1300 feet north of Clement Blvd to just south of Grace Chapel Road (1.12 miles)	Replace bridges over Catawba River and grade-separate Catawba County railroad crossing
Segment D: Just south of Grace chapel Rd. to 400 feet south of Gunpowder Creek (8.10 miles)	Typical Section 3 Typical Section 4
Segment E: 400 feet south of Gunpowder Creek to Southwest Blvd. (2.04 miles)	Typical Section 3 Typical Section 4
**Segment F: Southwest Blvd. to just south of Mclean Drive (2.18 miles)	Typical Section 3 Typical Section 4
**Segment G: South of McLean Dr. to South of US 64/NC 18-90 in Lenoir (1.04 miles)	Typical Section 1 Typical Section 3 Typical Section 4
**Segment H: US 321 US 64/NC18-90 intersection in Lenoir	Interchange at US 321 and US 64/NC18-90

* These segments are for CP2 purposes-these are not the STIP sections

** Segments F, G, and H were included in the original project limits, but have since been removed

Note: See Appendix A Figure 6 for the Proposed Typical Sections

C. Refined Detailed Study

The "Best Fit" widening was carried forward for preparation of preliminary roadway design plans and refinement of environmental impacts and cost. The best fit widening alternative was reconfirmed for the new project limits at a Merger meeting on October 14, 2015.

At a February 26, 2014 merger meeting the merger team revisited the Typical Sections and removed Typical Section 4 from consideration due to the large amount of impacts. On October 14, 2015, the Merger Team agreed to use a combined 22-foot median (Typical Section 1) and 30-foot median (Typical Section 2) for the segment from US 70 to just north of 2nd Avenue NW in Hickory. A 30-foot median (Typical Section 3) is proposed along the remainder of the corridor.

The refined alternatives will be carried forward and will be presented at a design public hearing. Comments received at the public hearing will be reviewed, and coordination with other federal, state, and local agencies will occur before a final decision is made.

V. PROPOSED IMPROVEMENTS

A. Roadway Cross-Section and Alignment

The proposed US 321 widening improvements currently under consideration utilizing the typical sections list below for each section:

Typical Section 1: Six-lane divided with 22-foot raised median with a concrete barrier with curb and gutter in outside lanes

Typical Section 2: Six-lane divided with 30-foot raised grassed median with curb and gutter in median and outside lanes

Typical Section 3: Six-lane divided with 30-foot raised grassed median with curb and gutter in median and grassed shoulder

Table 9: Refined Typical Sections

U-4700 Segments*	Typical Section Alternatives for Detailed Study
Segment A: US 70 to 800 feet north of 2nd Avenue NW in Hickory (1.24 miles)	Combination of Typical Sections 1 and 2 with Interchange at 13th Street SW
Segment B: 800 feet north of 2nd Ave. NW to 1300 feet north of Clement Blvd. (0.95 miles)	Typical Section 3 with Interchange at Clement Blvd.
Segment C:1300 feet north of Clement Blvd to just south of Grace Chapel Road (1.12 miles)	Replace bridges over Catawba River and grade-separate Catawba County railroad crossing
Segment D: Just south of Grace chapel Rd. to 400 feet south of Gunpowder Creek (8.10 miles)	Typical Section 3
Segment E: 400 feet south of Gunpowder Creek to Southwest Blvd. (2.04 miles)	Typical Section 3

*These segments are for CP2 purposes-these are not the STIP sections

B. Right of Way and Access Control

Control of access along the project will consist of full control at interchanges and limited or partial control along the remainder of the project.

The proposed right-of-way (ROW) width varies along the project. Typical Section 1 will require approximately 120 feet of ROW. Typical Section 2 will require approximately 200 feet of ROW. Typical Section 3 will require approximately 130 feet of ROW.

Additional ROW will be required at interchanges, -Y- line improvements, and U-Turn Bulbs.

C. Design Speed and Speed Limit

Design criteria were developed in accordance with NCDOT guidelines and American Association of State Highway and Transportation Officials (AASHTO) standards. The US 321 roadway corridor is classified as an Principal Arterial from US 70 to 2nd Avenue NW in Hickory and will have a design speed of 50 mph. US 321 is classified as a Principal Arterial from 2nd Avenue NW to Southwest Boulevard in Lenoir and will have a design speed of 60 mph.

D. Anticipated Design Exceptions

No design exceptions were used in developing the current preliminary plans.

E. Intersecting Roads and Type of Control

The following changes will be made to the existing intersection/interchange configurations. For more information the preliminary designs are included in Appendix A Figure 2 (listed from Lenoir towards Hickory).

- Southwest Boulevard (SR 1933) will remain an interchange. (Figure 2-12)
- Fairwood Drive (SR 1767) will utilize the superstreet concept. (Figure 2-15)
- Mount Herman Road (SR 1160) will utilize the superstreet concept. (Figure 2-11)
- Caldwell Technical Institute will utilize the superstreet concept. (Figures 2-10 – 2-11)
- Pine Mountain Road will utilize the superstreet concept. (Figure 2-10)
- Quarry Estates Road / Cedar Valley Road (SR 1192) will utilize the superstreet concept. (Figure 2-9)
- Lower Cedar Valley Road (SR 1180) / Mission Road will utilize the superstreet concept. (Figure 2-9)
- Pinewood Road (SR 1109) will utilize the superstreet concept. (Figure 2-7)
- Dudley Shoals Road (SR 1102) will remain a grade separation with US 321. (Figure 2-7)

- Falls Avenue (SR 1107) is being analyzed as an intersection and an interchange. (Figure 2-6)
- US 321A / River Bend Road will utilize the superstreet concept. (Figure 2-4)
- Pooveys Grove Church Road (SR 1873) will utilize the superstreet concept. (Figure 2-4)
- Alex Lee Boulevard / Huffman Mills Inc. Driveway will utilize the superstreet concept. (Figure 2-4)
- Grace Chapel Road (SR 1751) is being studied as a possible interchange. (Figure 2-3)
- Old Lenoir Road (SR 1314) / 14th Street, Clement Boulevard (SR 1371), 9th Avenue NW will become an interchange. (Figure 2-2)
- 7th Avenue NW and 2nd Avenue NW will utilize the superstreet concept. (Figures 2-1 – 2-2)
- Main Avenue Drive will no longer cross US 321. The west side will become a right in/right out and the east side will be cul-de-sacked. (Figure 2-1)
- 14th Street SW will no longer cross US 321 (two cul-de-sacs will be created). (Figure 2-1)
- 13th Street SW has a signalized intersection and will be upgraded to an interchange. (Figure 2-1)

F. Service Roads

Service roads are being investigated at interchange locations and will be provided where feasible. Please see the Preliminary Design in Appendix A Figure 2 for more details about each interchange design.

G. Railroad Crossings

Norfolk Southern Railroad is grade separated over US 321 just north of 1st Avenue SW. The existing railroad bridge will be replaced and an additional bridge will be added for a future track.

There is an at-grade crossing with a railroad siding and US 321 just south of the Catawba River. This will become grade separated with two new roadway bridges that will extend over both the railroad and the Catawba River.

The at-grade rail crossing at Clement Boulevard near Old Lenoir Road will also be grade separated. Old Lenoir Road and 12th Street Drive NW will remain underneath Clement Boulevard.

H. Structures

Below is a brief summary of the bridges for the proposed project:

- 13th Street SW will have a new bridge going over US 321. (Figure 2-1)
- 2nd Avenue and 1st Avenue will both have new bridges over US 321. (Figure 2-1)
- Norfolk Southern will have a new railroad bridge over US 321. (Figure 2-1)
- Clement Boulevard interchange will have a new bridge over US 321. (Figure 2-2)
- The dual bridge over the Catawba River will be replaced as part of this project. (Figure 2-3)
- Grace Chapel Road is being investigated for a possible interchange with US 321. (Figure 2-3)
- Falls Avenue has multiple options that might include a new interchange or new pedestrian bridge depending on whether or not the superstreet type at-grade intersection is selected. (Figure 2-6)
- The bridges over Dudley Shoals Road will be replaced with a new bridge. (Figure 2-7)
- The dual structures over Gunpowder Creek will be widened. (Figure 2-10)

For information about the proposed large culverts, the CP2A form is provided in Appendix E.

I. Bicycle and Pedestrian Facilities

This section of US 321 is not listed in the STIP as having a need for incidental bicycle accommodations, and US 321 is not included in a state-designated bicycle route system. NCDOT Division of Bicycle and Pedestrian Transportation did not provide any provisions during the course of the study. Therefore, bicycle lanes are not included as part of this study.

No new sidewalks are proposed along US 321. Sidewalks along cross streets will be maintained or replaced.

J. Utilities

Construction of the proposed project will require relocation or modifications of existing public utilities. Any adjustments, relocations, or modifications will require coordination with the affected utility company. Detailed changes will be evaluated during final design.

K. Noise Barriers

A preliminary noise evaluation was performed and a more detailed review will be completed during project final design. Noise barriers were found to be feasible and reasonable at three different locations. More detail about the noise analysis can be found in Section VI.J of this report.

L. Work Zone, Traffic Control, and Construction Phasing

Construction phasing will be utilized to maintain traffic along US 321. Some streets may be closed for short periods of time during construction. All traffic control devices used during the construction of this project will conform to the most current FHWA Manual of Uniform Traffic Control Devices (MUTCD).

VI. ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

A. Natural Resources

The Natural Resources section of the EA will provide a summary of the potential impacts to the natural environment. Further details and analysis related to the natural environment are provided in the *Natural Resources Technical Report* (NRTR) (September 2009), *NRTR Update* (October 2013), and *NRTR Addendum* (December 2015). Tables in the following sections have been modified since the NRTR and NRTR Addendum to reflect the new project termini.

Field work was conducted from April 15, 2009 through June 18, 2009 and revisited between April 29 and May 3, 2013 and again on October 12, 2015. Most jurisdictional areas identified in the study area were field verified by Monte Matthews of the U.S. Army Corps of Engineers (USACE) and Amy Euliss of the North Carolina Division of Water Quality (NCDWR) on July 24, 2009. An updated jurisdictional determination package was submitted to the USACE on September 18, 2009. A follow-up site visit with the agencies to obtain a written jurisdictional determination will be conducted at a later date. For more information on the following sections please see the NRTR and NRTR Addendum.

1. Physical Characteristics

The study area is located in both the piedmont and mountain physiographic regions of North Carolina (Figures 2 through 2.3 in the NRTR). Topography in the project vicinity is characterized by very steep slopes and narrow ridges. Elevations in the study area range from approximately 980 to 1,280 feet above mean sea level. Land uses in the project vicinity consist of primarily commercial and residential interspersed with forested areas between developments and along stream corridors.

2. Soils

Based on information contained in the United States Department of Agriculture Soil Survey data for Caldwell (1989), Burke (2006), and Catawba (1975) counties, the soils within the study area are composed of twenty-two soil types.

3. Water Resources

Water resources in the study area are part of the Catawba River basin (U.S. Geological Survey (USGS) Hydrologic Units 03050101 and 03050102). The Catawba River basin encompasses 3,285 square miles of land area and contains nearly 3,048 miles of freshwater streams and rivers (NCDWR, 2004). The project study corridor crosses the Catawba River at Lake Hickory. In addition to the Catawba River, there are eight USGS-named streams and 36 unnamed tributaries within the project study area (USGS-named streams are listed on Table 10, and all streams are listed in the NRTR Update and NRTR addendum). There are five ponds located in the study area. Three of these ponds are hydrologically

connected to a jurisdictional stream feature as shown in the NRTR Addendum.

Table 10: Water Resources in the Study Area

USGS-Named Stream	DWQ Stream Index No.	Best Usage Classification
Geitner Branch*	11-129-1-18	C
Frye Creek	11-54-1	WS-IV
Catawba River	11-(53); 11-(51)	WS-IV, B, CA
Gunpowder Creek	11-55-(4)	WS-IV; CA
Billy Branch	11-55-3	WS-IV
Gunpowder Creek	11-55-(1.5)	WS-IV
Little Gunpowder Creek	11-55-2-(2)	WS-IV
Angley Creek, incuding pond	11-55-1	C
Brushy Fork	11-55-1-1	C
Cripple Creek	11-54-2	WS-IV

* A tributary of Geitner Branch is within the study area.

NCDWR classifies surface waters of the state based on their intended best uses. Angley Creek, Brushy Fork, Geitner Branch, Gunpowder Creek (upstream of SR 1127), and the stream's associated tributaries are classified as *Class C* waters within the project.

The Catawba River, Billy Branch, Cripple Creek, Frye Creek, Little Gunpowder Creek, Gunpowder Creek (downstream of SR 1127 to its confluence with Billy Branch) and their associated tributaries are classified as *Water Supply-IV (WS-IV)* waters. The Catawba River, Gunpowder Creek (downstream of its confluence with Billy Branch), and their associated tributaries within the project are also assigned a supplemental classification as waters in *Critical Areas (CA).* This supplemental designation includes critical areas adjacent to a water supply intake or reservoir where risk associated with pollution is greater than from the remaining portions of the watershed. Special restrictions are placed on streams designed as *CA* due to their proximity to a water supply source. The Catawba River and its tributaries located in the project area are also classified as *B* waters.

Gunpowder Creek (Old Mill Pond), SIN/AU 11-55-(1.5) is listed on the North Carolina 2014 Final 303(d) list for Benthos Fair (Nar, AL, FW).

Caldwell and Burke counties are designated by the N.C. Wildlife Resources Commission as containing Mountain Trout Waters, however, no streams within the project study area are designated as Trout Waters.

The N.C. Division of Marine Fisheries does not designate any streams within the project study area as supporting anadromous fish or serving as primary nursery areas. In addition, NCDWR does not designate any streams within the project study area or 1.0 mile downstream of the project study area as High Quality Waters (HQW) or Outstanding Resource Waters (ORW).

a. Summary of Anticipated Impacts

Construction of the proposed project may cause temporary impacts due to sedimentation and reduced water quality resulting from project construction. Permanent impacts to water quality are not expected due to the implementation of NCDOT's Best Management Practices (BMP) and other measures to avoid and minimize harm to natural systems in the project area.

4. Biotic Resources

The biotic resources located in the project study area include both terrestrial and aquatic communities.

a. Terrestrial Communities

Four terrestrial communities were identified in the study area: Maintained/Disturbed, Upland Hardwood Forest, Mixed Pine-Hardwood Forest, and Piedmont Bottomland Forest. Figures 3 through 3.6 in the NRTR and Figures 4 through 4.8 in the NRTR Addendum shows the location and extent of these terrestrial communities in the study area. A brief description of each community type follows. Many species are adapted to the entire range of habitats found along the project alignment but may not be mentioned separately for each community. Scientific names of all species identified are included in the NRTR.

Maintained/Disturbed Land

The majority of the terrestrial communities found in the study area are this type of community. This community type includes four types of habitat that have recently been or are currently impacted by human disturbance including regularly maintained roadside shoulder, utility rights-of-way, commercial development, and residential areas. A few areas that have been recently clearcut are included in this disturbed community. These habitats are kept in a low-growing, early successional state by regular maintenance (except clearcuts). The maintained roadside shoulder is mowed frequently and is dominated by herbaceous vegetation including broom sedge, fescue, Japanese honeysuckle and various annual and perennial herbaceous weed species.

The commercial and residential areas include maintained lawns near outbuildings and parking areas. Most of these areas are maintained on a regular basis by either mowing or herbicide application. Residential areas are dominated by various turf grasses, ornamental shrubs, and large shade trees including red maple, willow oak, and southern red oak. Commercial areas can resemble residential areas if fastidiously maintained or may develop into an early successional habitat if left fallow.

Upland Hardwood Forest

The Upland Hardwood Forest is dominated by a mixture of oaks and hickories and is typically found on the low ridges, upland flats, mid-slopes, and other dry-mesic upland areas throughout the project area. Species found in the canopy include white oak, northern red oak, black oak, chestnut oak, and hickory. Due to past disturbance, an occasional pine is found scattered within this community. Understory species include sourwood, flowering dogwood, eastern redbud, and American beech. Shrubs include mountain laurel, blueberries, and azalea. Herbaceous vegetation is usually sparse, although it can be locally diverse and includes galax, rattlesnake plantain, spotted wintergreen, and heartleaf.

Mixed Pine-Hardwood Forest

The Mixed Pine-Hardwood Forest is an upland community having hardwoods with a significant component of pines. This community is typically found on the mid-slopes, low ridges, upland flats, and other dry upland areas throughout the study area. These communities are usually younger trees and past disturbances have created the mixture of tree species. Typical canopy species include the oaks identified in the upland hardwood forest with an important component of pines. These pines include eastern white pine, shortleaf pine, and Virginia pine. Tulip tree and sweetgum are also found on the lower slopes. Understory trees found in this community include red maple, flowering dogwood, and American holly. Shrubs are often dense and species include mountain laurel and strawberry bush. Herbaceous vegetation is usually sparse.

Piedmont Bottomland Forest

This community occurs along the banks and floodplain of many streams in the project area. Canopy species include red maple, sweet gum, and tulip tree. The understory includes black walnut, American holly, musclewood, black cherry, and sometimes eastern white pine. The herbaceous layer includes yellow root, kudzu, giant cane, soft rush, and deertongue. Virginia creeper, poison ivy, and devil's darning needles are the dominant vines. A number of exotics are present in this community including multiflora rose, Japanese stiltgrass, and Chinese privet.

b. Terrestrial Community Impacts

Terrestrial communities in the project study area will be impacted by project construction as result of potential grading and paving portions of the project study area. Table 11 presents the extent of each terrestrial community type in the project study area and the anticipated impact to each community type based on the preliminary roadway design plans.

Table 11: Terrestrial Communities in the Study Area and Impacts

Community	Coverage (ac)	Impacts (ac)	Additional Impacts (ac)
Maintained/Disturbed Land	2,004	191	Falls Ave. Diam.: 4 Falls Ave. Clover.: 3 Grace Ch. Fly.: 1 Grace Ch. Trump.: 1
Upland Hardwood Forest	57	9	Grace Ch. Trump.: 4 Grace Ch. Fly.: 3
Mixed Pine Hardwood Forest	104	15	N/A
Piedmont Bottomland Forest	32	9	Falls Ave. Diam.: 1 Falls Ave. Clover.: 1
Total	2,197	224	N/A

Note – Impacts are calculated based on slope stakes + 25 feet.

c. Terrestrial Wildlife

Terrestrial communities in the study area are comprised of both natural and disturbed habitats that may support a diversity of wildlife species (evidence of species observed are indicated with (*). Based on field observations, mammal species that are likely to commonly utilize the forested habitats and stream corridors found within the study area include, but are not limited to eastern chipmunk, cottontail rabbit, coyote, gray fox*, common mouse, raccoon, Virginia opossum*, gray squirrel*,skunk*, and white-tailed deer*. Birds that commonly use forest and forest edge habitats include the American crow*, wild turkey*, barred owl*, gray heron*, redtailed hawk*, mockingbird, woodpeckers (i.e. pileated, red-headed), Cooper's hawk, Carolina wren, blue jay, and mourning dove. Birds that may use the open habitat or water bodies within the study area include turkey vulture* and black vulture. Reptile and amphibian species that may use terrestrial communities located in the study area include the black rat snake*, black racer, copperhead, common snapping turtle, eastern box turtle*, American toad, spring peeper*, and the five-lined skink*.

d. Terrestrial Wildlife Impacts

Terrestrial wildlife in the project study area will be impacted by project construction as result of potential grading and paving portions of the project study area and loss of habitat. Due to the existing US 321 and the urban environment, these impacts will be minimal.

e. Aquatic Communities

The Catawba River, Angley Creek, Billy Branch, Brushy Fork, Frye Creek, Geitner Branch, Gunpowder Creek, Little Gunpowder Creek, Cripple Creek and their associated tributaries and ponds provide aquatic habitat within the project study area. The physical characteristics (size and water quality) of the stream, as well as the

adjacent terrestrial community, directly influence the faunal composition of this aquatic community. The quality of aquatic habitat within the project study area is expected to be moderate due to road crossings, extensive commercial and residential development, stream incision caused by increases in impervious surface, and fragmentation of the riparian corridors associated with streams within the watershed.

Aquatic invertebrates are a major component of aquatic ecosystems, as primary and secondary consumers, as well as prey items for organisms higher in the food chain. Macrobenthos observed in the perennial streams included crayfish*, caddisflies*, stoneflies*, mayflies*, and water pennies*. In addition, caddisflies, mayflies, and stoneflies were observed in intermittent and perennial streams.

Fish species expected to occur within the project vicinity include sunfish, darters, shiners, and mosquitofish.

f. Aquatic Community Impacts

Construction of the proposed project may cause temporary impacts to aquatic communities due to sedimentation and reduced water quality resulting from project construction. Permanent impacts are not expected due to the implementation of NCDOT's Best Management Practices (BMP) and other measures to avoid and minimize harm to natural systems in the project area.

g. Invasive Species

Five species from the NCDOT Invasive Exotic Plant List for North Carolina were found to occur in the study area. The species identified were Chinese privet (Threat), kudzu (Threat), Japanese stilt grass (Threat), multiflora rose (Threat), and Japanese honeysuckle (Moderate Threat). NCDOT will follow the Department's BMPs of the management of invasive plant species as appropriate.

5. Jurisdictional Issues

a. Waters of the U.S.

"Waters of the United States" include surface waters and wetlands (inundated or saturated areas that support vegetation typically adapted to wet conditions) as defined in 33 CFR 328.3. Impacts to Waters of the United States fall under the jurisdiction of the USACE through Section 404 of the Clean Water Act (33 USC 1344) and under the jurisdiction of the NCDENR DWR through the Section 401 Water Quality Certification Process (NC General Statues Chapter 143 Article 21, Part 1).

Forty four streams were identified in the study area. All streams are shown in the NRTR and NRTR Addendum, and USGS-named streams are labeled in Figure 2 in Appendix A and listed on Table 12. USACE and NCDWR stream delineation forms are included in the NRTR and NRTR Addendum. The physical characteristics and water quality designations

of each jurisdictional stream are detailed in the NRTR and NRTR Addendum. All jurisdictional streams in the study area have been designated as warm water streams by the N.C. Wildlife Resources Commission for the purposes of stream mitigation.

Table 12: Impacts to Streams

Stream Name	Geographic Location Reference	Total USGS-Named Stream Length in Study Area	Total Associated Unnamed Tribs. Length in Study Area	BUC	Crossing Including Unnamed Tributaries	Impacts (linear feet)		
						USGS-Named Streams	Associated Unnamed Tributaries	Total
Geitner Branch	Figure 2-2	N/A	1377	C	N/A	N/A	0	0
Frye Creek	Figure 2-3	2194	0	WS-IV	4	687	0	687
Cripple Creek	Figure 2-3	59	0	WS-IV	0	0	0	0
Catawba River	Figure 2-4	1200	3198	WS-IV,B; CA	At Grade: 0 Trumpet: 1 Flyover: 1	0	At Grade: 1,049 Trumpet: 1,293 Flyover: 1,245	At Grade: 1049 Trumpet: 1,293 Flyover: 1,245
Billy Branch	Figure 2-8	1400	265	WS-IV	At Grade: 1 Clover: 1 Diamond: 1	At Grade: 365 Clover: 365 Diamond: 385	At Grade: 165 Clover: 165 Diamond: 180	At Grade: 530 Clover: 530 Diamond: 565
Little Gunpowder Creek	Figure 2-9	676	4061	WS-IV	6	0	1375	1375
Gunpowder Creek	Figure 2-11 Figure 2-12 Figure 2-13	3800	9558	C	At Grade: 14 Clover: 14 Diamond: 14	221	At Grade: 2,313 Clover: 2,410 Diamond: 2,463	At Grade: 2,534 Clover: 2,631 Diamond: 2,684
Brushy Fork	Figure 2-12	900	0	C	1	126	0	126
Angley Creek	Figure 2-13	845	0	C	1	499	0	499
Total		9,471	17,982	--				

Note: Slopes stakes plus 25 feet. BUC = Best Use Classification

Seventeen jurisdictional wetlands were identified within the study area. All wetlands and their classifications and quality rating data forms are included in the NRTR Update. All wetlands in the study area are within the Catawba River basin (USGS Hydrologic Units 03050101 and 03050102). Wetland sites WA, WH, WHA, WK, WKA, WL, and WP are included within the Piedmont Bottomland Forest community. Wetland

sites WG and WO are included within the Mixed Pine Hardwood Forest community. The remainder of the sites (WB, WC, WD, WF, WFA, WFB, WI, and WJ) are located within the Maintained/Disturbed community.

Table 13: Impacts to Wetlands

Map ID	NCWAM	Hydro. Class.	NCDWR Wet. Rating	Total Wet. Area in Study Area (ac)	Impacts (Acres - Slope Stakes Plus 25 feet)
WA	Headwater Forest	Riparian	40	0.1	0.1
WB	Headwater Forest	Riparian	46	< 0.1	0
WC	Headwater Forest	Riparian	46	< 0.1	0
WD	Bottomland Hardwood Forest	Riparian	46	0.1	0
WF	Bottomland Hardwood Forest	Riparian	46	0.1	0.1
WFA	Bottomland Hardwood Forest	Riparian	63	0.5	0.1
WFB	Floodplain Pool	Riparian	27	0.3	0
WG	Bottomland Hardwood Forest	Riparian	53	0.4	0
WH	Seep	Riparian	58	< 0.1	0
WHA	Seep	Riparian	58	< 0.1	0
WI	Headwater Forest	Riparian	51	0.1	0.1
WJ	Headwater Forest Forest	Riparian	53	0.1	0
WK	Non-Tidal Freshwater Marsh	Riparian	81	0.5	0
WKA	Headwater Forest	Riparian	51	< 0.1	0
WL	Non-tidal Freshwater Marsh	Riparian	88	6.3	0
WO	Seep	Riparian	68	0.07	0
WP	Headwater Forest	Riparian	72	0.4	0.2
				Total	0.6

Table 14 summarizes total anticipated impacts to streams and wetlands for the project.

Table 14: Anticipated Impacts to Water Resources

Segment	Impact					
	Section A		Section B			Section C
	US 70 to Grace Chapel Rd	US 321 & Grace Chapel Rd Interchange	Grace Chapel Rd to Falls Ave	US 321 & Falls Ave Interchange	Falls Ave to Mission Rd	Mission Rd to Southwest Blvd
Total Stream Impacts (linear ft.)	5,097	1,921	2,311	7,820	5,886	1,197
Total Wetlands Impacts (ac)	0.1	0	0	0	0.2	0.3
Buffer Zone 1 Impacts (sq. ft.)	10,454	8,665	10,707	26,230	29,269	53,466
Buffer Zone 2 Impacts (sq. ft.)	4,847	3,465	5,506	17,897	12,602	24,457
Total Buffer Impacts (sq. ft.)	15,300	12,120	16,214	44,127	41,871	77,923

b. Clean Water Act Permits

Discharges of dredge or fill material into jurisdictional wetlands, streams, or open waters associated with the construction of the roadway project will require a Section 404 permit from the USACE. The Nationwide Permit (NWP) 14 (Linear Transportation Projects) may cover the impacts to the jurisdictional streams and wetlands within the project study area. If the project impacts exceed NWP thresholds, then an Individual Section 404 Permit will likely be required. Final determination of permit applicability lies with the USACE.

Section 401 General Water Quality Certification – A Section 401 General Water Quality Certification from NCDWR will be required for any activity that may result in a discharge into "Waters of the United States" or for which an issuance of a federal permit is required. If project impacts exceed the NWP impact thresholds, an Individual Section 401 Water Quality Certification will be required.

No construction moratoria apply to any waters in the study area.

c. N.C. River Basin Buffer Rules

N.C. River Basin Buffers Rules are applicable to some waterbodies within the project area. The mainstem of the Catawba River and lakes on the mainstem (including Lake Hickory) are subject to the Catawba River Basin Buffer Rules (15a NCAC 02b.0243). These rules require a

50-foot vegetated buffer along protected waters. The project corridor crosses the Catawba River at Lake Hickory. Anticipated impacts within the buffer are summarized in Table 14.

d. Wetland and Stream Mitigation

1) Avoidance and Minimization of Impacts

The NCDOT will avoid and minimize impacts to streams and wetlands to the greatest extent practicable in choosing a preferred alternative and during project design.

2) Compensatory Mitigation of Impacts

Compensatory mitigation is not normally considered until anticipated impacts to "Waters of United States" 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 each and every permit action. Compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required.

Once an alternative and right-of-way widths are established, specific impact calculations for wetlands and streams can be determined and mitigation requirements can be further evaluated.

The NCDOT will investigate potential on-site stream mitigation opportunities once a final decision has been rendered with regard to the location of the preferred alternative. If on-site mitigation is not feasible, mitigation will be provided by the North Carolina Department of Environmental Quality, Division of Mitigation Services (DMS). In accordance with the "Memorandum of Agreement Among the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), July 22, 2003, the DMS will be requested to provide off-site mitigation to satisfy the federal Clean Water Act compensatory mitigation requirements for this project.

6. Rare and Protected Species

As of April 2, 2015, the USFWS lists nine federally protected species for Burke County, seven federally protected species for Caldwell County, and three federally protected species for Catawba County. A composite listing of all the protected species for each county is included in Table 15. A brief description of each species' habitat requirements follows, along with the Biological Conclusion rendered based on survey results in the study area. More detail on habitat requirements is in the NRTR Update and NRTR Addendum.

Table 15. Federally Protected Species Listed for Counties in the Study Area

Scientific Name	Common Name	County	Federal Status	Habitat Present	Biological Conclusion
Glyptemys-muhlenbergii	Bog Turtle	Burke, Caldwell	T(S/A)	No	Not Required
Glaucomys sabrinus coloratus	Carolina northern flying squirrel	Caldwell	E	No	No Effect
Corynorhinus townsendii	Virgina big-eared bat	Caldwell	E	Unknown	Unresolved
Myotis septentrionalis	Northern long-eared bat	Burke, Caldwell, Catawba	T	Yes	Unresolved
Microhexura montivaga	Spruce-fir moss spider	Caldwell	E	No	No Effect
Gymnoderma lineare	Rock gnome lichen	Burke	E	No	No Effect
Helianthus schweinitzii	Schweinitz's sunflower	Catawba	E	Yes	No Effect
Hexastylis naniflora	Dwarf-flowered heartleaf	Burke, Caldwell, Catawba	T	Yes	May Affect, Likely to Adversely Affect
Liatris helleri	Heller's blazing star	Burke, Caldwell	T	No	No Effect
Hudsonia montana	Mountain golden-heather	Burke	T	No	No Effect
Isotria medeoloides	Small whorled pogonia	Burke	T	Yes	No Effect
Sisyrinchium dichotomum	White irisette	Burke	E	Yes	No Effect
Geum radiatum	Spreading avens	Burke	E	No	No Effect

E – Endangered; T – Threatened; T (S/A) – Threatened due to similarity of appearance

Bog Turtle

USFWS optimal survey window: April 1 – October 1 (visual surveys); April 1 – June 15 (optimal for breeding/nesting); May 1 – June 30 (trapping surveys)

Habitat Description: Bog turtle habitat consists of open, groundwater supplied (springfed), graminoid dominated wetlands along riparian corridors or on seepage slopes.

Biological Conclusion: Not Required
Species listed as threatened due to similarity of appearance do not require Section 7 consultation with the USFWS. This project is not expected to affect the bog turtle because no suitable habitat is present within the study area. Freshwater wetlands within the study area are forested and early successional riparian systems. A review of NCNHP database records, accessed October 2015, indicates no known bog turtle occurrence within 1.0 mile of the study area.

Carolina Northern flying squirrel

USFWS optimal survey window: May – October; coldest days in coldest winter months (nest box surveys)

Habitat Description: This nocturnal squirrel prefers the ecotone between coniferous (red spruce, Fraser fir, or hemlock) and mature northern hardwood forests (beech, yellow birch, maple, hemlock, red oak, and buckeye), typically at elevations above 4,500 feet. In some instances, the squirrels may be found on narrow, north-facing valleys above 4,000 feet. No habitat for the Carolina Northern flying squirrel is located in the study area.

Biological Conclusion: No Effect
Habitat for the Carolina Northern flying squirrel does not occur within the project area. Elevations in the project do not exceed 1,800 feet above mean sea level and no mature coniferous or northern hardwood forests are present. A review of NCNHP database records, accessed October 2015, indicates no known Carolina Northern flying squirrel occurrences within 1.0 mile of the study area.

Virginia big-eared bat

USFWS optimal survey window: May 15 – August 15; January 15 – February 15 (winter)

Habitat Description: Virginia big-eared bat has been recorded in the Appalachian mountains of North Carolina. They occupy caves in the summer and winter. Hibernating colonies are typically located in deep cave passageways that have stable temperatures and air movement, the temperature in these hibernacula may be lower than that tolerated by other bats. Roost sites are generally located in mines or caves in oak-hickory forests. They will use alternate roost sites but there is no record of long migrations. They are nocturnal and leave their roost to forage on moths, beetles, and other insects. This species feeds mostly over open pasture, corn and alfalfa fields, and around the crowns of trees.

Biological Conclusion: Unresolved
No caves were identified within the addendum study area. A review of NCNHP database records, updated October 2015, indicates no known Virginia big-eared bat occurrences within 1.0 mile of the study area. The NCDOT Natural Environment Section (NES) Biological Surveys Groups will conduct bat surveys and render a biological conclusion for Virginia big-eared bat for this project.

Northern long-eared bat

USFWS optimal survey window: June 1 – August 15

Habitat Description: In North Carolina, the Northern long-eared bat (NLEB) occurs in the mountains, with scattered records in the Piedmont and coastal plain. In western North Carolina, NLEB spend winter hibernating in caves and mines. Since this species is not known to be a long-distance migrant and caves and subterranean mines are extremely rare in eastern North Carolina, it is uncertain whether or where NLEB hibernate in eastern North Carolina. During the summer, NLEB roosts singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees (typically ≥3 inches dbh). Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat has also been found, rarely, roosting in structures like barns and sheds, under eaves of buildings, behind window shutters, in bridges, and in bat houses. Foraging occurs on forested hillsides and ridges, and occasionally over forest clearings, over water, and along tree-lined corridors. Mature forests may be an important habitat type for foraging.

Biological Conclusion: Unresolved
Suitable summer roosting habitat for NLEB is present within the addendum study areas in natural forested areas, bridges, and buildings. A review of NCNHP database records, updated October 2015, indicates no known NLEB occurrences within 1.0 mile of the study area. The NCDOT Natural Environment Section (NES) Biological Surveys Group will conduct bat surveys and render a biological conclusion for NLEB for this project.

Spruce-fir moss spider

USFWS optimal survey window: May – August

Habitat Description: This species is known only from spruce-fir forests in the Appalachian mountains of North Carolina and Tennessee. The spruce-fir moss spider occurs in well- drained moss and liverwort mats growing on rocks or boulders. These mats are found in well-shaded areas in mature, high elevation (> 1524.0m/5000.0 ft) Fraser fir and red spruce forests.

Biological Conclusion: No Effect
No suitable habitat is present for the spruce-fir moss spider in the project corridor. The area is moderately to highly developed and very few mature forested areas occur within and around the project area. In addition, no spruce-fir forests were observed during field reconnaissance. A review of NCNHP database records, accessed October 2015, indicates no known spruce-fir moss spider occurrences within 1.0 mile of the study area.

Rock gnome lichen

USFWS optimal survey window: year round

Habitat Description: Rock gnome lichen occurs in high elevation coniferous forests (at elevations above 5,000 feet mean sea level and particularly those dominated by red spruce and Fraser fir) usually on rocky outcrop or cliff habitats. No habitat for the rock gnome lichen is located in the study area.

Biological Conclusion: No Effect
The project area consists of low elevation (does not exceed 1,800 feet above mean sea level), moderate hillslopes within developed areas near the City of Hickory. Vertical rock faces and cliffs are not present within the project area, and humidity levels are not high enough to support the species. In addition, a review of NCNHP database records, updated October 2015, indicates no known rock gnome lichen occurrences within 1.0 mile of the study area.

Schweinitz's sunflower

USFWS optimal survey window: late August – October

Habitat Description: Schweinitz's sunflower is endemic to the Piedmont of North and South Carolina. The few sites where this rhizomatous perennial herb occurs in relatively natural vegetation are found in Xeric Hardpan Forests. The species is also found along roadside rights-of-way, maintained power lines and other utility rights-of-way, edges of thickets and old pastures, clearings and edges of upland oak-pine-hickory woods and Piedmont longleaf pine forests, and other sunny or semi-sunny habitats where disturbances (*e.g.*, mowing, clearing, grazing, blow downs, storms, frequent fire) help create open or partially open areas for sunlight. It is intolerant of full shade and excessive competition from other vegetation.

Biological Conclusion: No Effect
Suitable habitat for the Schweinitz's sunflower is present in the project study area along power line corridor and roadside right-of-ways. These areas are open and regularly maintained. Surveys throughout all areas of suitable habitat in Catawba County were conducted on September 30, 2013 and October 12, 2015. No individuals of Schweinitz's sunflower were observed on September 30, 2013 and October 12, 2015. A review of NCNHP records, updated October 2015, indicates no known occurrences within 1.0 mile of the study area.

Dwarf-flowered heartleaf

USFWS optimal survey window: March – May

Habitat Description: Dwarf-flowered heartleaf is endemic to the western Piedmont and foothills of North and South Carolina. This herbaceous evergreen is found in moist to rather dry forests along bluffs; boggy

areas next to streams and creek heads; and adjacent hillsides, slopes, and ravines. Requiring acidic, sandy loam soils, the species is found in soil series such as Pacolet, Madison, and Musella, among others. Occurrences are generally found on a north facing slope. Undisturbed natural communities such as Piedmont/Coastal Plain Heath Bluff, Dry-Mesic Oak Hickory Forest, and Mesic Mixed Hardwood Forest hold the most viable populations. However, less viable remnant populations are found in disturbed habitats, including logged, grazed, mown, and residential/commercial developed lands; areas converted to pasture, orchards, and tree plantations; roadside rights-of-way; and on upland slopes surrounding manmade ponds or lakes.

Biological Conclusion: May Affect, Likely to Adversely Affect
Suitable habitat for dwarf-flowered heartleaf is present within study areas' natural forested habitat. Surveys for this species were conducted by NCDOT biologists in April and May of 2009, and April 2012. Multiple populations of dwarf-flowered heartleaf exist all along the project corridor. Formal Section 7 consultation (BA/BO) with USFWS will be required for this project. Depending on the final design, the Biological Conclusion for dwarf-flowered heartleaf may be changed to May Affect, Not Likely to Adversely Affect if all populations can be avoided. The additional study areas covered in the 2015 NRTR Addendum have not yet been surveyed. The NCDOT Biological Surveys Group will be responsible for surveys of these new areas. A review of NCNHP database records, updated October 2015, indicated there are at least four occurrences of dwarf-flowered heartleaf within 1.0 mile of the study area.

Heller's blazing star

USFWS optimal survey window: July – September

Habitat Description: Heller's blazing star, endemic to the Blue Ridge Mountains of North Carolina, occurs in the High Elevation Rocky Summit natural community on high elevation ledges, rock outcrops, cliffs, and balds at elevations of 3,500-5,999 feet above mean sea level.

Biological Conclusion: No Effect
Suitable habitat for the Heller's blazing star is not present within the project corridor. Elevations in the project do not exceed 1,800 feet above mean sea level. A review of NCNHP database records, accessed October 2015, indicates no known Heller's blazing star occurrences within 1.0 mile of the study area.

Mountain golden-heather

USFWS optimal survey window: late May – early June

Habitat Description: Mountain gold-heather, endemic to the Blue Ridge Mountains of North Carolina, occurs in Pine-Oak/Heath and Montane Acidic Cliff natural communities on rock cliffs and shrub balds at elevations of 2,800-4,000 feet above mean sea level.

Biological Conclusion: No Effect
Suitable habitat for the mountain golden-heather is not present within the project corridor. Elevations in the project do not exceed 1,800 feet above mean sea level. In addition, no Pine-Oak/Heath and Montane Acidic Cliff natural communities on rock cliffs or shrub balds were observe during field reconnaissance. A review of NCNHP database records, accessed July 2013, indicates no known mountain golden-heather occurrences within 1.0 mile of the study area.

Small whorled pogonia

USFWS optimal survey window: mid May – early July

Habitat Description: Small whorled pogonia occurs in young as well as maturing (second to third successional growth) mixed-deciduous or mixed-deciduous/coniferous forests. It does not appear to exhibit strong affinities for a particular aspect, soil type, or underlying geologic substrate. In North Carolina, the perennial orchid is typically found in open, dry deciduous woods and is often associated with white pine and rhododendron. The species may also be found on dry, rocky, wooded slopes; moist slopes; ravines lacking stream channels; or slope bases near braided channels of vernal streams. The understory structure and composition of occupied sites varies from dense rhododendron thickets, to open/sparse/moderate shrub and herbaceous cover in the orchid's microhabitat, to dense stands of New York fern. Other common characteristics shared by small whorled pogonia sites include historic agricultural use of existing habitat; a proximity to logging roads, streams, or other features that create long persisting breaks in the forest canopy; and a prevalence of leaf litter and decaying vegetation.

Biological Conclusion: No Effect
Suitable habitat for small whorled pogonia is present within the study area within the upland forested areas, hillslopes, and ravines along US 321. No small whorled pogonia was observed during the field surveys conducted in Burke County on June 2, 2009 and July 11-12, 2013. In addition, a review of NCNHP database records, updated July 2013, indicates no known small whorled pogonia occurrences within 1.0 mile of the study area.

White irisette

USFWS optimal survey window: late May – July

Habitat Description: White irisette, endemic to the upper Piedmont of North and South Carolina, is generally found on the southeast to southwest aspect of mid-elevation mountain slopes in thin-canopied, dry-mesic Basic Oak Hickory Forests that are mature, successional, or recently logged. Occurrences are also found in open, disturbed sites such as clearings, woodland edges, roadside embankments/rights-of-way, and power line rights-of-way. Known populations occur at

elevations between 1,312 and 3,280 feet above mean sea level on gentle to very steep slopes. The perennial herb prefers rich, basic soils, probably weathered from amphibolite, which are intermittently saturated with rain but well drained. The species occurs in a variety of soils, including the Ashe- Cleveland association; the Evard-Cowee complex; and Brevard, Cowee, Fannin, Greenlee, and Hayesville series. It may grow on sites where down slope runoff has removed the usual deep litter, humus, or mineral soils layers. Partial shade to direct sun is preferred, and some form of disturbance (*e.g.*, mowing, clearing, grazing, periodic fire) is necessary to maintain its relatively open habitat.

Biological Conclusion: No Effect
Suitable habitat for white irisette is present within the study area within the disturbed forested hill slopes and along roadside rights-of-way. No small whorled pogonia occurrences were identified during the field surveys conducted in Burke County on June 2, 2009 and July 11-12, 2013. In addition, a review of NHP records, updated July 2013, indicates no known white irisette occurrences within 1.0 mile of the study area.

Spreading avens

USFWS optimal survey window: June – September

Habitat Description: Spreading avens occurs in areas exposed to full sun on high-elevation cliffs, outcrops, and bases of steep talus slopes. This perennial herb also occurs in thin, gravelly soils of grassy balds near summit outcrops.

Biological Conclusion: No Effect
Suitable habitat for the spreading avens is not present within the project corridor. Elevations in the project do not exceed 1,800 feet above mean sea level. In addition, vegetative communities observed during field reconnaissance do not meet the habitat criteria of this species. A review of NCNHP database records, accessed July 2013, indicates no known spreading avens occurrences within 1.0 mile of the study area.

7. Bald and Golden Eagle Protection Act

Habitat for the bald eagle primarily consists of mature forest in proximity to large bodies of open water for foraging. Large, dominant trees are utilized for nesting sites, typically within 1.0 mile of open water. No individual bald eagles or nest trees were observed within the project study area and 660 feet outside the project study area during field reconnaissance in (April-June, 2009). However, the project corridor crosses the Catawba River at Lake Hickory near the southern end of the project. The project study area is comprised primarily of commercial and residential areas with fragmented forested sections. The northern banks of the River within the study area have been highly altered by commercial and residential development. The southeast bank

within the study area has been disturbed by the construction of the water treatment facility. Potentially suitable forested habitat does exist along the southwest bank of the River. NCNHP database records, accessed 7/27/09, indicate no documented occurrences of bald eagle within 1.0 mile of the study area. Due to the developed nature of the project study, the project is not likely to affect the bald eagle.

8. Endangered Species Act (ESA) Candidate Species

As of April 2, 2015 and July 24, 2015 no candidate species are listed for Burke, Caldwell, or Catawba counties by USFWS.

B. Cultural Resources

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended; the Department of Transportation Act of 1966, as amended; the Department of Transportation regulations and procedures (23 CFR 771 and Technical Advisory T 6640.8A); the Advisory Council on Historic Preservation regulations on the *Protection of Historic Properties* (36 CFR 800); and NCDOT's *Historic Architectural Resources, Survey Procedures and Report Guidelines*.

1. Historic Architectural Resources

a. Historic Properties

NCDOT conducted an architectural survey in the Area of Potential Effects (APE) for structures listed in the National Register of Historic Places (NRHP) or eligible for nomination to the National Register. The findings are presented in the *Intensive-Level Historic Architectural Analysis for Improvements to US 321 from US 70 to US 64/NC 18-90* (NCDOT, October 2011). A July 2010 survey identified 106 resources that were 50 years old or older. On February 10, 2011 the NCDOT and the North Carolina State Historic Preservation Office (HPO) reviewed the inventoried resources and identified seven that merited further investigation at the intensive-level. Based on subsequent analysis, three were determined to be listed on or eligible for listing on the NHRP. Since that time, the project limits were reduced as mentioned in **Section IV. Alternatives** and the James Edgar Broyhill Estate (CW 0251) located in the southwest quadrant of US 64 and US 321 is no longer within the proposed project improvement corridor. Based on this, two properties located within the project area are listed on or eligible for listing on the NHRP (see Table 16).

Table 16: Historic Eligibility

Resource	Figure Reference	Recommendation
Houck's Chapel (CT 180)	Figure 2-3	Continues to merit National Register listing
G. Haywood Hartley House (CW 231)	Figure 2-12	Eligible for National Register listing under Criterion C

1. Houck's Chapel (CT 180) (NCDOT Survey #101)

Houck's Chapel, listed on the National Register in 1985, retains the significance, integrity, and boundaries described in its original nomination. Changes have enhanced rather than detracted from its significance. Houck's Chapel has a high degree of integrity for all seven elements of National Register integrity, which supports its continued National Register listing.

2. G. Haywood Hartley House (CW 231) (NCDOT Survey #59)

The G. Haywood Hartley House is determined eligible for listing in the National Register under Criterion C for its architecture. It is an excellent and intact example of a traditional, two-story, center-hall, single-pile (I-house) form residence with a vigorous, non-academic, Gothic Revival-style finish inside and out. The I-house form is a ubiquitous yet nonetheless important form for traditional houses built in the region and beyond during the last three quarters of the 19th century and the first third of the 20th. The Hartley House embodies the type. The Gothic Revival-style is much rarer in the region.

The Hartley House has a high degree of integrity for all seven elements of National Register integrity, which supports its proposed National Register eligibility under Criterion C.

b. Potential Project Impacts

Representatives of the North Carolina State Historic Preservation Office (SHPO), FHWA, and NCDOT met on March 10, 2015 and reached Concurrence on the Assessment of Effects for the preliminary design.

- Houck's Chapel – No Adverse Effect with Conditions.
- G. Haywood Hartley House – No Effect

The signed concurrence form with the conditions can be found in Appendix E.

2. Archaeological Resources

The US 321 improvements are federally funded. Therefore, the project must comply with Section 106 of the National Historic Preservation Act that requires the lead federal agency (the NCDOT on behalf of the FHWA) to consult with SHPO (on behalf of the Advisory Council on Historic Preservation) regarding the project's potential to impact archaeological resources eligible for or listed on the NRHP. SHPO recommended an archaeological survey of the project area prior to the initiation of construction activates (see attached SHPO memorandum dated August 10, 2006).

The archaeological survey within the Area of Potential Effects (APE) was completed on July 24, 2015, and the results submitted to NCDOT as a management summary on August 7, 2015, and as a revised draft report on November 16, 2015. The survey identified seven new archaeological sites (31CT259, 31CW464, 31CW465, 31CW470, 31CW472, 31CW474, and 31CW476) and eight isolated finds (31CW466, 31CW467, 31CW468, 31CW469, 31CW471, 31CW473, 31CW475, and 31CW477). Thirteen (31CT259, 31CW464, 31CW465, 31CW466, 31CW467, 31CW468, 31CW469, 31CW470, 31CW471, 31CW473, 31CW474, 31CW475, and 31CW477) of the identified resources were evaluated in their entirety. They are not significant under any of the NRHP eligibility criteria. As a result, these resources were determined not eligible for the NRHP and no additional archaeological investigations of these resources in association with this project are required. The parts of the remaining two sites (31CW472 and 31CW476) within the project's APE also lack research potential. The investigated sections of these two sites within the APE were determined to be not eligible for the NRHP under any criteria with no further work necessary, but both sites extend outside the APE. The NRHP-eligibility of those sections outside the APE is considered unassessed. Additional subsurface survey to further evaluate the extended portions of these two sites outside the APE might be necessary if any project changes were to result in an expansion of the APE at these locations.

The results of the archaeological investigation will be submitted to the SHPO for their review and comment.

C. Section 4(f) Resources and 6(f) Resources

1. Section 4(f) Resources

The US DOT Act of 1966 included a special provision, Section 4(f), which stipulated that the FHWA and other DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply:

There is no feasible and prudent alternative to the use of the land; and
The action includes all possible planning to minimize harm to the property resulting from that use.

The project study area includes two Section 4(f) resources (as described in the previous section):

- Houck's Chapel – No Adverse Effect with Conditions.
- G. Haywood Hartley House – No Effect

2. Section 6(f) Resources

The Land and Water Conservation Fund Act (Section 6(f)) at 16 USC 460 is a primary funding source of the U.S. Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. This Act is meant to preserve outdoor recreation resources and is applicable to projects impacting recreational lands purchased or improved with land and water conservation funds (FHWA, 1998).

There are no Section 6(f) properties located within the proposed project corridor; therefore, no Section 6(f) properties will impacted by this project.

D. Farmland

The Farmland Protection Policy Act (FPPA) of 1981 (7 CFR 568), implemented by the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), requires all federal agencies to consider the impact of land acquisition and construction activities on prime and important farmland soils in an effort to "minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to non-agriculture uses" (Public Law 97-98, Section 1539-1549, 7 USC 4201, et seq). 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 delineated by the U.S. Soil Conservation Service (SCS) based upon crop yield and level of input of economic resources.

A Farmland Conversion Impact Rating for Corridor Type Projects (NRCS-CPA-106) was not required for this project due to the urban and suburban nature of the study area. See the "NRCS Farmland Impact Statement" in Appendix D of the *Community Impact Assessment* dated December 2014.

1. Voluntary Agricultural Districts (VAD) and Enhanced Voluntary Agricultural Districts (EVAD)

Caldwell and Burke Counties have implemented VAD ordinances, and Catawba County has implemented an EVAD ordinance to promote agricultural values, encourage the economic and financial health of agriculture, and increase protection from non-farmland development and other negative impacts on farms.

EVADs have the same conservation agreement requirements as VADs, but the agreement cannot be revoked during the 10 year binding commitment.

The proposed project will not affect any VADs or EVADs.

E. Social Effects

Social effects for Project U-4700 are detailed in the *Community Impact Assessment* (December 2014). Tables in the following sections have been modified since the CIA to reflect the new project termini.

1. Community Context

US 321 provides a critical regional connection between Hickory, Granite Falls, Sawmills, Hudson, and Lenoir. US 321 is a major north-south facility connecting the Charlotte/Gastonia urban area to the Hickory/Lenoir corridor and the High Country areas of Boone, Blowing Rock and the Blue Ridge Parkway before it crosses into Tennessee. The project corridor is primarily highway commercial development, especially through the Cities of Hickory and Lenoir.

The City of Hickory is located in three counties, Catawba, Burke and Caldwell Counties. The City is strategically located at the intersection of US 70 and I-40.

Local officials indicate that many of the highway commercial businesses along US 321 benefit from tourists stopping on their way to Blowing Rock, Boone, Banner Elk and areas north. This is especially true for the smaller towns of Granite Falls, Sawmills, and Hudson.

The City of Lenoir is the home of the Broyhill Furniture Company, one of the largest furniture companies in the nation.

2. Neighborhoods and Community Cohesion

The Westmont/West Hickory Neighborhood is generally bound by 12th Street Drive NW, 9th Street SW, US 70 SW, and 18th Street NW and is shown in Figure 5-1 in Appendix A.

In the 1960s, US 321 was constructed through the Westmont/West Hickory neighborhood, splitting the existing community. The construction of US 321 disrupted the grid pattern, and resulted in some dead end streets, which impacted community cohesion. According to city planners, after the construction of US 321, subsequent commercial development along the corridor impacted residential property values, especially along 17th Street NW. Neighborhood representatives expressed concern over potential relocation of restaurants, an important community resource, the Hickory Home and Garden Shop (See Figure 5-1 in Appendix A) and pedestrian safety issues, particularly at the intersection of 2nd Avenue SW. The Westmont Community representative

reported that association meetings are held each month at the West Hickory Senior Citizen Center.

A portion of the Westmont/West Hickory Neighborhood along the east side of US 321 contains several minority communities comprised primarily of Hmong, Black and Hispanic residents in a diverse neighborhood. The staff noted that this neighborhood is fragile and in transition, and is generally a low to moderately low-income neighborhood.

The existing US 321 corridor divides the Town of Granite Falls. Falls Avenue connects the community of Granite Falls and many residents live on one side of US 321 and work, shop, and go to school on the other side. The Granite Falls Planner noted that the Falls Avenue interchange, a direct east-west connection across US 321, allows low-income and disabled persons, as well as cyclists and pedestrians, to travel into the town for goods and services. The Town of Granite Falls planning staff thinks that the public may be concerned about the at-grade intersection option because removing the grade-separated, direct access across US 321 may be seen to "divide" the community and create a barrier effect. An at-grade intersection does not appear likely to meet the ADA requirements for documented disabled populations currently using this interchange.

a. Community Profile and Demographics

The Demographic Study Area (DSA) is comprised of eighteen US Census Block Groups adjacent to the project corridor shown in Figure 4 of Appendix A. The DSA had grown by approximately 9.7% between 1990 and 2000. The population experienced 0.63% annual growth between 2000 and 2010. Table 17 presents the population changes between 2000 and 2010 for the three counties.

Table 17: Population Change – 2000 to 2010

Area	Population			
	2000	2010	Difference	% Change
Burke County	89,148	90,912	1,764	1.98
Caldwell County	77,415	83,029	5,614	7.25
Catawba County	141,685	154,358	12,673	8.94
North Carolina	8,049,313	9,535,483	1,486,170	18.46

2000 and 2010 Estimate U.S. Census

Recent overall growth along the corridor has been low to moderate. Local planners attribute growth in this area to single-family home construction on subdivided former agricultural properties. Much of the growth in Caldwell County near the corridor occurred along Grace Chapel Road.

b. Population by Race

As shown in Table 18, the dominant race within the DSA in 2012 was White (comprising 89.9% of the population). Black or African Americans were the second largest population comprising 4.7% of the

population in the DSA. There were relatively small numbers of other racial groups living within the area.

Local officials indicated that a portion of the Westmont/West Hickory Neighborhood in Hickory has become diverse over the last twenty years, with Hispanic, Hmong, and Black populations.

Table 18: Population by Race

Race	Total DSA		Burke		Caldwell		Catawba		North Carolina	
	Pop.	%	Pop.	%	Pop.	%	Pop.	%	Pop.	%
White	28,684	89.9	77,635	85.5	74,276	90.0	127,427	82.6	6,659,867	69.8
Black or African American	1,497	4.7	6,068	6.7	3,928	4.8	13,112	8.5	2,047,092	21.4
American Indian or Alaska Native	90	0.3	247	0.3	289	0.4	571	0.4	110,171	1.2
Asian	313	1.0	3,023	3.3	477	0.6	5,305	3.4	211,708	2.2
Hawaiian or other Pacific	36	0.1	28	0.0	74	0.1	40	0.0	4,424	0.0
Some other Race	860	2.7	2,072	2.3	2,295	2.8	4,700	3.0	306,516	3.2
Two or more races	428	1.3	1,748	1.9	1,154	1.4	3,046	2.0	204,471	2.1
Total Population	**31,908**	**100%**	**90,821**	**100%**	**82,493**	**100%**	**154,201**	**100%**	**9,544,249**	**100%**
Hispanic	840	2.7	4,758	5.2	3,796	4.6	12,916	8.4	796,293	8.3

Source: US Census Bureau, American Community Survey 5-year Estimates (2008-2012)

c. Ethnic Makeup

In 2012, the percentage of Hispanics in the DSA (2.7%) was lower than that of Burke County (5.2%), Caldwell County (4.6%), and Catawba County (8.4%). According to local officials there is one known Hispanic neighborhood, the Westmont/West Hickory area east of the corridor.

d. Limited English Proficiency

Executive Order 13166 "Improving Access to Services for Persons with Limited English Proficiency" requires all recipients of federal funds to provide meaningful access to persons who are limited in their English proficiency (LEP). The US Department of Justice defines LEP individuals as those "who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English" (67 FR 41459). Data about LEP populations was analyzed in the American Community Survey 5-year Estimates (2008-2012).

Census data does not indicate Limited English Proficiency (LEP) populations meeting the US Department of Justice LEP Safe Harbor threshold; however, census data does indicate four block groups within the DSA that may require language assistance. Language Assistance (LA) populations are indicated when a block group contains 50 or more persons in any language group. Block groups within the DSA consisting of Spanish and Asian LA populations exceeding 50 persons include Census Tract 304, Block Group 04; Census Tract 314.03, Block Group 02; Census Tract 107, Block Group 02; and Census Tract 106, Block Group 04. Therefore, NCDOT will include notice of Right of Language Access for future meetings for this project. Thus, the requirements of Executive Order 13166 appear to be satisfied.

e. Economic Status

Based on 2010 Census data, the median household income for block groups in the DSA was generally lower than the median household income in the counties.

The unemployment rate of Burke County was 14%; 14.6% in Caldwell County; and 11.3% in Catawba County.

From 2009-2013 the DSA had a poverty level of 17.5%.

According to the N.C. Employment Security Commission, as of the 1st quarter of 2010, the largest employers in Burke County are the N.C. Department of Health and Human Services, the Burke County Public Schools, and Turning Point Health Services, all with more than 1000 employees. The largest employers of Caldwell County are Caldwell County Schools, Merchants Distributorship Inc., (MDI) with more than 1,000 employees; and Caldwell Memorial Hospital and Bernhardt Furniture and Broyhill Furniture Companies with between 500-999 employees. In Catawba County, the largest employers are Catawba County Schools, Catawba Memorial Hospital, and Frye Regional Medical Center, with more than 1,000 employees; and Commonscope Manufacturing and Catawba County with between 500-999 employees.

f. Housing Characteristics

New housing development is occurring in the Town of Hudson and surrounding areas (Figure 5-3), especially along Pine Mountain Road, and areas in Granite Falls in the newly developing area of Riverbend Subdivision (Figure 5-2). Approximately 150 additional homes are planned within the Riverbend Subdivision. In the past decade new residential development occurred along Grace Chapel Road, but according to local officials much of that development is now built out (Figure 5-1).

3. Relocation of Residence and Businesses

Table 19 summarizes anticipated relocations for each segment based on preliminary designs. No farms or religious facilities are expected to be affected. A relocation report for the project is included in Appendix C.

Table 19: Relocation Data

Type of Displacees	Anticipated Relocations					
	Section A		Section B			Section C
	US 70 to Grace Chapel Rd	US 321 & Grace Chapel Rd Interchange	Grace Chapel Rd to Falls Ave	US 321 & Falls Ave Interchange	Falls Ave to Mission Rd	Mission Rd to Southwest Blvd
Residential Relocations	14	At Grade - 3 Flyover - 2 Trumpet - 4	3	At Grade - 14 Partial Clover - 33 Tight Diamond - 13	3	0
Business Relocations	44	At Grade - 3 Flyover - 3 Trumpet - 6	6	At Grade - 7 Partial Clover - 7 Tight Diamond - 10	6	8
Total Relocations	58	At Grade - 6 Flyover - 5 Trumpet - 10	9	At Grade - 21 Partial Clover - 40 Tight Diamond - 23	9	8
Non-Profit Total	0	0	0	0	0	0

Based on the preliminary relocation study performed for this project, NCDOT anticipates that no special relocation services will be necessary, the project will not cause a housing shortage, additional housing programs will not be needed, Last Resort housing will not be needed, public housing programs will not be needed, and replacement housing within financial means will not be an issue. In addition, business services will still be available after the project is completed, and suitable replacement business sites are available in the project area.

4. Environmental Justice

All Census block groups that Project U-4700 crosses can be seen in Figure 4 in Appendix A.

Census data indicates a notable presence of minority and low-income populations meeting the criteria for Environmental Justice (EJ) within the Demographic Study Area (DSA). There are eleven block groups within the DSA that contain a low-income population that is five percentage points higher than the county average, one is located in Burke County, six are located in Caldwell County, and four are located in Catawba County. There are also three block groups in Catawba County within the

DSA that contain a minority population that is ten percentage points higher than the county average. Two of these three block groups with notable minority populations encompass the Westmont/West Hickory neighborhood, while two of the eleven block groups with notable low-income populations encompass the same neighborhood. The Westmont/West Hickory neighborhood is located on both sides of US 321 in Hickory and is generally bounded by 12th Street Drive NW, 9th Street Drive SW, US 70 SW, and 18th Street NW. The City of Hickory planning staff confirmed that the Westmont/West Hickory neighborhood contains a minority and low-income population. Additionally, one of the block groups that contain a notable low-income population is located on the northeast side of the US 321 and Falls Avenue intersection in Granite Falls and has a low-income population of 32 percent.

The proposed grade separation at Falls Avenue and US 321 will maintain continuity (of vehicles, pedestrians, and bicycle travel) and would avoid an impact on the Environmental Justice low income population in Census Tract 313 Block Group 03 (Granite Falls). An at-grade intersection without an overpass would result in notable impacts to this community and impact the documented disable persons that use the existing grade separation.

Title VI of the Civil Rights Act of 1964, protects individuals from discrimination on the grounds of race, age, color, religion, disability, sex, and national origin. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" provides that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations. Special populations may include the elderly, children, the disabled, low-income areas, American Indians and other minority groups. Executive Order 12898 requires that Environmental Justice principles be incorporated into all transportation studies, programs, policies and activities. The three environmental principles are: 1) to ensure the full and fair participation of all potentially affected communities in the transportation decision-making process. 2) to avoid, minimize or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority or low income populations. 3) to fully evaluate the benefits and burdens of transportation programs, policies, and activities, upon low-income and minority populations.

All of these communities mentioned above could potentially meet the Environmental Justice criteria. There are expected to be minimal, if any, relocation impacts to these neighborhoods.

5. Bicycle and Pedestrian Use

Pedestrians were observed in parts of the study area during the site visit. There are a few sections of sidewalks along the US 321 corridor that have been built by new developments as a requirement in the local land use plans and development ordinances. There were no pedestrian-oriented destinations observed on US 321 because it is currently designed almost exclusively for automobile use. The walking park in Lenoir attracts visitors that generally arrive in cars. The City of Hickory requires the construction of new sidewalks as development occurs, as do most of the municipalities along the project corridor. No bicyclists were observed.

As noted earlier, the existing US 321 corridor divides the Town of Granite Falls. The Granite Falls Planner noted that the Falls Avenue interchange, a direct east-west connection across US 321, allows disabled persons, as well as cyclists and pedestrians, to travel into the town for goods and services. The Town of Granite Falls planning staff thinks that the public may be concerned about the at-grade intersection option because removing the grade-separated, direct access across US 321 may be seen to "divide" the community and create a barrier effect. An at-grade intersection does not appear likely to meet the ADA requirements for documented disabled populations currently using this interchange.

6. Public Facilities, Schools, and Institutions

Several community resources are on US 321, as shown on Figure 5. Project U-4700 is not anticipated to impact any public facilities, churches, schools, or institutions.

F. Land Use

1. Existing Land Use

Land use along the project corridor is primarily highway commercial development, especially through the Cities of Hickory and Lenoir. Much of the corridor can be characterized as commercial development of parcels fronting the highway. Most of these businesses have direct access to US 321. There are also several nodes of industrial development along the corridor. Existing industrial uses are located in the vicinity of the airport, between the Norfolk and Southern Railroad tracks and US 321, and at Hickory Regional Airport. The commercial establishments in the Towns of Granite Falls, Sawmills, and Hudson are scattered along the corridor, but there are also commercial nodes at many of the signalized intersections. There is a large number of retail furniture establishments located along the corridor. Local officials indicate that they have observed business closures, including furniture store closures and more recent business and community facilities closures due to the recent economic downturn.

2. Local Area Plans/Goals

a. City of Hickory

The *Hickory Comprehensive Land Use and Transportation Concepts* (1999) addresses Old Lenoir Road, 12th Street Drive NW, and 17th Street NW as business access roads that need to be developed to reduce traffic on US 321. Access to these roads would be from Clement Boulevard and 1st/2nd Avenue SW. The plan also suggests the analysis of improving traffic flow on US 321 by the addition of ramps to replace at-grade intersections. The plan recommends reducing the number of curb cuts and providing internal circulation by connecting parking lots between these commercial areas.

The City's plan recommends aesthetic improvements where feasible, including street trees along planting strips at the edge of the roadway with curb and gutter. In some areas a landscaped median will be included in the roadway cross section.

The plan also recommends a Community Commercial District centered on the US 321/Clement Boulevard intersection that would serve the northwest portion of the city.

b. Catawba County

The project corridor does not contain any areas of unincorporated Catawba County.

c. Caldwell County

Caldwell County's Comprehensive Plan (2007) recommends adopting a landscape plan for commercial and industrial development and major residential subdivisions along major thoroughfares to protect and enhance the rural character of the communities. It also recommends improving access management along Strategic Corridors (including US 321) and reducing curb cuts and driveway permits, requiring internal road networks for residential lots or shared drives, and sharing drives for any new commercial development.

d. Town of Granite Falls

The *Granite Falls Horizons: Land Development Plan* (1999) promotes the use of "gateways" to the Town on Falls Avenue with signage and attractive plantings. It suggests that the Town work with NCDOT to ensure needed traffic safety improvements are made, including use of traffic signals, speed limit signs, intersection redesign and road widening. It also amended the zoning to address access management on major and minor thoroughfares.

e. Town of Sawmills

The *Town of Sawmills Land Use Plan* (2005) contains a Corridor Overlay District for US 321 which has two major policies: consolidate driveways, and address interconnectivity and access management.

f. Town of Hudson

The Hudson *Land Development Plan* (2008) recommends preserving open space, natural beauty and critical environmental areas in the Town; developing walkable, aesthetically-pleasing communities; encouraging community and stakeholder collaboration in development decisions; and encouraging industrial development in appropriate areas with adequate infrastructure and access to major highways.

The Transportation Element of the *Land Development Plan* promotes the expansion of the sidewalk network in Hudson by 1) requiring all businesses to install sidewalks in areas that are reasonably expected to attract pedestrian traffic; 2) requiring sidewalks and/or greenways in new major subdivisions; 3) promoting connections of existing sidewalks through a Pedestrian, Greenway and Bicycle Plan.

It requires higher standards for appearance, landscaping, signage, utilities and pedestrian facilities for development at Gateway points and along Gateway corridors to appeal to citizens and visitors. It also aims to preserve the remaining integrity of US 321 by strictly limiting any further direct commercial access. Transportation officials have recommended that the entire length of Hickory Boulevard be widened to a 6-lane divided highway.

g. City of Lenoir

The City's *Comprehensive Plan* (2007) identifies Smith's Crossroads as a proposed interchange location. However, recent input from the City reflects that the current plan for this area is to retain an intersection rather than convert it to an interchange.

The plan also recommends Harper Avenue between US 321 and Morganton Boulevard be realigned as part of the proposed interchange at Smith's Crossroads. The City wants to preserve the remaining integrity of US 321 by strictly limiting further direct commercial access onto this facility. The plan identifies gateway points along major thoroughfares near the City limits where welcome signs or art displays inform the public they are entering the City.

h. Regional Transportation Plans/Goals

The *US 321 Highway Corridor Plan* (2005) created the US Highway 321 Overlay District which proposed uniform zoning, access management and landscaping regulations intended to strike a balance between

economic development and maintaining the integrity of US 321 as a major thoroughfare in the region.

i. LRTP Projects

STIP Project U-4700 is identified in the LRTP, and includes B-4450 which is the widening of the bridge over the Catawba River to 6-lanes.

- STIP Project R-3430 addresses improvements to Connelly Springs Road between Southwest Boulevard and the Catawba River to widen the roadway to a 4-lane median divided facility.
- STIP Project R-3614 calls for improving the two existing lanes of Grace Chapel Road from Hickory Boulevard (US 321) to a point east of SR 1870 (Musket Drive) and to reserve an additional two lanes of right-of-way for a future multi-lane project. The future construction project would increase connectivity and may remove some traffic from US 321.
- Southeast Boulevard (US 321/US 64/NC 18 Connector). It is recommended that a 4-lane divided facility be constructed connecting US 321 with US64/NC18 to provide a continuous route between US 64/NC 18 and US 321. Recent conversations with MPO staff indicate that the Southwest Boulevard may be a more appropriate bypass of downtown Lenoir than Southeast Boulevard; this potential will be investigated in more detail in the next LRTP.
- STIP Project R-2920 recommends Clement Boulevard be extended westward to SR 1653 at a location approximately 2,000 feet north of the SR 1653 and SR 1625 (9th Ave Dr NW) intersection. A 4-lane divided boulevard with a grass median is recommended, and SR 1653 is to be widened west of the proposed extension to accommodate future travel growth.

The LRTP also lays out a pedestrian and bicycle system that is intended to be a safe alternative means of transportation, allow greater access to public transit, support recreational opportunities and include off road trails.

G. Indirect and Cumulative Effects

1. Indirect Assessment

Residential development is likely to occur with or without the project, but may be accelerated and enhanced by project improvements. Market forces will also influence the rate and extent of development that may occur along the US 321 corridor. Both Hickory and Lenoir have local incentives for redevelopment of vacant buildings and brownfields.

The proposed project will change access to existing business driveways and parking lots along the corridor through the addition of superstreet intersections, right-of-way acquisition, and consolidation of

driveways. Project improvements are expected to result in a 45% reduction in travel time along the length of the corridor. Development in the larger area around US 321 is expected to be enhanced by project improvements, particularly around new interchanges.

Streams and other notable natural features are protected by state and local regulations. Population and jobs are expected to grow moderately, and existing water and sewer infrastructure has capacity to handle future planned and anticipated developments. Overall, this project is expected to result in moderate indirect effects, and will not result in a significant change in impervious surface.

Based on the information analyzed, the analysis resulted in a moderate concern for indirect and cumulative effects potential for accessibility, available land, and available water and sewer services. Therefore, a more detailed indirect land use scenario assessment will be needed and the results will be included in the Finding of No Significant Impact.

2. Cumulative Assessment

Cumulative effects are environmental impacts resulting from the incremental effects of an activity when added to other past, present and reasonably foreseeable actions regardless of what entities undertake such actions.

Past Actions
The construction of the US 321 roadway has influenced development patterns in the Hickory – Lenoir region. The original roadway construction enhanced regional mobility and the development along the highway corridor but bisected the Westmont/West Hickory Neighborhood and Granite Falls. Water and sewer capacity has allowed for system extensions, connections and service to newly developing areas both within the urban areas of Hickory and Lenoir, the Towns of Granite Falls, Sawmills and Hudson, and new subdivisions in surrounding unincorporated areas of Caldwell County of the project corridor.

Present Actions
Project U-4700 is the proposed widening of US 321 (Hickory Boulevard) that begins in Catawba County in Hickory, extends through a small portion of Burke County, and crosses Lake Hickory into Caldwell County. The project will widen US 321 from a four-lane median divided facility to a six-lane median divided superstreet facility.

Water and sewer lines currently extend throughout most of the area along and adjacent to the US 321 corridor. Sewer service is generally not available to areas within the unincorporated portions of Caldwell County. Water and sewer service has excess capacity to serve new planned development throughout all of the incorporated area of the area around the corridor.

Future Actions
There are no current plans to expand either water or sewer systems. There are plans to replace existing lines and an outfall in Hickory. Existing systems have the necessary capacity to serve planned development during the planning period.

The *NCDOT 2016-2025 STIP* includes several other projects in the vicinity of STIP Project U-4700, presented in Table 7. Projects included on the *Greater Hickory Urban Area 2040 Long Range Transportation Plan (LRTP)* are listed in **Section VI.F.i** (page 54).

Notable Natural Features
The project is located in the Catawba River basin and a portion has been classified by the NCDWR as WS-IV, B, and CA in portions of Hickory and Granite Falls. There are two Targeted Local Watersheds along the project, the Horseford Creek watershed and the Upper Lower Creek watershed. There are no 303(d) listed waters identified within the proposed project limits.

Thirteen federally protected species are listed for Caldwell, Burke and Catawba Counties. The project is anticipated to have "No Effect" on nine of those species, including the Carolina northern flying squirrel, spruce-fir moss spider, rock gnome lichen, Schweinitz's sunflower, Heller's blazing star, mountain golden heather, small whorled pogonia, white irisette, and spreading avens. A biological determination was not required for the bog turtle. The Virginia big-eared bat and northern long-eared bat remained "Unresolved." The biological conclusion for the Dwarf-flowered heartleaf is "May Affect, Likely to Adversely Affect."

The project corridor contains prime farmland soils and soils of statewide importance. These soils are present in the area north of Lake Hickory in the unincorporated area of the project, between Lake Hickory and Granite Falls, and between Granite Falls north to Sawmills, and in a few unincorporated areas near Hudson. A Farmland Conversion Impact Rating for Corridor Type Projects (NRCS-CPA-106) was not required for this project due to the urban and suburban nature of the study area.

Impacts to Notable Features
The cumulative effects of this project, when considered in the context of other past, present and future actions, are expected to have a minimal impact on notable natural features. Streams, watersheds and other notable natural features are protected by state and local regulations. Approximately 10% of land in the project corridor is undeveloped but constrained by streams, wetlands, or buffers. Overall, this project is expected to result in minimal cumulative effects to notable features.

H. Flood Hazard Evaluations

Catawba, Burke and Caldwell Counties are currently participating in the National Flood Insurance Program. This project contains 6 crossings that are located in Zone AE FEMA floodplains. Four box culvert extensions will encroach

in the FEMA floodway and will most likely require a CLOMR (these locations can be found in the *Hydraulic Technical Memorandum* prepared by RK&K in June of 2009). Two dual bridges will require widening, and may be widened to not impact the water surface elevations, the floodplain or the floodway. NCDOT has a Memorandum of Agreement (MOA) with FEMA that allows for roadway construction with minor impacts to the published Base Water Surface elevations, (BFEs). These site locations can be found in Appendix A.

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).

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

I. Hazardous Spill Basins

Hazardous Spill Basins are provided in new highway construction and major improvement projects at strategic locations along arterial system highways to aid in the containment and cleanup of accidental spills. The determination of these strategic locations is based on concentrated truck usage areas, such as parking sites at rest areas, weigh stations, and runaway ramps, as well as for highway segments in close proximity to particularly sensitive waters, such as ORWs and WS-1 water supply sources.

The strategy is to configure the highway segment of concern such that any potential spill runoff would be directed through a facility (basin) where the flow could be interrupted and temporarily stored to prevent hazardous material from reaching a receiving stream.

Both the Catawba River and Gunpowder Creek, from 0.8 miles downstream of Billy Branch (Figure 2-8) to the Catawba River (Figure 2-4) are classified as Type-I Water Supply water bodies and contain ½ mile CA boundaries along their lengths. Unnamed Tributaries at Site #3 & #4 draining into Gunpowder Creek are within the ½ mile CA boundaries. At Site #2 over the Catawba River, there are two river intakes approximately 700' upstream and 1,200' downstream of US 321.

Hazardous Spill Basins may be required up to 1 mile in each direction along the Catawba River at Site #2. Evaluation of the traffic volumes, water quality of the Catawba River, and the feasibility of basin construction in each quadrant of the crossing will be required during final design. The guidelines outlined in Appendix O of the NCDOT Guidelines for Drainage Studies and Hydraulic Design should be referenced during final design.

J. Traffic Noise Analysis

In accordance with Title 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23 CFR 772) and the North Carolina Department of Transportation Traffic Noise Abatement Policy, each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal highway projects for construction of a highway or interchange on new location, improvements of an existing highway which substantially 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.

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM) approved by the Federal Highway Administration and following procedures detailed in Title 23 CFR 772 and the NCDOT Traffic Noise Analysis and Abatement Manual. When traffic noise impacts are predicted, examination and evaluation of alternative 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.

A copy of the unabridged version of the full technical report entitled "*Traffic Noise Analysis / US 321 Widening From North of 7th Avenue SW in Hickory in Catawba County to South of Hospital Avenue in Lenoir in Caldwell County (STIP Project U-4700)"* is available upon request. Since the report was issued, the project's northern terminus has been revised to Southwest Boulevard as previously mentioned. Due to this, there has been a reduction in noise impacts and a previously-proposed noise wall adjacent to southbound US 321east of Maehill Place is no longer required. Tables in the following sections have been modified since the *Traffic Noise Analysis* to reflect the new project termini.

1. Traffic Noise Impacts and Noise Contours

The maximum number of receptors in Design Year 2040 Build and No-Build Alternatives predicted to become impacted by future traffic noise are shown in the table below. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels.

The maximum extent of the 71- and 66- dB(A) noise level contours measured from the center of the proposed roadway is 114 feet and 176 feet, respectively, from the closest edge of the nearest travel lane of the US 321 build-condition alignment. Predicted build-condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts. Although FHWA regulation prohibits the use of noise level contours for traffic noise impact prediction, noise level contours can aid in future land use

planning efforts in presently undeveloped areas (NAC "G"), or in areas for which redevelopment may occur.

Table 20: Predicted Traffic Noise Impacts

Predicted Traffic Noise Impacts *				
Alternative	**NAC B (Residential)**	**NAC C (Active sport areas, cemeteries, places of worship, schools, etc.)**	**NAC D[1] NAC E[2] NAC F NAC G**	**Totals**
Existing	59	0	0	59
2040 No-Build	84	0	0	84
2040 Build	108	0	0	108

1. Evaluation of interior noise levels associated with NAC C receptors for the assessment of potential NAC D traffic noise impacts yielded zero impacts.
2. There are no exterior areas of frequent human use within the vicinity of the proposed project, either developed or undeveloped, that may be categorized as NAC E.

*Per TNM®2.5 and in accordance with 23 CFR Part 772

2. No Build Alternative

The Traffic Noise Analysis also considered traffic noise impacts for the "no-build" alternative. If the proposed project does not occur, 84 receptors are predicted to experience traffic noise impacts and the future traffic noise levels will increase by approximately 0-3 dBA. Based upon research, humans barely detect noise level changes of 2-3 dBA. A 5-dBA change is more readily noticeable. Therefore, most people working and living near the roadway will not notice this predicted increase.

3. Build Alternative:

a. Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts were considered for all impacted receptors in each alternative. The primary noise abatement measures evaluated for highway projects include highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers and noise insulation (NAC D only). For each of these measures, benefits versus costs (reasonableness), engineering feasibility, effectiveness and practicability and other factors were included in the noise abatement considerations.

Substantially changing the highway alignment to minimize noise impacts is not considered to be a viable option for this project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement due to the negative impact they would have on the capacity and level of service of the proposed roadway. Costs to acquire buffer zones for impacted receptors will exceed the NCDOT base dollar value of $37,500 plus an incremental increase of $525 (as defined in the NCDOT Policy) per benefited receptor, causing this abatement measure to be unreasonable.

b. Noise Barriers

Noise barriers include two basic types: earthen berms and noise barriers. These structures act to diffract, absorb and reflect highway traffic noise. For this project, earthen berms are not found to be a viable abatement measure because the additional right of way, materials and construction costs are estimated to exceed the NCDOT maximum allowable base quantity of 7,000 cubic yards, plus an incremental increase of 100 cubic yards per benefited receptor, as defined in the NCDOT Policy.

Due to direct access to US 321 and/or overhead utilities (electrical transmission, electrical distribution, cable television, and phone lines), noise walls will not be feasible for the benefit of many predicted traffic noise impacts. A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. The following table summarizes the results of the evaluation.

Table 21: Preliminary Noise Barrier Evaluation Results

Build Alternative (Noise Barrier Location)	Noise Wall Reference Number[1]	Length / Height (feet)	Square Footage	Number of Benefited Receptors (1st Row / Total)	Sq.Ft. per Benefited Rec. / Allowable Sq. Ft. per Benefited Rec.	Preliminarily Recommended for Construction[2]
Adjacent to US 321 southbound, from north of 7th Avenue Southwest to southeast of 13th Street SW	NW1	1,626 / 14-22	27,630	25 / 57	485 / 2,570	Yes
Adjacent to US 321 northbound, from north of 7th Avenue Southwest to southeast of 13th Street SW	NW2	905 / 12-16	12,670	4 / 11	1,152 / 2,570	Yes
Adjacent to US 321 southbound, from north of Kent Street to south of Falls Avenue	NW7A	1,139 / 12-20	20,305	5 / 5	4,061 / 2,605	No
Adjacent to US 321 northbound, from north of Woodlane Street Extended to south of Falls Road.	NW8A	1,349 / 14-18	21,831	5 / 12	1,819 / 2,605	Yes
Adjacent to US 321 northbound, from north of Lower Cedar Valley Road to south of Little Gunpowder Creek	NW8B	900 / 12-14	11,400	1 / 1	11,400 / 2,605	No
Adjacent to US 321 northbound, from north of Royalwood Drive to south of Southwest Boulevard	NW10	869 / 12-16	12,099	2 / 3	4,033 / 2,570	No

[1] More information on each potential wall is in the *Traffic Noise Assessment*.
[2] The recommendation for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.

4. Summary

A preliminary noise evaluation was performed and a more detailed review will be completed during project final design. Noise barriers found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and reasonable during the final design noise analysis due to changes in proposed project alignment and other design considerations, surrounding land use development, or utility conflicts, among other factors. Conversely, noise barriers that were not considered feasible and reasonable may meet the established criteria and be recommended for construction. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772.

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 Finding of No Significant Impact (FONSI). For development occurring after this date, local governing bodies are responsible to insure that noise compatible designs are utilized along the proposed facility.

K. Air Quality Analysis

1. Introduction

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, sulfur dioxide (SO2), and lead (Pb) (listed in order of decreasing emission rate).

The Federal Clean Air Act of 1970 established the NAAQS. These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The most recent amendments to the NAAQS contain criteria for sulfur dioxide (SO_2), particulate matter (PM_{10}, 10-micron and smaller, $PM_{2.5}$, 2.5 micron and smaller), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb).

The primary pollutants from motor vehicles are unburned hydrocarbons, NOx, CO, and particulates. Hydrocarbons (HC) and Nitrogen oxides (NOx) can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO_2. 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. These pollutants are regional problems.

A quantitative PM 2.5 hot-spot analysis is not required for this project since it is not an air quality concern. The Clean Air Act and 40 CFR 93.116 requirements were met without a hot-spot analysis, since this project has been found not to be of air quality concern under 40 CFR 93.123(b)(1). This project meets the statutory transportation conformity requirements without a hotspot analysis.

A project-level qualitative air quality analysis was prepared for this project. A copy of the unabridged version of the full technical report entitled Air Quality Analysis, *US 321 Improvements*, dated July 28, 2014 can be viewed at the Project Development & Environmental Analysis Unit, Century Center Building A, 1010 Birch Ridge Drive, Raleigh.

2. Mobile Source Air Toxics (MSAT)

a. Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050.

MSAT analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically-defined “study area” will not capture

the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area's entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

3. Incomplete Or Unavailable Information For Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on

the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more

complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to

weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

4. Conclusion

Based on the qualitative analysis completed, under the study area in the design year it is expected there would not be higher MSAT emissions in the study area relative to the No Build Alternative. However, in considering the entire project study area, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause area-wide MSAT levels to be significantly lower than today.

5. Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The project is located in Burke, Caldwell, and Catawba Counties, which complies with the National Ambient Air Quality Standards. This project will not create a facility that is likely to meaningfully increase emissions. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area.

K. Hazardous Material

In October 2004 NCDOT conducted an investigation into properties along US 321 between the Catawba River and Southwest Boulevard that are or may be contaminated and therefore may result in increased project costs and future liability if acquired by the Department. GeoEnvironmental impacts may include, but are not limited to, active and abandoned underground storage tank (UST) sites, hazardous waste sites, regulated landfills and unregulated dumpsites. An update to this report for the full project limits, from US 70 to Southwest Boulevard, is currently underway and the results will be included in the FONSI.

Twenty-eight possible UST facilities, three automotive repair facilities, and one pest control facility were identified within the project corridor between the Catawba River and Southwest Boulevard. A total of twenty-nine of the thirty-two sites would be impacted by the preliminary slope stake plus 25 foot limits. These sites are anticipated to have a low to non-existent monetary and scheduling impact.

VII. COMMENTS AND COORDINATION

A. Public Meetings

Two public meetings for the project were held on July 14 and 15, 2008. The first public meeting was held on July 14, 2008 at the Broyhill Civic Center in Lenoir, between the hours of 4:00 p.m. and 7:00 p.m. The second meeting was held on July 15, 2008 at the Winkler Activity Center in Hickory, between the hours of 4:00 p.m. and 7:00 p.m.

The meetings were attended by local citizens, local government staff, media representatives, and project team members. A copy of the handout and comment form from the meeting is included in Appendix D.

Aerial photographs of the project study area and an environmental constraints map were displayed in the meeting room. The aerial mosaics showed the project study area, project termini, and major points of interest within the study area. The major comments and information received from the public at this meeting are summarized below:

- The project is needed to relieve traffic congestion (18%).
- The project could improve driver safety (18%).
- This project could potentially enhance economic growth (16%).

Only 6% of the commenter's thought that this project would not serve the area transportation or other needs.

B. Local Officials Informational Meetings

1. Local Officials Meeting – July 14 and 15, 2008

The first LOIMs were held at the same locations as the public meetings. Meeting officials included elected officials from municipalities and counties along the project corridor.

A copy of the public meeting information packet included in Appendix D was given to attendees. Aerial photographs of the project study area were displayed in the meeting room, and participants were able to review these aerials prior to the meeting.

NCDOT representatives and the consultant presented a summary of the information included in the packet and a description of the information shown on the aerial mosaic.

2. Local Officials Meeting – January 15, 2014

The second LOIM was held at the Western Piedmont Council of Governments in Hickory NC. Meeting officials included elected officials from municipalities and counties along the project corridor along with representatives from Sealed Air Corporation and Merchants Distributors.

NCDOT representatives and the consultants presented the preliminary designs and fielded questions. Minutes from the meeting can be found in Appendix D.

3. Local Officials Meeting – May 20, 2014

Two LOIMs (10:00 am and 1:30 pm) were held at the Hudson Uptown Building in Hudson NC. Meeting officials included elected officials from municipalities and counties along the project corridor.

NCDOT representatives and the consultants presented the preliminary designs and fielded questions. Minutes from the meeting can be found in Appendix D.

4. Local Officials Meeting – August 21, 2014

The LOIM conference call was held with the City of Lenoir. Meeting officials included two employees from the City of Lenoir.

NCDOT representatives and the consultants presented the preliminary designs and fielded questions. Minutes from the meeting can be found in Appendix D.

5. Local Officials Meeting – February 10, 2015

NCDOT presented at a meeting with the City of Hickory. Staff and attendees included Representative Andy Wells and elected officials from Hickory.

An overview and status update were presented. Minutes from the meeting can be found in Appendix D.

C. Newsletters

One newsletter was sent to property owners in the project vicinity. The newsletter was sent in early July 2008 to approximately 1,800 citizens in the project area. This newsletter announced the first two public meetings and discussed the study process to be used in the project's development process. A copy of the newsletter can be found in Appendix D.

D. Public Hearing

A public hearing will be scheduled for this project following the distribution of this Environmental Assessment. During the hearing, citizens will have an opportunity to review the preliminary roadway design plans for the project, and to ask questions and state their comments regarding the proposed improvements.

E. NEPA 404 Merger Process

In a May 1992 agreement, USDOT, the Office of the Assistant of the Army (Civil Works), and EPA developed a policy to improve interagency coordination and integrate policies of NEPA and Section 404 of the Clean Water Act (CWA). In 1997, the Wilmington District of the USACE, the North Carolina Division of the FHWA, and NCDOT signed an Interagency Agreement that provided procedures to integrate NEPA and Section 404 for transportation projects in North Carolina. This integrated approach, called the Merger Process, was part of an effort to streamline the project development and permitting processes with the objective of incorporating the regulatory requirements of Section 404 into the NEPA decision-making process. The Merger Process allows agency representatives to work more efficiently by providing a forum for them to discuss and find ways to comply with key elements of their agencies' missions. The Merger Process helps to document how competing agency mandates are balanced to reach a "compromise-based decision" to the regulatory and individual agency mandates.

A Merger Screening Meeting was held for this project on October 19, 2005. Based on the anticipated impacts, the agencies determined that the project should be included in the Merger Process.

A Scoping Meeting was held for the project in Raleigh on June 16, 2006.

Concurrence has been reached on Concurrence Point 1 (Purpose and Need and Study Area Defined), Concurrence Point 2 (Alternatives to be Carried Forward for Detailed Study), and Concurrence Point 2A (Bridging Decisions and Alignment Review). Copies of the concurrence forms are included in Appendix E.

Coordination with the Merger process agencies will continue throughout project studies, including Concurrence Point 3 (LEDPA, or Least Environmentally Damaging Practicable Alternative), Concurrence Point 4A (Avoidance and Minimization of Impacts), Concurrence Point 4B (30% Hydraulic Design Review), and Concurrence Point 4C (Permit Drawings Review).

F. Additional Agency Coordination

Letters were sent to the following federal and state environmental agencies and regional and local governments at the beginning of the project studies:

The agencies and governments with an asterisk (*) provided comments (see Appendix B):

US Army Corps of Engineers
US Environmental Protection Agency
* US Wildlife Resources Commission
US Geological Survey
* US Department of Interior
US Department of Agriculture
* NC Department of Administration, NC State Clearinghouse
NC Department of Public Instruction
* NC Department of Cultural Resources
* NC Department of Environment and Natural Resources
* NC House of Representatives
* Catawba Indian Nation
Catawba County Administration
Burke County Administration
Caldwell County Administration
City of Hickory
* City of Lenoir
Town of Granite Falls
Town of Sawmills
Town of Hudson
The Hickory-Conover-Newton MPO
Western Piedmont MPO

VIII. BASIS FOR ENVIRONMENTAL ASSESSMENT

The proposed project will improve north-south mobility, reduce congestion, and increase capacity between Lenoir, Hickory, and the surrounding area. Based on the planning and environmental studies, there is no indication that this project will have a significant detrimental effect on the quality of the human environment. The proposed project will cause no significant changes in route classification and land use and is not controversial in nature. The project has been reviewed by federal, state and local agencies, and no substantial objections have been raised. No major objections to the project were voiced at the public meetings held. For these reasons, it is concluded that an Environmental Assessment is applicable to this project.

FHWA and NCDOT are making this document available for a period of 30 days to provide resource agencies and the public an opportunity to review the document. A public hearing will be scheduled also to allow for additional public comment. Comments received will be reviewed and taken into account prior to the determination to prepare and approve a Finding of No Significant Impact (FONSI).

Appendix A

Legend

- Highways
- Roads
- Railroads
- US 321 Widening
- US 321 Study Area
- County Boundary
- Water Bodies
- Streams

Connelly Springs

BURKE COUNTY

Cajah's Mountain

End Project

Southwest Blvd

321

Norwood St

Gunpowder Creek

Lenoir

Hudson

Sawmills

Main St

Angley Creek

Catawba River

Little Gunpowder Creek

Cedar Valley Rd

Mount Herman Rd

Freezer Locker Rd

Mission Rd

Hickory Blvd

Deal Mill Rd

N Main St

Pinewood Rd

Billy Branch

Lower Cedar Valley Rd

Hildebran

Rhodhiss

Granite Falls

Falls Ave

Dudley Shoals Rd

CALDWELL COUNTY

S Main St

US-321

Silver Creek

Lake Hickory

Long View

Begin Project

Frye Creek

SR-1371

Old Lenoir Rd

Grace Chapel Rd

Hickory

2nd Ave NW

11th Ave NW

8th Ave SW

1st Ave SW

CATAWBA COUNTY

Brookford

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 321 (U-4700)

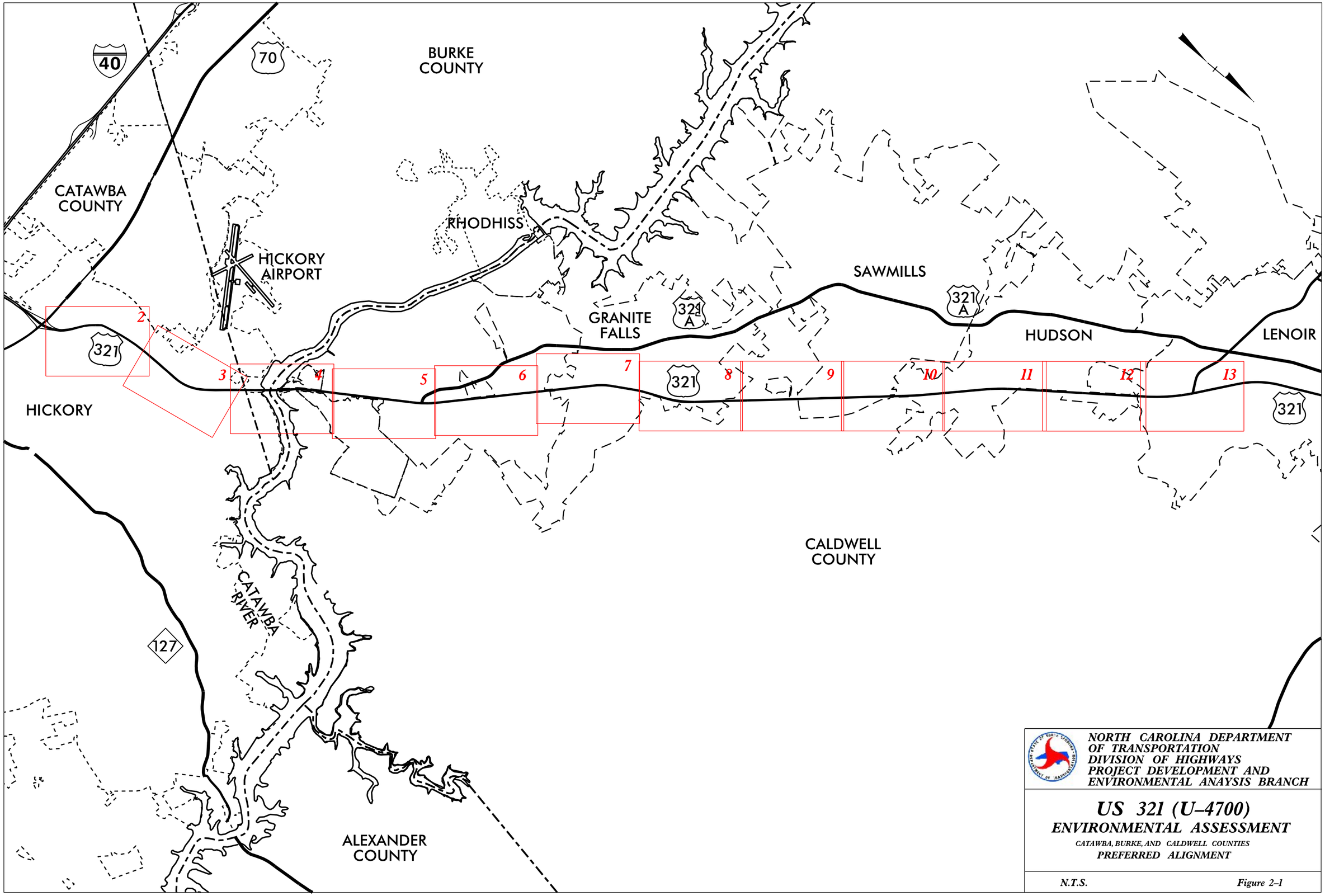
ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

VICINITY MAP

0 0.5 1 Miles

Figure 1



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

N.T.S.

Figure 2–1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–2

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

SPP

SB

SITE 1

SITE 16

7TH AVE.

CLEMENT BLVD.

19TH ST.

HOUCK'S CHAPEL

CEMETERY

321

90+00

95+00

100+00

105+00

110+00

115+00

120+00

125+00

130+00

135+00

140+00

145+00

150+00

OLD LENOIR RD.

FRYE CREEK

11TH ST.

CRIPPLE CREEK

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–3

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

14TH AVE. CIR.
CALDWELL COUNTY RAILROAD
CATAWBA RIVER
LAKE VALLEY PL.
HICKORY CITY LIMITS
WA
SITE 2
SC
150+00
155+00
160+00
165+00
170+00
175+00
180+00
185+00
190+00
195+00
200+00
205+00
321
SB
LIMBAUGH LANE
LAKE PARK DR.
SQQ
SRR
HICKORY CITY LIMITS
HICKORY LAKE
SITE 17
GRACE CHAPEL RD.
BURKE COUNTY
CATAWBA COUNTY
CALDWELL COUNTY
BURKE COUNTY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U-4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2-4

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

14TH AVE. CIR.
CALDWELL COUNTY RAILROAD
CATAWBA RIVER
LAKE VALLEY PL.
HICKORY CITY LIMITS
SITE 2
WA
SC
321
SB
LIMBAUGH LANE
LAKE PARK DR.
HICKORY CITY LIMITS
SQQ
SRR
SITE 17
GRACE CHAPEL RD.
HICKORY LAKE
HICKORY CITY LIMITS
BURKE COUNTY
CATAWBA COUNTY
CALDWELL COUNTY
BURKE COUNTY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–4A

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

14TH AVE. CIR.
CALDWELL COUNTY RAILROAD
CATAWBA RIVER
LAKE VALLEY PL.
HICKORY CITY LIMITS
SITE 2
WA
SC
SB
SRR
SQQ
SITE 17
321
A
B
C
D
LIMBAUGH LANE
LAKE PARK DR.
HICKORY CITY LIMITS
GRACE CHAPEL RD.
HICKORY LAKE
HICKORY CITY LIMITS
BURKE COUNTY
CATAWBA COUNTY
CALDWELL COUNTY
BURKE COUNTY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–4B

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

SAGE MEADOW CIR

MIDWAY SAND RD

RED OAK RD

US 321A

210+00 215+00 220+00 225+00 230+00 235+00 240+00 245+00 250+00 255+00 260+00 265+00 270+00 270+00

WB

SE

WC

WD

SD

MDI

POOVEYS GROVE CHURCH RD

HICKORY CITY LIMITS

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–5

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

MAIN ST.

SR 1764

GLEN RIDGE DR.

POOVER DR.

HICKORY BLVD.

321

SF

SI

SJ

SK

SL

SM

275+00 280+00 285+00 290+00 295+00 300+00 305+00 310+00 315+00 320+00 325+00 330+00

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–6

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

GRANITE FALLS TOWN LIMITS

YORK RD.

TIMBER BROOK LN

WOODLANE ST.

KENT AVE

SUNNYSIDE ST.

FALLS AVE.

ARCHER ST.

321

SN

SITE 3

SO

SP

SSS

HERITAGE DR.

LAKE HICKORY PL

CEDAR ST.

335+00 340+00 345+00 350+00 355+00 360+00 365+00 370+00 375+00 380+00 385+00 390+00

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–7

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

GRANITE FALLS TOWN LIMITS

WOODLANE ST.

KENT AVE

SUNNYSIDE ST.

FALLS AVE.

ARCHER ST.

321

YORK RD.

TIMBER BROOK LN

SN

SITE 3

HERITAGE DR.

LAKE HICKORY PL

SO

CEDAR ST.

SP

SSS

A

B

C

D

335+00

340+00

345+00

350+00

355+00

360+00

365+00

370+00

375+00

380+00

385+00

390+00

N 46° 29' 44.4" W

N 70° 40' 18.2" W

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–7A

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

GRANITE FALLS TOWN LIMITS

WOODLANE ST.

KENT AVE

SUNNYSIDE ST.

FALLS AVE.

ARCHER ST.

321

YORK RD.

TIMBER BROOK LN

SN

SITE 3

HERITAGE DR.

LAKE HICKORY PL

SO

CEDAR ST.

SP

SSS

335+00 340+00 345+00 350+00 355+00 360+00 365+00 370+00 375+00 380+00 385+00 390+00

N 46° 29' 44.4" W

N 70° 40' 18.2" W

A B C D

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–7B

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

BILLY BRANCH

DUDLEY SHOALS AVE

PINEWOOD RD

N HIGHLAND AVE

321

SQ

SITE 4

WF

GRANITE FALLS TOWN LIMIT

395+00 400+00 405+00 410+00 415+00 420+00 425+00 430+00 435+00 440+00 445+00 450+00 455+00

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–8

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

GRANITE FALLS TOWN LIMIT

SOUTH CALDWELL HIGH SCHOOL

SAWMILLS TOWN LIMIT

SHAMROCK HEIGHTS

LITTLE GUN POWDER CREEK

SR

SITE 5

SU

SY

SX

MITCH PL

DYNASTY LN

GLADYS LN

321 HICKORY BLVD.

460+00 465+00 470+00 475+00 480+00 485+00 490+00 495+00 500+00 505+00 510+00 515+00

SS

ST

SV

SW

COBLE DAIRY RD

COBLE LN

MITCHUM DR

LOWER CEDAR VALLEY RD.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–9

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

PROSPERITY LN

MISSION RD.

CEDAR VALLEY RD

520+00 525+00 530+00 535+00 540+00 545+00 550+00 550+00 555+00 560+00 565+00 570+00 575+00

321

MEADOWCREEK DR

HUDSON TOWN LIMIT

LOWER CEDAR VALLEY RD.
SAWMILLS TOWN LIMIT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

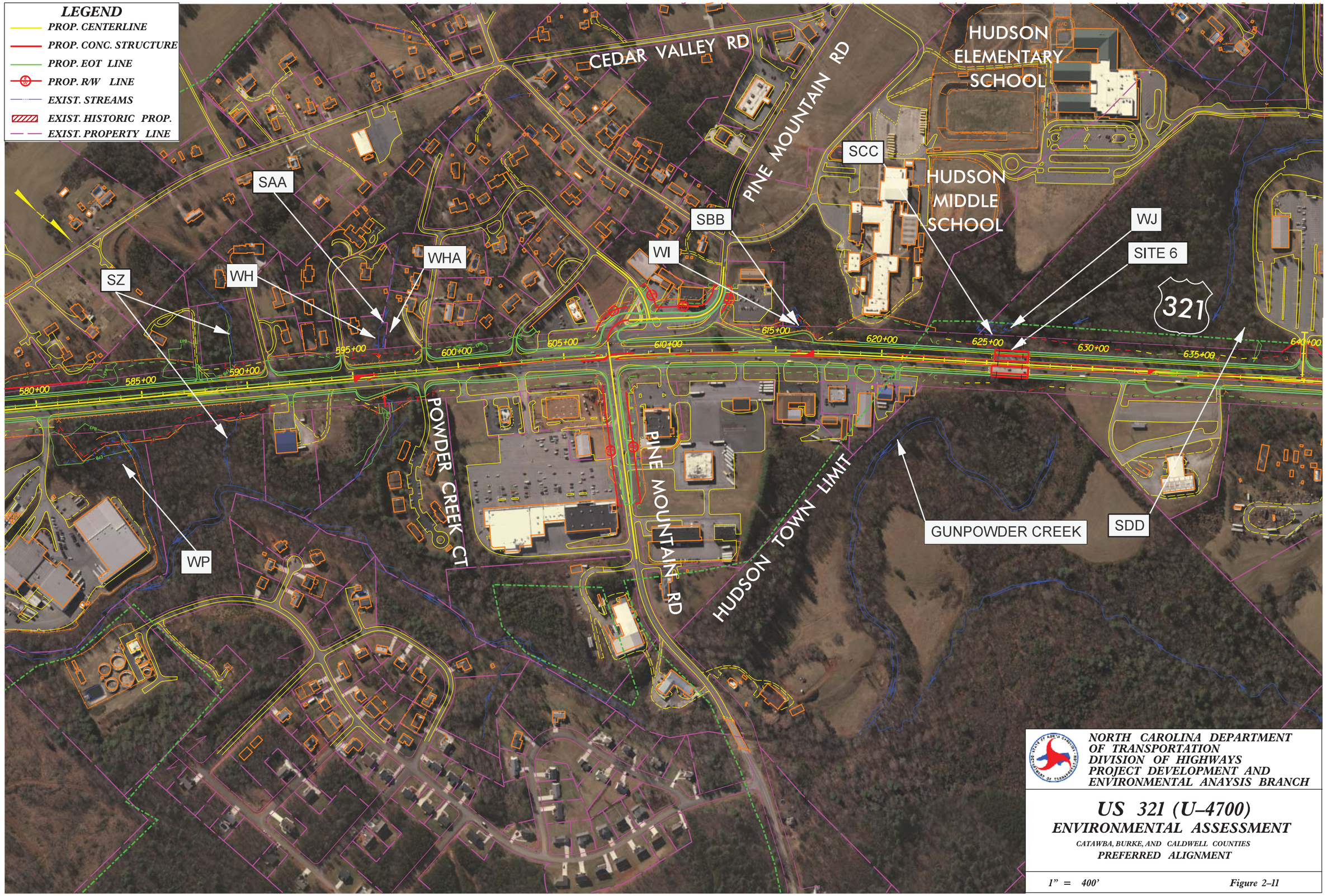
ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–10



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–11

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

CALDWELL COMMUNITY COLLEGE & TECHNICAL INSTITUTE

GUNPOWDER CREEK

G. HAYWOOD HARTLEY HOUSE

Historical Boundary

LENOIR CITY LIMITS

ANGLEY CREEK

WK

WKA

SEE

SITE 7

321

WADE THOMPSON LN

640+00 645+00 650+00 655+00 660+00 665+00 670+00 675+00 680+00 685+00 690+00 695+00 700+00

N 76° 59' 05.5" W

HUDSON TOWN LIMIT

MT HERMAN RD

SLL

WHISPERING PINES DR

BRUSHY CREEK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–12

LEGEND

- PROP. CENTERLINE
- PROP. CONC. STRUCTURE
- PROP. EOT LINE
- PROP. R/W LINE
- EXIST. STREAMS
- EXIST. HISTORIC PROP.
- EXIST. PROPERTY LINE

SOUTHWEST BLVD

CLOVER DR

GUNPOWDER CREEK

SFF

SITE 8

MEADOWVIEW PL

321

WO

SGG

LAKESIDE TERRACE

ANGLEY CREEK

FAIRWOOD DR

WL

700+00 705+00 710+00 715+00 720+00 725+00 730+00 735+00 740+00 745+00 750+00 755+00 760+00

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

PREFERRED ALIGNMENT

1" = 400'

Figure 2–13

Legend

- Highways
- Roads
- Railroads
- US 321 Widening
- Streams
- Water Bodies
- US 321 Study Area
- Significant Natural Heritage Sites
- Water Supply Watershed
- Floodplain

Connelly Springs
BURKE COUNTY
Catawba River
Sawmills
Cajah's Mountain
End Project
Southwest Blvd
321
Norwood St
Gunpowder Creek
Lenoir
Hudson
Angley Creek
Main St
Little Gunpowder Creek
Cedar Valley Rd
Mount Herman Rd
Freezer Locker Rd
Mission Rd
Hickory Blvd
Deal Mill Rd
N Main St
Pinewood Rd
Billy Branch
Lower Cedar Valley Rd
Rhodhiss
Granite Falls
Falls Ave
Dudley Shoals Rd
CALDWELL COUNTY
Hildebran
S Main St
US-321
Silver Creek
Long View
Begin Project
70
Frye Creek
SR-1371
Old Lenoir Rd
Grace Chapel Rd
Lake Hickory
Hickory
8th Ave SW
2nd Ave NW
11th Ave NW
1st Ave SW
CATAWBA COUNTY
Brookford

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 321 (U-4700)
ENVIRONMENTAL ASSESSMENT
CATAWBA, BURKE, AND CALDWELL COUNTIES
ENVIRONMENTAL FEATURES

0 0.5 1 Miles

Figure 3

Legend

- STIP U-4700
- Direct Community Impact Area (DCIA)
- Demographic Study Area (DSA)
- County Boundary
- Roads
- Hydrology
- Railroads

Municipalities

- Granite Falls
- Hickory
- Hudson
- Lenoir
- Sawmills

BURKE COUNTY

CATAWBA COUNTY

CALDWELL COUNTY

LENOIR

HUDSON

SAWMILLS

GRANITE FALLS

HICKORY

304 BG 1

306 BG 3

306 BG 1

314 BG 6

306 BG 2

314 BG 5

211 BG 2

211 BG 1

107 BG 1

111.01 BG 1

314 BG 1

313 BG 3

312 BG 5

106 BG 1

313 BG 1

107 BG 2

106 BG 4

106 BG 2

End U-4700

Begin U-4700

40

70

321A

64

90

127

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 321 (U-4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

US CENSUS BLOCK GROUPS

Miles

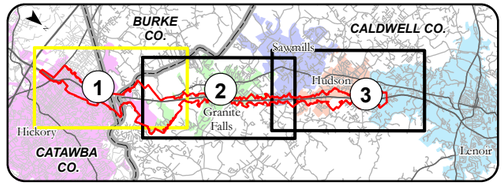
0 0.5 1

Figure 4

Longview Elementary School
70
Southern Railway
Begin U-4700
Bethany Lutheran Church
Westmont/ West Hickory
13th St SW
14th St SW
2nd Ave SW
17th St SW
2nd Ave NW
1st Ave SW
Main Ave Dr NW
7th Ave SW
7th Ave NW
9th Ave NW
Houck's Chapel Baptist Church
Clement Blvd
Old Lenoir Rd
13th Ave NW
15th Ave NW
WTP
Hickory
CATAWBA COUNTY
Hickory Airport
BURKE COUNTY
Winkler Park
Carolina and Northwestern Railway
Lake Hickory
CALDWELL COUNTY
Midway Sand Rd
Red Oak Rd
321A
South Main St
Limbaugh Ln
Marina
Grace Chapel Rd
MDI
Alex Lee Blvd
Pooveys Grove Rd
New Farm Rd
Wal-Mart and Shoppes at Rivercrest
Granite Falls
Hickory
Riverbend Dr
Lake Hickory

LEGEND

- STIP U-4700
- Direct Community Impact Area (DCIA)
- Primary Roads
- Secondary Roads
- Hydrology
- County Boundary
- Golf Course
- Highway Business Node
- Park
- Westmont/West Hickory Neighborhood
- Proposed Greenway
- Existing Greenway
- WTP Water Treatment Plant
- Church
- Cemetery
- Residential Neighborhood
- Existing Interchange
- School
- Office
- Sewer Pump
- Water Intake
- Marina
- Civic Center
- Fairgrounds
- Fire Station/EMS/Police



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 321 (U-4700)
ENVIRONMENTAL ASSESSMENT
CATAWBA, BURKE, AND CALDWELL COUNTIES
COMMUNITY CHARACTERISTICS

0 0.25 0.5 Miles

Figure 5-1

CALDWELL COUNTY

Granite Falls

Carolina and Northwestern Railway

Caldwell County EMS

Lovelady EMS

Granite Falls Elementary School

Granite Falls Recreation Center

South Caldwell High School

Sawmills

Red Oak Rd

321A

Poovey Dr

Woodlane St

Falls Av

Pinewood Rd

Shamrock Hts

Spartan Dr

South Main St

Alex Lee Blvd

Pooveys Grove Rd

New Farm Rd

Wal-Mart and Shoppes at Rivercrest

Transportation Museum Andrew Baird House

Falls Av

Buffy Branch

Dudley Shoals Rd

N Highland Av

Little Crumpler Creek

Beach Rd

Coble Dairy Rd

Lower Cedar Valley Rd

Granite Falls

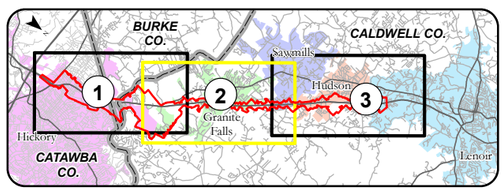
Hickory

Riverbend Dr

Lake Hickory

LEGEND

- STIP U-4700
- Direct Community Impact Area (DCIA)
- Primary Roads
- Secondary Roads
- Hydrology
- County Boundary
- Golf Course
- Highway Business Node
- Park
- Westmont/West Hickory Neighborhood
- Proposed Greenway
- Existing Greenway
- WTP Water Treatment Plant
- Church
- Cemetery
- Residential Neighborhood
- Existing Interchange
- School
- Office
- Sewer Pump
- Water Intake
- Marina
- Civic Center
- Fairgrounds
- Fire Station/EMS/Police



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

US 321 (U-4700)
ENVIRONMENTAL ASSESSMENT
CATAWBA, BURKE, AND CALDWELL COUNTIES
COMMUNITY CHARACTERISTICS

0 0.25 0.5 Miles

Figure 5-2

Hudson

Sawmills

821A

Mission Rd

Pine Mtn Rd

Mt Herman Rd

Hudson Fire Station

Redwood Park

Hudson Optimist Park

Hudson Middle School

Hudson Elementary School

Caldwell Community College

State Highway Patrol

Gunpowder Creek

Claude Sella Dr

Cedar Valley Rd

Spartan Dr

Lower Cedar Valley Rd

Pine Mtn Rd

Caldwell Community College Building

WTP

Lenoir Water Treatment Plant

Pine Mtn Rd

Joyceton Church Rd

Southwest Blvd

Gunpowder Creek

821A

Clover Dr

Haven Ct

Caldwell County Board of Education

Countryside Dr

Fairgrounds Rd

Caldwell County Fairgrounds

Victoria Ct

Broyhill Civic Center

Ideal Dr

Caldwell County Economic Development Commission

Whispering Pines Dr

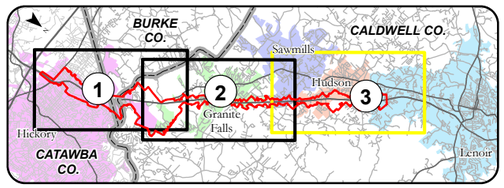
Fairwood Dr

Hawley Creek

Hawley Creek

LEGEND

- STIP U-4700
- Direct Community Impact Area (DCIA)
- Primary Roads
- Secondary Roads
- Hydrology
- County Boundary
- Golf Course
- Highway Business Node
- Park
- Westmont/West Hickory Neighborhood
- Proposed Greenway
- Existing Greenway
- WTP Water Treatment Plant
- Church
- Cemetery
- Residential Neighborhood
- Existing Interchange
- School
- Office
- Sewer Pump
- Water Intake
- Marina
- Civic Center
- Fairgrounds
- Fire Station/EMS/Police

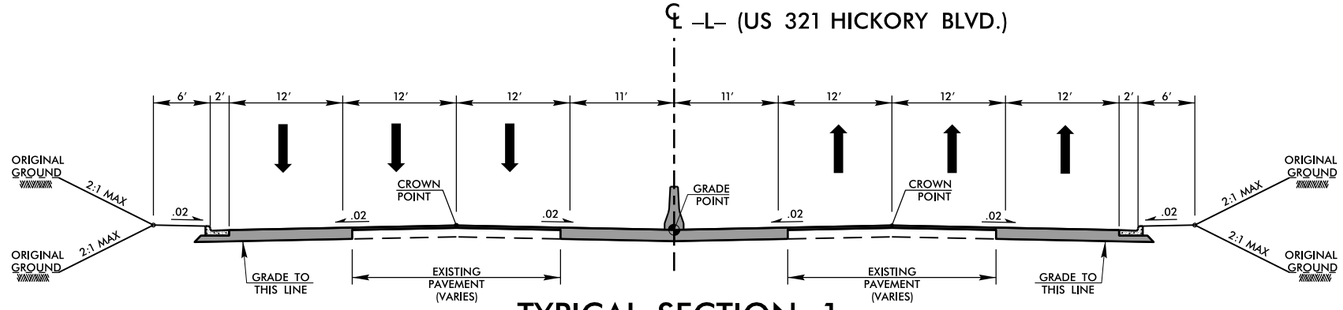


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

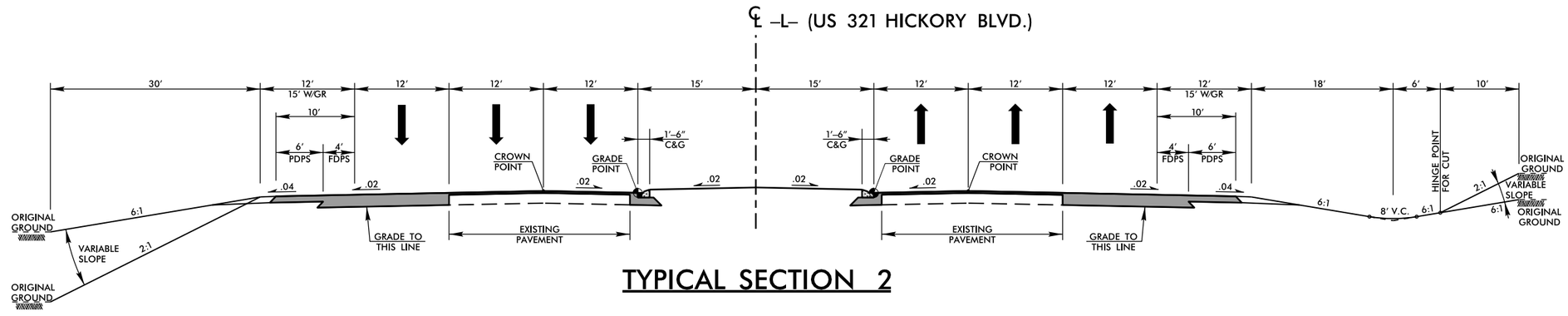
US 321 (U-4700)
ENVIRONMENTAL ASSESSMENT
CATAWBA, BURKE, AND CALDWELL COUNTIES
COMMUNITY CHARACTERISTICS

0 0.25 0.5 Miles

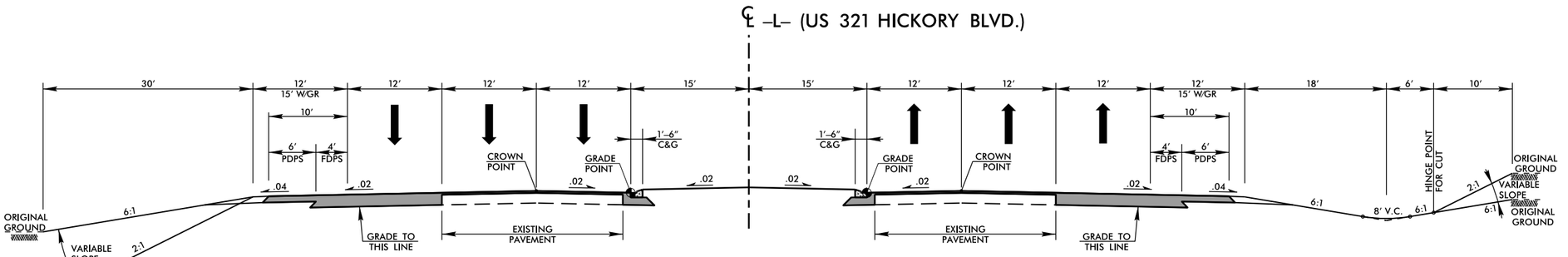
Figure 5-3



TYPICAL SECTION 1



TYPICAL SECTION 2



TYPICAL SECTION 3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANAYSIS BRANCH

US 321 (U–4700)

ENVIRONMENTAL ASSESSMENT

CATAWBA, BURKE, AND CALDWELL COUNTIES

TYPICAL SECTIONS

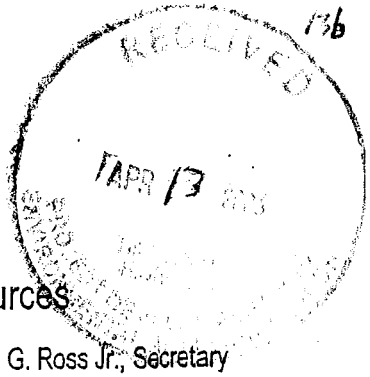
N.T.S. *Figure 6*

Appendix B

Agency Correspondence

13b

13b



NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

April 10, 2006

MEMORANDUM

TO: Gregory J. Thorpe, DOT Project Development and Environmental Analysis

FROM: Harry LeGrand, Natural Heritage Program

SUBJECT: Improvements to US 321, from US 70 in Hickory to US 64 in Lenoir; Burke, Caldwell, and Catawba counties

REFERENCE: F.A. Project NHF-321(18), WBS No 35993.1.1, TIP Project U-4700

The above project description maps show two locations of Natural Heritage Program elements, which our database corroborates. The northern element is an historical and vague location for the sticky bog asphodel (*Tofieldia glutinosa*), which is State Significantly Rare. The record, from the 1930s at an upland bog near Whitnel, would be either assumed to be gone by now, or far enough away from the project area not to be impacted. No survey is warranted.

The other element is dwarf-flowered heartleaf (*Hexastylis naniflora*), a Federal and State Threatened species. The site, located between the existing US 421 and SR 1108, on the north side of Gunpowder Creek, is an NCDOT mitigation site/easement. Widening of US 321 farther to the east might impact the population. Thus, it is important that DOT biologists visit (or re-visit) the site and determine if impacts will be made by such widening to the east. Detailed information about the heartleaf population is enclosed.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

Enclosure

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 • FAX: 919-715-3060 • Internet: www.enr.state.nc.us

(14) (19)

North Carolina
Department of Administration

Michael F. Easley, Governor

Britt Cobb, Secretary

May 10, 2006

Mr. Joseph Miller
NCDOT
Transportation Building
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Miller:

Re: SCH File # 06-E-4220-0294; Scoping; Proposal to widen US 321 from US 70 in Hickory to US 64 in Lenoir, Burke, Caldwell, & Catawba counties. TIP #U-4700

The above referenced environmental impact information has been reviewed through the State Clearinghouse under the provisions of the North Carolina Environmental Policy Act.

Attached to this letter are comments made by agencies reviewing this document which identify issues to be addressed in the environmental review document. The appropriate document should be forwarded to the State Clearinghouse for compliance with State Environmental Policy Act. Should you have any questions, please do not hesitate to call me at 807-2425.

Sincerely,

Chrys. Baggett/SJC

Ms. Chrys Baggett
Environmental Policy Act Coordinator

Attachments

cc: Region E

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail Chrys.Baggett@ncmail.net

Location Address:
116 West Jones Street
Raleigh, North Carolina

NCDENR
North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

MEMORANDUM

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee
Environmental Review Coordinator

SUBJECT: 06-0294 Scoping Widening US 321 Hickory to US 64 in Lenoir, Burke, Caldwell and Catawba Counties

DATE: May 9, 2006

The Department of Environment and Natural Resources has reviewed the proposed information. The attached comments are for the applicant's information.

Thank you for the opportunity to review.

Attachments

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR/

North Carolina Wildlife Resources Commission

Richard B. Hamilton, Executive Director

TO: Melba McGee, Environmental Coordinator
Office of Legislative and Intergovernmental Affairs, DENR

FROM: Marla Chambers, Western NCDOT Permit Coordinator
Habitat Conservation Program, NCWRC

Marla Chambers

DATE: April 24, 2006

SUBJECT: Scoping review of NCDOT's proposal to widen US 321 from US 70 in Hickory to US 64 in Lenoir; Burke, Caldwell and Catawba Counties. TIP No. U-4700. OLIA Project No. 06-0294, due 04/24/2006.

Staff biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the scoping sheets and information provided by North Carolina Department of Transportation (NCDOT) and have the following preliminary comments regarding impacts to fish and wildlife resources resulting from the subject project. These comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The NCDOT proposes to widen existing US 321, from US 70 in Hickory to US 64 in Lenoir, from a four-lane median divided roadway to a six-lane median divided roadway for a project length of approximately 17 miles. The scoping sheets indicated that the majority of the intersections along this section of US 321 operate at Level Of Service (LOS) "F" and that the existing and proposed control of access includes partial, limited and full control in the project area. However, the "Project Setting" section indicated little to no control of access exists currently. LOS for the roadway itself was not presented. We recommend that one of the project alternatives include turn lanes and intersection improvements instead of a full scale widening to determine effectiveness of smaller scale improvements. We also recommend controlling access to the extent practicable to improve safety, maximize the length of time of acceptable LOS, and minimize future impacts to aquatic and terrestrial habitats.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

Waterways that cross the project include Catawba River, Class WS-IV CA; Frye Creek, WS-IV; Billy Branch, WS-IV; Little Gunpowder Creek, WS-IV; Gunpowder Creek and two of its unnamed tributaries (UT's), Class C; Brushy Creek, C; Angley Creek, C; Lower Creek and one of its UT's, C. Catawba River Buffer Rules apply to the mainstem and there are two water intakes within 1200 feet of the Catawba River bridge. Numerous game fish populations inhabit the Catawba River/Lake Hickory complex. Sediment and erosion control will be important, particularly in the vicinity of the river. Hazardous spill basins are recommended to protect the water supply. In addition, we recommend floodplain culverts, where appropriate, to reconnect the floodplain, spread out flood flows, and reduce flood damage.

NCWRC is concerned about impacts to wetlands and possibly bog turtles (*Glyptemys muhlenbergii*), state Threatened and federal Threatened due to Similarity in Appearance, in the project area. While there is the potential for bog turtle occurrences in wetlands along the entire project length, the potential is high along the Catawba River corridor. Surveys should be conducted and steps taken to avoid impacts to bog turtles and their habitat. We recommend bog turtle wetlands be preserved as part of the mitigation strategy for this project.

There is a known population of dwarf-flowered heartleaf (*Hexastylis naniflora*), state and federally Threatened, in the project area. Consultation with the U. S. Fish and Wildlife Service will be necessary. We are concerned that several hazardous material sites, including four superfund sites, are in the project vicinity; however NCDOT indicates that no effects from these sites are anticipated. We also request that NCDOT investigate the rate of accidents that involve wildlife, such as vehicle collisions with deer, and identify areas of habitat fragmentation affecting small and large wildlife species in the project area. Wildlife crossings may be appropriate to improve safety for drivers and reconnect wildlife populations fragmented by the highway.

In addition, to help facilitate document preparation and the review process, our general information needs are outlined below:

1. Description of fishery and wildlife resources within the project area, including a listing of federally or state designated threatened, endangered, or special concern species. Potential borrow areas to be used for project construction should be included in the inventories. A listing of designated plant species can be developed through consultation with the following programs:

   The Natural Heritage Program
   http://www.ncsparks.net/nhp
   1601 Mail Service Center
   Raleigh, N. C. 27699-1601

   and,

   NCDA Plant Conservation Program
   P. O. Box 27647
   Raleigh, N. C. 27611
   (919) 733-3610

2. Description of any streams or wetlands affected by the project. If applicable, include the linear feet of stream that will be channelized or relocated.

3. Cover type maps showing wetland acreage impacted by the project. Wetland acreage should include all project-related areas that may undergo hydrologic change as a result of ditching, other drainage, or filling for project construction. Wetland identification may be accomplished through coordination with the U. S. Army Corps of Engineers (USACE). If the USACE is not consulted, the person delineating wetlands should be identified and criteria listed.

4. Cover type maps showing acreage of upland wildlife habitat impacted by the proposed project. Potential borrow sites and waste areas should be included.

5. Show the extent to which the project will result in loss, degradation, or fragmentation of wildlife habitat (wetlands or uplands).

6. Include the mitigation plan for avoiding, minimizing or compensating for direct and indirect degradation in habitat quality as well as quantitative losses.

7. Address the overall environmental effects of the project construction and quantify the contribution of this individual project to environmental degradation.

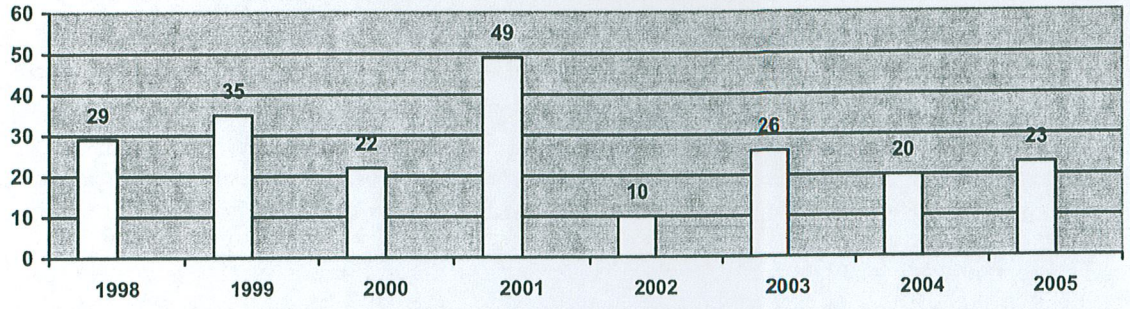
8. Provide a discussion of the probable impacts on natural resources, which will result from secondary development, facilitated by the improved road access.

9. If construction of this facility is to be coordinated with other state, municipal, or private development projects, a description of these projects should be included in the environmental document, and all project sponsors should be identified.

Thank you for the opportunity to provide input in the early planning stages of this project. If you have any questions regarding these comments, please contact me at (704) 545-3841.

cc: Marella Buncick, USFWS
Sue Homewood, NCDWQ
Polly Lespinasse, NCDWQ
Brian Wrenn, NCDWQ
Christopher Militscher, USEPA

systems have consolidated with a nearby governmentally owned public water system. Figure below displays the number of consolidations in Georgia each year since 1998, and indicates that in any one year, approximately 27 water systems are successfully consolidated with a local governmentally owned public water system or water authority.



Number of Consolidated Water Systems

We are expecting these numbers to increase in the near future as a result of increased financial and managerial burdens associated with complying with the recently enacted regulations, specifically the Stage 1 Disinfection By-products Rule, and the future federal regulations proposed for implementation in 2006 (Ground Water Rule, Stage 2 Disinfection By-products Rule, Long-Term Surface Water Treatment Rule).

DRINKING WATER FEE SYSTEM: The drinking water fee system, established by EPD, makes compliance monitoring available to all public water systems at a very reasonable cost. Under an optional "Drinking Water Service Contract", EPD provides a water system with laboratory and related services that are consistent with the owner's need to comply with the National Primary Drinking Water Regulations and related regulations. EPD specifically agrees to provide the required laboratory analyses, sampling containers and instructions (as monitoring is required), written reports on the results of the analysis of each sample, technical assistance regarding corrosion control treatment, and limited vulnerability assessments. The drinking water service fee is based on the total population served by the water system, the population type (community or non-community), the type of source water, and the number of entry points.

The voluntary "Drinking Water Laboratory Service Fee" program has been an invaluable and an economical alternative in providing laboratory services to the public water system owners and operators in Georgia. It's success can be measured with the high percent of the water systems participating in the program as well as the amount of savings realized by the water systems since its inception in 1992. As of June 2005, approximately 1,937 public water systems are benefiting from the services provided by drinking water fee system, roughly 77.5% of all permitted public water systems at an average estimated annual savings of $ 17.4 millions to the water system owners and operators. Further data analysis indicates that 1,367 out of 1,699 CWSs (80%), 396 out of 552 TNCWSs (71.7%), and 174 out of 246 NTNCWSs (71%) are utilizing the services offered by the drinking water fee system.

The EPD will continue to provide this very cost effective laboratory service in order to help public water systems acquire and maintain financial and technical capacity to comply not with only the current drinking water regulations but also prepare them to comply with the future regulations, such as the anticipated Groundwater Rule, Long Term 2 Enhanced Surface Water Treatment Rule, Stage 2 Disinfectant-Disinfection By-Products Rule, and Radon Rule. EPD is also considering an incentive for water system consolidation that involves reduced laboratory fees for deficient private water systems acquired by efficient public or private water systems. The past-unpaid fees of the deficient system may be reduced.

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

April 6, 2006

MEMORANDUM

To: Melba McGee, Environmental Coordinator, Office of Legislative and Intergovernmental Affairs

From: Brian L. Wrenn, Transportation Permitting Unit, NCDWQ BLW

Subject: Request for Scoping Comments for the Proposed Improvements to US 321 from US 70 to US 64 in Catawba, Caldwell, and Burke Counties, TIP Project No. U-4700, F.A. Project NHF-321(18), WBS No. 35993.1.1

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/Surface Water	River Basin	Classification	Stream Index No.
Geitner Branch	Catawba	C	11-129-1-18
Frye Creek	Catawba	WS-IV	11-54-1
Catawba River	Catawba	WS-IV;B;CA	11-(53); 11-(51)
Gunpowder Creek	Catawba	WS-IV;CA	11-55-(4)
Billy Branch	Catawba	WS-IV	11-55-3
Gunpowder Creek	Catawba	WS-IV	11-55-(1.5)
Little Gunpowder Creek	Catawba	WS-IV	11-55-2-(2)
Angley Creek	Catawba	C	11-55-1
Brushy Fork	Catawba	C	11-55-1-1
Gunpowder Creek	Catawba	C	11-55-(0.5)
Lower Creek	Catawba	C	11-39-(0.5)

DWQ has the following comments:

Project Specific Comments:

1. Catawba River and portions of Gunpowder Creek within the project area have supplemental water quality classifications as Critical Areas (CA) in WS-IV waters of the State. In general, CA are defined as waters within 0.5 miles of and draining to a reservoir that contains water supply intake or the ridge line of the watershed in which the intake is located. Given the potential for impacts to these resources during the project implementation, the DWQ requests that DOT strictly adhere to North Carolina regulations entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project. This would apply for any area that drains to streams having CA (Water Supply Critical Area) classifications.

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

6. If concrete is used during construction, a dry work area should be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete should not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

7. 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.

8. Bare soil should be stabilized through vegetation or other means as quickly as feasible to prevent sedimentation of water resources.

9. If applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.

10. Any new culverts must be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing.

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.

12. 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.

13. 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.

14. Sediment and erosion control measures should not be placed in wetlands.

15. Borrow/waste areas should avoid wetlands to the maximum extent practicable. Impacts to wetlands in borrow/waste areas could precipitate compensatory mitigation.

16. While the use of National Wetland Inventory (NWI) maps and soil surveys is a useful office tool, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

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.

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Inter-Agency Project Review Response

Project Number
06-0294
County
Burke, Caldwell & Catawba

Project Name **NC DOT**

Type of Project **Proposal to widen US 321 from US 70 in Hickory to US 64 in Lenoir, Burke, Caldwell & Catawba counties, TIP #U-4700.**

Comments provided by:

- ☐ Regional Program Person
- ☒ Regional Supervisor for Public Water Supply Section
- ☐ Central Office program person

Name **Britt Setzer-Mooresville RO & Jim Adams-Swannanoa RO**

Date **04/20/06**

Britt Setzer

Telephone number: 704-235-2127

Program within Division of Environmental Health:

- ☐ Public Water Supply
- ☐ Other, Name of Program: _____

Response (check all applicable):

- ☐ No objection to project as proposed
- ☐ No comment
- ☐ Insufficient information to complete review
- ☐ Comments attached
- ☒ See comments below

This report states that "special consideration will be given with respect to water intakes located along the Catawba River associated with the Hickory Water Treatment Plant." Special consideration should also be taken with the Town of Longview's WTP intake. The intake is located slightly west of US321 in Lake Hickory.

Return to:
Public Water Supply Section
Environmental Review Coordinator
for the
Division of Environmental Health

NCDENR State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: APO

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 06-0294 Due Date: 4/24/06

After review of this project it has been determined that the DENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of this form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (Statutory Time Limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES-permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection preapplication conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90 - 120 days (N/A)
☐	Water Use Permit	Preapplication technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☑	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Preapplication conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100, 2Q.0300, 2H.0600)	N/A	60 days
☒	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900		
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.	N/A	60 days (90 days)
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☐	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) at least 30 days before beginning activity. A fee of $50 for the first acre or any part of an acre.		20 days (30 days)
☐	The Sedimentation Pollution Control Act of 1973 must be addressed with respect to the referenced Local Ordinance.		30 days
☒	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		
☐	Mining Permit	On-site inspection usual. Surety bond filed with DENR. Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division of Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit-22 counties in coastal N.C. with organic soils.	On-site inspection by N.C. Division of Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90 - 120 days (N/A)

NCDENR State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: Mooresville

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 06-0294 Due Date: 4 12 06

After review of this project it has been determined that the DENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of this form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (Statutory Time Limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES-permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection preapplication conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90 - 120 days (N/A)
☐	Water Use Permit	Preapplication technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Preapplication conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100, 2Q.0300, 2H.0600)	N/A	60 days
☐	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-733-0820.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☑	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) at least 30 days before beginning activity. A fee of $50 for the first acre or any part of an acre.		20 days (30 days)
☐	The Sedimentation Pollution Control Act of 1973 must be addressed with respect to the referenced Local Ordinance.		30 days
☐	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		
☐	Mining Permit	On-site inspection usual. Surety bond filed with DENR. Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division of Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit-22 counties in coastal N.C. with organic soils.	On-site inspection by N.C. Division of Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90 - 120 days (N/A)

20

2p

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

May 18, 2006

Dr. Gregory J. Thorpe, Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: Proposed Improvements to US 321 from US 70 in Hickory to US 64 in Lenoir, Burke, Catawba, and Caldwell Counties, North Carolina, F.A. Project NHF-321(18), WBS No. 35993.1.1, TIP No. U-4700

As requested by the North Carolina Department of Transportation (NCDOT), we have reviewed the scoping information provided for the subject project. The following comments are provided in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The NCDOT proposes to widen existing US 321 from a four-lane median-divided highway to a six-lane median-divided highway from US 70 in Hickory to US 64 in Lenoir. No new location alternatives are proposed. The Catawba River and ten other streams will be impacted by this project.

A review of our records indicates known occurrences of the federally threatened dwarf-flowered heartleaf (*Hexastylis naniflora*) in the project vicinity. We recommend conducting habitat assessments and surveying any suitable habitat in the project area for this species prior to further planning or on-the-ground activities to ensure that no adverse impacts occur. If the dwarf-flowered heartleaf will be impacted by the project, further consultation will be required.

We strongly recommend that these improvements include provisions to control access to this highway in the future. The scoping document states that US 321 is a designated Strategic Corridor. The Strategic Corridors Concept, by description, is "a timely initiative to protect and maximize the mobility and connectivity on a core set of existing facilities, while promoting environmental stewardship through maximizing the use of existing facilities to the extent possible." Without control of access and collaborative local land-use planning, we believe this

corridor will quickly fall below acceptable levels of service, making these improvements obsolete and requiring further impacts to fish and wildlife habitat.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log Number 4-2-06-277.

Sincerely,

Brian P. Cole
Field Supervisor

cc:
Ms. Marla J. Chambers, Western NCDOT Permit Coordinator, North Carolina Wildlife Resources Commission, 4614 Wilgrove-Mint Hill Road, Suite M, Charlotte, NC 28227
Mr. Chris Militscher, c/o Federal Highway Administration, U.S. Environmental Protection Agency, Terry Sanford Federal Courthouse, 310 New Bern Avenue, Room 206, Raleigh, NC 27601
Mr. Brian Wrenn, North Carolina Division of Water Quality, Central Office, 2321 Crabtree Blvd., Suite 250, Raleigh, NC 27604
Mr. John T. Thomas, Jr., Raleigh Regulatory Field Office, U.S. Army Corps of Engineers, 6508 Falls of the Neuse Road, Suite 120, Raleigh, NC 27615

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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

August 10, 2006

MEMORANDUM

TO: Gregory Thorpe
Division of Highways
North Carolina Department of Transportation

FROM: Peter Sandbeck RSH for Peter Sandbeck

SUBJECT: US 321 Improvements, US 70 in Hickory to US 64 in Lenoir, U-4700, ER 06-0885

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

There are no known recorded archaeological sites within the project boundaries. However, 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 by an experienced archaeologist to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. Potential effects on unknown resources must be assessed prior to the initiation of construction activities.

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

Andrew Baird House, Granite Falls

Houck's Chapel Baptist Creek Church, south side Ninth Avenue NW, W of 17th Street, NW, Hickory

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 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: SCH
Mary Pope Furr
Matt Wilkerson

CITY MANAGER
W. LANE BAILEY

CITY OF LENOIR
NORTH CAROLINA

MAYOR
JOSEPH L. GIBBONS

CITY COUNCIL
T. H. PERDUE
J. I. PERKINS
T. J. ROHR
D. F. STEVENS
R. R. STILWELL
C. D. THOMAS
B. K. WILLIS

June 26, 2014

Mr. Undrea Major
NCDOT Project Manager
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Major:

Upon review of the preliminary plans for NCDOT Project U-4700, specifically the segment located at the intersection of US 321 and US 64 in Lenoir, the City Council of Lenoir has several concerns regarding the proposed diverging diamond interchange.

In its present form, the City Council *does not support* this plan, primarily due to the 24 businesses that would be forced to relocate in order to accommodate the new design. Should the plan move forward in a modified form that is more acceptable to the Council and the business community, the Council has several other secondary concerns regarding beautification, effects of the new traffic patterns on nearby intersections, signage supporting way-finding to Historic Downtown Lenoir, and pedestrian safety.

The City of Lenoir requests a working meeting in order to further discuss this project, in hopes that the economic impacts to Lenoir's businesses can be balanced with the need to mitigate traffic concerns in this area.

Respectfully,

CITY OF LENOIR

W. Lane Bailey
City Manager

cc: Mayor & Lenoir City Council

CITY MANAGER
W. LANE BAILEY

CITY OF LENOIR
NORTH CAROLINA

MAYOR
JOSEPH L. GIBBONS

CITY COUNCIL
T. H. PERDUE
J. I. PERKINS
T. J. ROHR
D. F. STEVENS
R. R. STILWELL
C. D. THOMAS
B. K. WILLIS

October 10, 2014

Mr. Undrea Major
NCDOT Project Manager
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Major:

The Lenoir City Council discussed the proposed U4700 project at the October 7, 2014 City Council meeting. The Council supports NCDOT moving forward with the environmental analysis report for the entire U4700 project as proposed, recognizing that this report will analyze the worst case scenario for environmental impacts and is a necessary step to allow the funded portion of the project (Phase A) to continue to move forward. The City does not want to delay Phase A of the project and understands that since the portion affecting Lenoir (Phase C) is currently unfunded, we should have ample opportunity to make modifications to the project.

The City reiterates our concerns with the proposed grade-separated divergent diamond interchange for Smith-Crossroads. We are strongly opposed to the proposed interchange design and want to continue exploring options for changing the project limits and/or redesigning the interchange to have a smaller footprint, less impact on businesses, and greater protection for active transportation modes like walking and biking. The City remains concerned that more relevant and pressing traffic congestion issues exist north of the proposed U4700 terminus, at the intersections of 321 with Hospital Avenue, Nuway Circle, and North Main Street (a/k/a Creekway Drive).

The City's adopted Comprehensive Plan calls for creating more mixed-use, walkable communities and exploring a landscaped boulevard concept for 321. As the City solidifies the specific vision and implementation strategies for the 321 corridor, we will continue to work with the Greater Hickory MPO and NCDOT to ensure that context-sensitive design is included in the Long Range Transportation Plan and incorporated into U4700 and/or future projects. The City requests participation from NCDOT in actively seeking alternative, context-sensitive proposals for Smith-Crossroads and the 321 corridor in Lenoir, that balance economic development and quality of life with the need to reduce congestion.

Respectfully,

CITY OF LENOIR

W. Lane Bailey
City Manager

cc: Mayor Gibbons & Lenoir City Council
The Honorable Representative Edgar Starnes

Lenoir All-America City 2008

Lenoir All-America City 2008

North Carolina General Assembly
House of Representatives

REPRESENTATIVE EDGAR V. STARNES
HOUSE MAJORITY LEADER

OFFICE ADDRESS: 301 LEGISLATIVE OFFICE BUILDING
300 N. SALISBURY STREET
RALEIGH, NC 27603-5925
TELEPHONE: (919) 733-5931
HOME: (828) 326-9653
EMAIL: edgar.starnes@ncleg.net

COMMITTEES:
FINANCE, VICE CHAIRMAN
APPROPRIATIONS, VICE CHAIRMAN
RULES
ELECTIONS
COMMERCE
AGRICULTURE
ENVIRONMENT
TRANSPORTATION

July 9, 2014

Secretary Tony Tata
NC Department of Transportation
1501 Mail Service Center
Raleigh, NC 27699-1501

Dear Secretary Tata,

I am writing to express my opposition to NCDOT Project U-4700. This is the proposed changes to the intersection of Highway 321 and Highway 18 in Lenoir, NC. This project will do more damage than good and is not wanted by the citizens of Caldwell County. I have attached a letter of opposition from the Lenoir City Council.

The DOT is currently completing an interchange on Highway 321 South of Lenoir which was both unwanted and unnecessary. The state has spent millions of dollars on this project with absolutely no benefit to the citizens of Caldwell County. This highway project has become the poster child of waste and abuse of tax dollars by the DOT. This project should have been removed from the TIP years ago.

I am requesting that Project U-4700 be stopped mow before any money is spent on its planning and implementation. Projects of this nature and magnitude should not be done without input from the citizens you are trying to serve.

With best regards, I am

Sincerely,

Edgar V. Starnes

Edgar V. Starnes
House Majority Leader

EVS/pf

cc: Jim Palermo
Undrea Major
Mike Pettyjohn

North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

December 22, 2015

MEMORANDUM

TO: Matt Wilkerson
Office of Human Environment
NCDOT Division of Highways

FROM: Ramona M. Bartos RSE for Ramona M. Bartos

SUBJECT: Intensive Archaeological Survey and Evaluation for US 321 Improvements from US 70 in Hickory to US64/NC18 in Lenoir, U-4700, Burke, Caldwell, and Catawba Counties, ER 06-0885

Thank you for your letter of November 24, 2015, transmitting the archaeological survey report by Bruce Idol and Matt Pare, TRC Environmental Corporation (TRC). The report meets our guidelines and those of the Secretary of the Interior.

During the course of the survey, seven sites and eight isolated finds were located within the project area. For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that archaeological sites 31CT259, 31CW464-31CW471, 31CW473-31CW475, and 31CW477are not eligible for listing in the National Register of Historic Places. These sites do not retain sufficient subsurface integrity or artifact density to yield information important to history or prehistory. The portions of 31CW472 and 31CW476 within the APE also lack significant cultural deposits; however, the portions of these sites outside the project area have not been evaluated. Additional survey and evaluation at these locations will be necessary if project modifications expand the APE in these locations.

TRC has 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 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427
Fax 803-328-5791

January 11, 2016

Attention: Matthew T. Wilkerson
State of NC DOT
1020 Birch Ridge Drive
Raleigh, NC 27610

Re. THPO #	TCNS #	Project Description
2016-193-1		US 321 *Improvements from US 70 in Hickory to US64/NC 18 in Lenoir, Burke, Caldwell & Catawba Counties, NC*

Mr. Wilkerson,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Totherow at 803-328-2427 ext. 226, or e-mail caitlinh@ccppcrafts.com.

Sincerely,

Caitlin Totherow for

Wenonah G. Haire
Tribal Historic Preservation Officer

Appendix C

Relocation Report

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	A Part 1
T.I.P. NO.:	U-4700		STA. 36+00 TO STA. 179+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	10	3	13	3
Businesses	16	27	43	1
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	3	4	5	1

VALUE OF DWELLING

Owners		Tenants	
0-20M	0	$ 0-150	0
20-40M	0	150-250	0
40-70M	1	250-400	3
70-100M	5	400-600	0
100 UP	4	600 UP	0
TOTAL	10		3

DSS DWELLING AVAILABLE

For Sale		For Rent	
0-20M	0	$ 0-150	0
20-40M	133	150-250	0
40-70M	105	250-400	0
70-100M	104	400-600	5
100 UP	523	600 UP	6
TOTAL	865		11

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affected by displacement?
X		3.	Will business services still be available after project?
X		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **18 to 24 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial
4) Please see attached spreadsheet for business relocatees
6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.
8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act.
11) Public housing is available through local agencies.
12) Based on the availability of DSS housing available on the market, it is not felt there will be a shortage of DSS housing
* Any deficiency in housing not within financial means will be addressed within the guidelines of the Last Resort Housing Section of the Uniform Act.
14) Based on local survey and current real estate listings suitable business sites will be available. It should be noted that there exists a moderate amount of commercial property vacant or for rent throughout the project area. Commercial/Businesses are heavily affected in this alternate.
Note: Morning Star mini Storage is in R/W. Estimated 16 Large units. For purpose of this study Morning Star is counted as One business. (Will generate 16 Misc. moves)

Bradley D Bowers	7/16/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	A1
T.I.P. NO.:	U-4700		STA. 179+00 TO STA. 207+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	1	2	3	0
Businesses	3	0	3	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	2	0	0	1

VALUE OF DWELLING

Owners		Tenants	
0-20M	0	$ 0-150	0
20-40M	0	150-250	0
40-70M	0	250-400	2
70-100M	0	400-600	0
100 UP	1	600 UP	0
TOTAL	1		2

DSS DWELLING AVAILABLE

For Sale		For Rent	
0-20M	0	$ 0-150	0
20-40M	133	150-250	0
40-70M	105	250-400	0
70-100M	104	400-600	5
100 UP	523	600 UP	6
TOTAL	865		11

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **15 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial. No businesses or commercial impacts on these alternates

4) Vacant Restaurant (could be in use at time of project)
Termite Inspector – Small business
Welding Shop – Small business

6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.

8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act.

11) Public housing is available through local agencies.

12) Based on the availability of DSS housing available on the market, it is not felt there will be a shortage of DSS housing

* Any deficiency in housing not within financial means will be addressed within the guidelines of the Last Resort Housing Section of the Uniform Act.

14) Based on local survey and current real estate listings suitable business sites will be available. It should be noted that there exists a moderate amount of commercial property vacant or for rent throughout the project area.

Bradley D Bowers	7/15/15			2/7/16
Right of Way Agent	Date		Relocation Coordinator	Date

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	Grace Chapel Flyover Alt. Design 1
T.I.P. NO.:	U-4700				
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	2	0	2	0
Businesses	3	0	3	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	2	0	0

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	73	150-250	0
40-70M	0	250-400	0	40-70M	93	250-400	0
70-100M	2	400-600	0	70-100M	92	400-600	4
100 UP	0	600 UP	0	100 UP	253	600 UP	8
TOTAL	2		0		511		12

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affected by displacement?
X		3.	Will business services still be available after project?
X		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **18 to 24 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial
4) Vacant Restaurant
Termite Inspector
Welding Shop
6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.
8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act.
11) Public housing is available through local agencies.
12) Based on the availability of DSS housing available on the market, it is not felt there will be a shortage of DSS housing
* Any deficiency in housing not within financial means will be addressed within the guidelines of the Last Resort Housing Section of the Uniform Act.
14) Based on local survey and current real estate listings suitable business sites will be available. It should be noted that there exists a moderate amount of commercial property vacant or for rent throughout the project area.

Bradley D Bowers	7/15/15			2/7/16
Right of Way Agent	Date		Relocation Coordinator	Date

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	Grace Chapel Trumpet Alt. Design 2
T.I.P. NO.:	U-4700				
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	4	0	4	0
Businesses	5	0	5	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	4	0	0

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	73	150-250	0
40-70M	0	250-400	0	40-70M	93	250-400	0
70-100M	4	400-600	0	70-100M	92	400-600	4
100 UP	0	600 UP	0	100 UP	253	600 UP	8
TOTAL	4		0		511		12

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affected by displacement?
X		3.	Will business services still be available after project?
X		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **18 to 24 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial

4) Vacant Restaurant
Termite Inspector
Welding Shop
Diaz Auto
Auto Repair Shop

6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.

8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act.

11) Public housing is available through local agencies.

12) Based on the availability of DSS housing available on the market, it is not felt there will be a shortage of DSS housing

* Any deficiency in housing not within financial means will be addressed within the guidelines of the Last Resort Housing Section of the Uniform Act.

14) Based on local survey and current real estate listings suitable business sites will be available. It should be noted that there exists a moderate amount of commercial property vacant or for rent throughout the project area.

Bradley D Bowers	7/15/15			2/7/16
Right of Way Agent	Date		Relocation Coordinator	Date

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	A Part 2
T.I.P. NO.:	U-4700		STA. 207+00 TO STA. 270+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	2	1	3	0
Businesses	2	3	5	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	0	1	2

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	133	150-250	0
40-70M	0	250-400	0	40-70M	105	250-400	0
70-100M	0	400-600	1	70-100M	104	400-600	5
100 UP	2	600 UP	0	100 UP	523	600 UP	6
TOTAL	2		1		865		11

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **12 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial.
4) Please see attached spreadsheet for business relocatees
6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.
8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act.
11) Public housing is available through local agencies.
12) Based on the availability of DSS housing available on the market, it is not felt there will be a shortage of DSS housing
* Any deficiency in housing not within financial means will be addressed within the guidelines of the Last Resort Housing Section of the Uniform Act.
14) Based on local survey and current real estate listings suitable business sites will be available. It should be noted that there exists a moderate amount of commercial property vacant or for rent throughout the project area.

Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	B Part 1
T.I.P. NO.:	U-4700		STA. 270+00 TO STA. 352+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	0	0	0	0
Businesses	0	1	1	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	0	0	0

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	133	150-250	0
40-70M	0	250-400	0	40-70M	105	250-400	0
70-100M	0	400-600	0	70-100M	104	400-600	5
100 UP	0	600 UP	0	100 UP	523	600 UP	6
TOTAL	0		0		865		11

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affected by displacement?
X		3.	Will business services still be available after project?
X		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **12 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial.
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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	B1 At Grade Intersection
T.I.P. NO.:	U-4700		STA. 352+00 TO STA. 408+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	10	4	14	0
Businesses	4	3	7	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

ANSWER ALL QUESTIONS

Yes	No		Explain all "YES" answers.
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affected by displacement?
X		3.	Will business services still be available after project?
X		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **18 Months**

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	3	3	4	4

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	133	150-250	0
40-70M	2	250-400	3	40-70M	105	250-400	0
70-100M	2	400-600	1	70-100M	104	400-600	5
100 UP	6	600 UP	0	100 UP	523	600 UP	6
TOTAL	10		4		865		11

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial.
4) Please see attached spreadsheet for business relocatees
6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.
8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act.
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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	B2 Partial clover
T.I.P. NO.:	U-4700		STA. 352+00 TO STA. 408+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	17	16	33	0
Businesses	4	3	7	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	3	15	6	9

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	133	150-250	0
40-70M	4	250-400	3	40-70M	105	250-400	0
70-100M	2	400-600	13	70-100M	104	400-600	5
100 UP	11	600 UP	0	100 UP	523	600 UP	6
TOTAL	17		16		865		11

ANSWER ALL QUESTIONS

Yes	No	*Explain all "YES" answers.*
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **24 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial.
4) Please see attached spreadsheet for business relocatees
6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers Data was drawn from the Hickory, Granite Falls, Lenoir Corridor.
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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	B3 Tight Diamond
T.I.P. NO.:	U-4700		STA. 352+00 TO STA. 408+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	6	7	13	0
Businesses	5	5	10	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	3	5	4	1

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	133	150-250	0
40-70M	1	250-400	3	40-70M	105	250-400	0
70-100M	2	400-600	4	70-100M	104	400-600	5
100 UP	3	600 UP	0	100 UP	523	600 UP	6
TOTAL	6		7		865		11

ANSWER ALL QUESTIONS

Yes	No	*Explain all "YES" answers.*
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **18 Months**

REMARKS (Respond by number)

3) Business Services will remain available as much of the project area is commercial/industrial.
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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	B Part 2
T.I.P. NO.:	U-4700		STA. 408+00 TO STA. 550+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	3	0	3	0
Businesses	4	2	6	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	0	1	2

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	133	150-250	0
40-70M	1	250-400	0	40-70M	105	250-400	0
70-100M	2	400-600	0	70-100M	104	400-600	5
100 UP	1	600 UP	0	100 UP	523	600 UP	6
TOTAL	3		0		865		11

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **18 Months**

REMARKS (Respond by number)

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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

FRM15-E

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	C1
T.I.P. NO.:	U-4700		STA. 550+00 TO STA. 622+46.95		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	2	0	2	0
Businesses	3	0	3	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	0	0	2

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	73	150-250	0
40-70M	0	250-400	0	40-70M	93	250-400	0
70-100M	0	400-600	0	70-100M	92	400-600	4
100 UP	2	600 UP	0	100 UP	253	600 UP	8
TOTAL	2		0		511		12

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affected by displacement?
X		3.	Will business services still be available after project?
X		4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
		6.	Source for available housing (list). Multiple listing Service, local survey, Internet searches.
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? **12 Months**

REMARKS (Respond by number)

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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

☒ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		COUNTY	Catawba/Caldwell	Alternate	C2
T.I.P. NO.:	U-4700		STA. 622+46.95 TO STA. 926+00		
DESCRIPTION OF PROJECT:	US 321 Hickory NC to Lenoir NC				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	0	0	0	0
Businesses	8	0	8	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	0	0	0

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	73	150-250	0
40-70M	0	250-400	0	40-70M	93	250-400	0
70-100M	0	400-600	0	70-100M	92	400-600	4
100 UP	0	600 UP	0	100 UP	253	600 UP	8
TOTAL	0		0		511		12

ANSWER ALL QUESTIONS

Yes	No	*Explain all "YES" answers.*
	X	1. Will special relocation services be necessary?
	x	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
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	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X *	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? **18 to 24 Months**

REMARKS (Respond by number)

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Bradley D Bowers	7/15/15		2/7/16
Right of Way Agent	Date	Relocation Coordinator	Date

Appendix D

Citizens Information Workshop Materials
Newsletter

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Planning and Environmental Assessment for Improvements to US 321 From US 70 in Hickory to US 64 in Lenoir

TIP NUMBER U-4700

Burke, Catawba, and Caldwell Counties

Citizen Informational Workshop #1

Informational Workshop 4:00 to 7:00 PM.
July 14 and 15, 2008

Introduction

Welcome to the first Citizens Information Workshop for the US 321 Improvement Study. Today's meeting is an important step in the North Carolina Department of Transportation's procedure for making you, the public, a part of the project development process. At today's workshop you will be able to:

- Meet the study team from the NCDOT;
- Learn about the study process and schedule;
- Identify any resources of concern to you that we need to analyze in the study, and;
- Hear about opportunities to be involved in the study.

Take a moment and review the boards and maps placed around the room. Please submit your written comments this evening or take comment forms home with you and mail them in later. We'll be glad to answer any questions that you might have. We thank you for your participation in this study.

Purpose of the Project

The study is being conducted to identify potential widening alternatives for improving US 321 from US 70 in Hickory to US 64 in Lenoir. An additional travel lane in each direction is planned to improve traffic flow and reduce delays along the US 321 corridor. Also, future traffic projections for the year 2035 are anticipated to reach unacceptable levels of service. The quality of life of the areas residents and the regions desire for economic development depend heavily on an efficient transportation system, of which US 321 is a vital part.

Project Description

The US 321 study area includes approximately 17.2 miles of existing US 321. The study area includes areas in three counties, Burke, Catawba, and Caldwell, with the majority being in Caldwell County. Municipalities included in the study area are: Hickory, Granite Falls, Sawmills, Hudson, and Lenoir. Figure 1 shows the US 321 study area. The project also includes the replacement of a bridge over the Catawba River.

The NCDOT proposes to widening existing US 321 from a four-lane median divided roadway to a six-lane median divided roadway with shoulders along most of the project length. To reduce impacts curb and gutter will be used along some sections and additional turn lanes will be provided at intersections where needed. Some interchange additions and revisions will be evaluated for the project. Specifically the construction of a single point urban diamond interchange at the intersection of US 321 and US 64 in Lenoir will be investigated.

Project Development Process

Briefly, the following activities will take place during each of the study phases. We are currently in Phase 1 of the study process.

Phase 1 - In addition to this Citizens Information Workshop, Phase 1 will include an inventory of planning transportation needs. During this phase of the process, data is collected on a variety of aspects of the study area including:

- Land use data
- Social environment information
- Local and regional economy data
- Physical features
- Natural environment features
- Cultural resources
- Utilities
- Visual resources
- Traffic data

Phase 2 – During Phase 2, alternatives will be developed based on initial field investigations and data collected during Phase 1 of the process. Alternatives will be developed after considering physical and environmental constraints and known cultural resources.

Phase 3 – This phase of the planning process will consist of the development of functional designs, the conduct of detailed field studies, environmental analysis and technical analysis. During this phase the project team will analyze potential impacts to the environment, and develop measures to avoid, minimize and mitigate impacts. Impacts will be assessed by comparing the anticipated changes to the existing environment due to proposed improvements. Alternatives will be narrowed to those which best address expected traffic demands and community needs. Analysis will be conducted in compliance with the requirements of the National Environmental Policy Act of 1969 and associated environmental regulations.

Phase 4 – During Phase 4 an Environmental Assessment document will be completed. The document will describe the anticipated environmental and other impacts for each of the "Build Alternatives" as well as proposed mitigation measures. The public will have a chance at this point to review and comment on the Environmental Assessment.

Phase 5 – After considering all agency and public comments on the Environmental Assessment, a preferred "Build Alternative" will be selected. Next a Public Hearing will be held to present the preliminary designs for the preferred alternative.

Phase 6 – A final environmental document known as the Finding of No Significant Impact (FONSI) will be prepared. This document will address all review agency comments, public comments, and comments received at the Public Hearing.

Evaluation Factors

During the study, economic, social and environmental aspects of the study area will be analyzed to identify alternative alignments which create the least negative impacts. The evaluation of potential impacts will be performed consistent with the requirements of federal and state regulations. The study team will examine: land use, social economic, cultural, utility, physical environment, natural resource, and visual and construction impacts.

How Can I Participate?

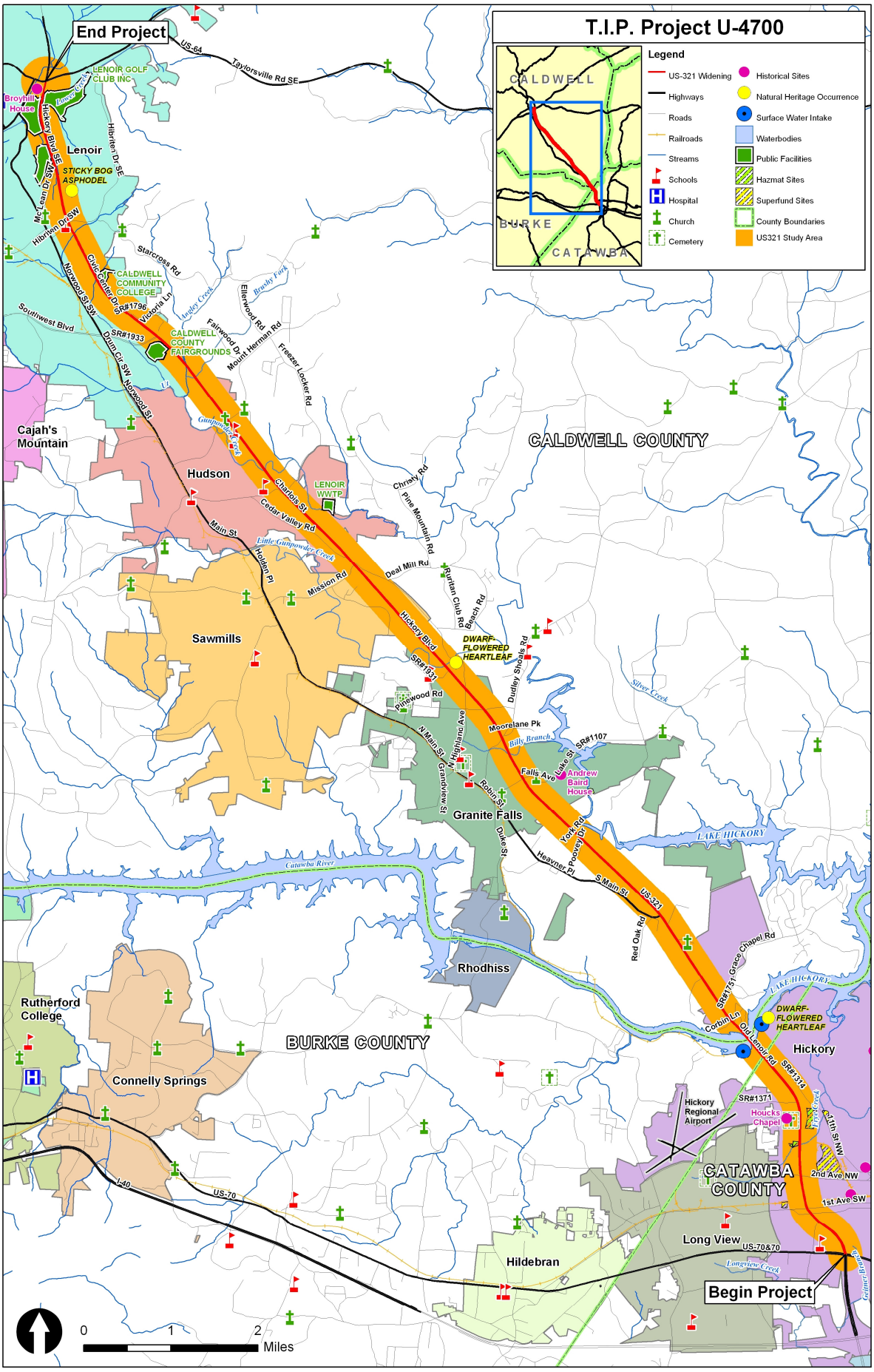
- Submit a Comment Sheet tonight
- Attend future Informational Meetings.

Contact us by mail:

Mr. Joseph Miller, P.E., Consultant Engineer
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
Telephone (919)733-7844, ext 269
E-mail address: josephmiller@ncdot.gov

Or

Mr. H. Franklin Vick, P.E.
Project Manager – US 321 Study
Parsons Transportation Group, Inc.
5540 Centerview Drive, Suite 217
Raleigh, NC 27606
Telephone (919) 854-1341
Fax (919) 851-2103
E-mail address: franklin.vick@parsons.com


T.I.P. Project U-4700
Legend
US-321 Widening
Highways
Roads
Railroads
Streams
Schools
Hospital
Church
Cemetery
Historical Sites
Natural Heritage Occurrence
Surface Water Intake
Waterbodies
Public Facilities
Hazmat Sites
Superfund Sites
County Boundaries
US321 Study Area
CALDWELL
BURKE
CATAWBA
End Project
Begin Project
CALDWELL COUNTY
BURKE COUNTY
CATAWBA COUNTY
Lenoir
Hudson
Cajah's Mountain
Sawmills
Granite Falls
Rhodhiss
Rutherford College
Connelly Springs
Hickory
Long View
Hildebran
LENOIR GOLF CLUB INC
Broyhill House
STICKY BOG ASPHODEL
CALDWELL COMMUNITY COLLEGE
CALDWELL COUNTY FAIRGROUNDS
LENOIR WWTP
DWARF-FLOWERED HEARTLEAF
Andrew Baird House
Houcks Chapel
Hickory Regional Airport
LAKE HICKORY
Catawba River
US-64
Taylorsville Rd SE
Hickory Blvd SE
Hibriten Dr SE
Hibriten Dr SW
McLean Dr SW
Starcross Rd
Civic Center Dr
Norwood St SW
Southwest Blvd
Drum Cir SW
Norwood St
Victoria Ln
Fairwood Dr
Ellerwood Rd
Mount Herman Rd
Freezer Locker Rd
Chaplin St
Cedar Valley Rd
Main St
Holden Pl
Mission Rd
Christy Rd
Pine Mountain Rd
Deal Mill Rd
Rutlan Club Rd
Beach Rd
Dudley Shoals Rd
Hickory Blvd
Pinewood Rd
Moorelane Pk
N Main St
Highland Ave
Grandview St
Robin St
Falls Ave
Lake St
Duke St
York Rd
Pookey Dr
Heavner Pl
S Main St
US-321
Red Oak Rd
Grace Chapel Rd
Corbin Ln
Old Lenoir Rd
SR#1314
SR#1371
2nd Ave NW
1st Ave SW
I-40
US-70
US-70&70
0
1
2
Miles

US 321 - Environmental Study (T.I.P. No. U-4700)

Comment Form – Newsletter #1

North Carolina Department of Transportation

What issues relating to evaluation of the purpose of and need for a highway project do you think apply to the US 321 project? (Please check as many as you feel apply to this project):

□ The project will provide relief of traffic congestion on the facility.
□ The project may improve safety on the facility.
□ The project may correct deficiencies in the current roadway design.
□ The project will serve specific user groups (for example, tourists or school traffic).
□ The project will help to improve regional connectivity and/or access to other transportation modes.
□ The project will potentially enhance economic growth in the region.
□ I do not believe that the project will appreciably serve the transportation or other needs of the area.

Please provide additional comments and/or clarification of any of the items you indicated above. If you have other needs the project should address please include those also (attach additional page[s] if needed):

Please mail your comments to the address shown on the back of this form, or email comments to:

josephmiller@ncdot.gov

Name: _____
Date: _____
Organization: _____
Address: _____
E-mail: _____

□ I am not on the project mailing list. Please add my name and address to the list.

Place
Stamp
Here

Joseph Miller, P.E.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Public Input

The study team would like your comments concerning any issues and/or problems you have encountered as you travel the US 321 corridor from Hickory to Lenoir, and on the elements of project need that you feel are most important in this study. A comment sheet is provided with this newsletter. All comments will be taken into consideration as the purpose and need statement is prepared. Public concerns will be included during the Section 404/NEPA Merger Process Concurrence Point 1 meeting held with resource agencies to address concerns about project purpose and need. Any suggestions you have relating to making improvements to this section of US 321 is welcome.

Citizens Informational Workshop

Date: July 14, 2008
Time: 4:00 - 7:00 pm
Location: The Broyhill Center, Room 215, Lenoir

Date: July 15, 2008
Time: 4:00 - 7:00 pm
Location: Winkler Activity Center, Hickory

Joseph Miller P.E.
NCDOT - PDEA.
1548 Mail Service Center
Raleigh, NC 27699-1548

Contact Us With Your Comments and Questions

Have a question or concern about the study? Are there concerns you have regarding the study? Is your name on the mailing list to receive future newsletters and meeting announcements? Please contact us and let us know.

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Or

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Email address: franklin.vick@parsons.com

Project Newsletter | TIP Project U-4700 | Issue 1 | July 2008

US 321 Widening Study

Burke, Caldwell and Catawba Counties

This is the first in a series of Informational Newsletters prepared as a part of the US 321 Widening Study. The study is being conducted to identify potential widening alternatives for improving US 321 from US 70 in Hickory to US 64 in Lenoir, and to investigate the construction of a single point urban interchange at the intersection of US 321 and US 64 in Lenoir. During the study, economic, social and environmental aspects of the study area will be analyzed to identify alternative alignments which minimize negative impacts.

Preliminary engineering, traffic analysis and community involvement will be key elements of the US 321 environmental study. The study will measure the comparative effectiveness of potential transportation options, prospective locations for the improvements, and associated social, cultural and natural resource effects.

Proposed Study Area Description

The proposed US 321 study area includes approximately 17.2 miles of existing US 321. The majority of the proposed study area is in Caldwell County, with a little more than a 0.3 mile being in Burke County and approximately 2.6 miles in Catawba County. This area includes the municipalities of Hickory and Lenoir, and the Towns of Granite Falls, Sawmills, and Hudson. The proposed study area, shown on the map inside, is based on established landmarks such as parks, schools, historic sites and physical constraints such as rivers and streams along existing US 321. The proposed study area is also designed to provide adequate coverage of the US 321/US 64 area to potentially accommodate an interchange. Establishing the study area in this way helps to ensure that adequate area is studied to allow for the development of realistic, cost-effective, environmentally sound alternatives.

The proposed study area will be presented to the Section 404/NEPA Merger Process Team during Concurrence Point 1 (see "Study Process," following) and will be modified if necessary and formally adopted at that time.

Informational Workshop

The first **Citizens Informational Workshop** for the US 321 study will be held on **Monday, July 14, 2008**, from 4:00 to 7:00 p.m. at The Broyhill Center, Room 215, 1913 Hickory Blvd. SE, Lenoir, and on **Tuesday, July 15, 2008,** from 4:00 to 7:00 p.m. at the Winkler Activity Center, 2500 Clement Blvd. NW, Hickory. The purpose of this informal workshop is to inform the public of the project's progress and to obtain project input. Mapping and other displays will be presented at the workshop. Members of the study team will be available to discuss the project and answer questions. Public input is a very important part of the planning process, and all interested parties are urged to attend.

Anyone desiring additional information about the upcoming workshop may contact Joseph Miller, NCDOT at 1548 Mail Service Center, Raleigh, NC 27699-1548, phone (919) 733-3141 or email josephmiller@ncdot.gov.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate in the workshops and hearings. Anyone requiring special services should contact Joseph Miller as early as possible so that arrangements can be made.

Study Process

The National Environmental Policy Act (NEPA) requires the North Carolina Department of Transportation (NCDOT) to involve other federal and state agencies and the public in preparing an environmental document for highway improvements. North Carolina DOT developed the Section 404/NEPA Merger Process in 1997 to allow resource agencies an early opportunity to be involved in major project decisions at key points in this process. Meetings are held with the resource agencies at these critical junctures to present information to the agencies, to discuss and address agency concerns and to obtain agency concurrence on the project decisions.

For this study, there are several key points that agencies will discuss and agree upon before NCDOT proceeds to the next phase of the project:

Concurrence Point 1 –	Purpose and Need and Study Area Defined
Concurrence Point 2 –	Design Options for Detailed Study
Concurrence Point 2A –	Final Alternatives to Carry Forward
Concurrence Point 3 -	Preferred Alternative Selection
Concurrence Point 4 -	Avoidance and Minimization

A project study team will assist in the preparation of the Environmental Assessment (EA) for the US 321 improvements. The project team will gather information on the existing natural and human environment, develop project alternatives, analyze potential impacts to the environment, and develop measures to avoid, minimize and mitigate impacts. As a part of the alternatives development phase and subsequent detailed studies, the study team will examine a variety of issues relating to project impacts and the feasibility of constructing the proposed improvements.

Draft Purpose and Need

One of the major steps occurring at this point in the process is the preparation of the Purpose and Need Statement. The Purpose and Need Statement is used to provide specific criteria from which NCDOT may develop preliminary study alternatives. The primary purposes and needs of the proposed improvements to US 321 are:

- Improve traffic flow and reduce delays along the US 321 corridor by adding additional lanes in each direction.
- Improve access to businesses, numerous government facilities between Hickory and Lenoir, better access to parks, and tourist attractions in the area.
- Improve highway safety and reduce traffic accidents.

PARSONS

U-4700: MEMORANDUM –STAKEHOLDERS MEETING MINUTES (DRAFT)

TO: File
LOCATION: Western Piedmont COG

FROM: Tim Goins
LOCATION: Hickory, North Carolina

DATE: January 15, 2014

PHONE: (919) 854-1343

SUBJECT: MINUTES, 01/15/14 STAKEHOLDERS MEETING, U-4700 WIDENING OF US 321 FROM US 70 IN HICKORY TO US 64/NC 19/NC 90, PLANNING, ENVIRONMENTAL AND DESIGN STUDIES CATAWBA, BURKE, AND CALDWELL COUNTIES

A meeting was held on Wednesday, January 15, 2014 at the Western Piedmont Council of Governments in Hickory, NC to discuss project issues pertaining to the schedule, preliminary design for bridges over the Catawba River/Caldwell Railroad, interchanges at Falls Avenue and at US 64 / NC 18-90 in Lenoir. The purpose of the meeting was to solicit comments from business owners and project stakeholders in the area. The following persons attended the meeting:

Agency/Organization	Attendee(s)	Email
City of Lenoir	Lane Bailey	lbailey@ci.lenoir.nc.us
City of Lenoir	David Stevens	dfstevens@ssfcpa.net
NCDOT – Division 12	Reuben Chandler	rchandler@ncdot.gov
NCDOT – Division 11	Mike Pettyjohn	mpettyjohn@ncdot.gov
NCDOT – Division 12	Mike Holder	MHolder@ncdot.gov
Caldwell EDC	Deborah Murray	dmurray@caldwelledc.com
Caldwell EDC and Berahardt	William Howard	
NCDOT – PDEA	Undrea (Dre) Major	ujmajor@ncdot.gov
Unifour RPO	Kelly Larkins	
	John Orgain	John.orgain@alexlee.com
Caldwell Co. Rail Company	Donald McGrady	Donaldmcgrady@bellsouth.net
City of Hickory	Bruce Meisner	
City of Hickory	Brian Frazier	bfrazier@hickorync.gov
City of Hickory	Miles Champion	mchampion@hickorync.gov
City of Hickory	Bobby White	
WPCOG	Sherry Long	
WPCOG	Anthony Starr	
WPCOG	John Marshall	John.marshall@wpcog.org

Agency/Organization	Attendee(s)	Email
Town of Granite Falls	Greg Wilson	wilson@granitefallsnc.com
Town of Granite Falls	Jerry Church	church@granitefallsnc.com
Town of Hudson	Janet Winkler	jwinkler2@charter.net
Town of Hudson	Rebecca Bentley	Rebecca.bentley@townofhudson.nc.com
City of Hickory	Chuck Hansen	chanson@hickorync.gov
City of Hickory	Andrea Surratt	asurratt@hickory.nc.gov
City of Hickory	Caroline Kone	ckone@hickorync.gov
Sealed Air Corporation	Karen Crisp	karen.crisp@sealedair.com
Sealed Air Corporation	Roger Jackson	Roger.jackson@sealedair.com
Town of Sawmills	Seth Eckard	seckard@townofsawmills.com
Caldwell County	Stan Kiser	skiser@caldwellcountync.gov
Catawba County	Jacky Eubanks	jeubanks@catawbacountync.gov
Catawba County	Barbara Beatly	bgbeatly@charter.net
Merchants Distributors	Paul Miller	paul.miller@merchantsdistributors.com
Merchants Distributors	Don Garvey	don.garvey@merchantsdistributors.com
Kimley-Horn	*Teresa Gresham	Teresa.Gresham@kimley-horn.com
Parsons	*Tim Goins	tim.goins@parsons.com
NCDOT – Roadway Design	*Jim Speer	jspeer@ncdot.gov
RK&K	Frank Vick	fvick@rkk.com
RK&K	Brandon McInnis	bmcinnis@rkk.com
NCDOT – Rail Division	*Jim Harris	jbharris@ncdot.gov

*Attended meeting via telephone

The following items were discussed during the meeting:

Frank Vick opened by providing a description of the project and the project team. He described the project team being a joint venture between AECOM, RK&K, Kimley-Horn, and Parsons as consultants for NCDOT. The preliminary plans are being prepared by RK&K on the southern end of the project and AECOM on the northern end. Kimley-Horn and Parsons are preparing the environmental document and NEPA documentation. NCDOT is managing the project providing oversight and review of all project documentation and design.

Brandon McInnis provided a brief description of the basic typical section of 6 lanes with a 30' raised median with grass shoulder. He stated Clement Bouelvard is proposed to go over US 321 with a new bridge over Caldwell County Railroad. The bridge will be approximately 23 feet over the rail. Over the Catawba River and Caldwell County Railroad, temporary shoring will be utilized to allow one bridge to be built while traffic remains on existing US 321. Traffic will then be shifted onto the new bridge while the 2nd bridge is constructed. This part of the project can be broken into a smaller project if necessary. Frank Vick stated the safety index (exposure) and number of trains warrant a grade separation. Dre Major also mentioned for this reason NCDOT would pursue this as a grade separation crossing.

After the project description, the meeting was opened for questions and comments from the stakeholders:

Barbara Beatty (Catawba County) was concerned about how traffic would be distributed to and from the LP Frans Stadium especially during the peak months of May to September. Brandon McInnis said that the road will be temporarily widened to accommodate existing traffic while the new lanes are being constructed. Post construction the final design shows an interchange that will accommodate game traffic to and from the stadium in the future.

There was a question regarding the project schedule. Dre stated the first segment currently is scheduled for right of way in 2017 and construction in 2020. Mike Holder stated NCDOT project prioritization is currently underway but these dates are the best available information at this time.

There were multiple questions regarding the superstreet turnaround accesses in different locations on the south side of the project. Brandon McInnis stated u-turns for the travelling public would be limited to interchanges or turnarounds and that left turns on cross streets would turn right and then left at the turnarounds.

There were multiple questions regarding the intersection alternates at Grace Chapel Road. Brandon McInnis provided a description of the trumpet interchange option, the flyover option and the at grade intersection. He stated the heavy volumes would require triple lefts and rights which is the reasoning for investigating the interchanges. Frank Vick mentioned all three options would be carried forward for further investigation. Dre described the NEPA merger process and that the Concurrence Point 2a meeting is scheduled for February 26, 2014 where bridging decisions and alignment review will be made. After this a public hearing will be held to solicit public comments regarding the entire project. Design modifications will be made where practicable based on comments from public and environmental agencies. After this, Concurrence Point 3 (Least Environmentally Damaging Practicable Alternative) will be chosen to move forward on the project.

There was a question regarding pedestrian access on the new bridge. Brandon McInnis mentioned there is currently no sidewalk or pedestrian access on the existing bridge and that none is currently proposed on the new bridges.

The City of Hickory discussed access to the parks and ball fields near –Y15A-. There is a city plan available and will be provided to NCDOT for planning purposes in this vicinity.

There was a question regarding lighting on the new bridges. Design is currently in the preliminary phases and lighting will be resolved later in the design process.

There was a question whether traffic signals will be removed on the south portion of the project. Signal design and implementation is still in the preliminary phases and exact locations will be resolved later in the design process.

There was a question regarding the superstreet design versus conventional intersections. Brandon McInnis mentioned the proposed turnarounds in the superstreet design will be 2 phased and operate more efficiently than having conventional intersections with more signal phasing due to the number of left turn movements.

There was a question regarding lane closures during construction. A property owner with a trucking business operates 900 outbound trucks per day and was concerned about the impacts during construction. Brandon McInnis explained the project is designed to maintain the same number of lanes as there currently are throughout the construction of the project.

There was a question regarding how the proposed project would handle the left turns NB and SB from Clement Boulevard / Old Lenoir Road and US 321. Brandon McInnis stated the traffic counts were taken into account in the design of the interchange.

Dre mentioned the current schedule as it relates to the project breaks. This particular area is broken into sections A, B, and C. Section A is US 321 from US 70 to approximately 800 ft. north of 2nd Avenue. Section B is from the end of section A to approximately 1300 ft. north of Clement Boulevard. Section C is from the end of section B to just south of Grace Chapel Road.

Current STIP

Section A	R/W	2017	Section B	R/W	2020	Section C	R/W	Unfunded
	Const.	2020		Const.	2022		Const.	Unfunded

Mike Mills mentioned that NCDOT would like to break out the bridge over Catawba River / Caldwell County Railroad (in section C) into its own project in order to expedite this crucial part of the project.

The meeting adjourned with no further questions.

Please review and provide any corrections or comments to Dre Major and Tim Goins.

U-4700: MEMORANDUM – LOCAL OFFICIALS' INFORMATIONAL MEETING SUMMARY

LOCATION: Western Piedmont COG
MEETING DATE: May 20, 2014 – 10:00 a.m.

SUBJECT: U-4700 STAKEHOLDERS MEETING, FOCUS ON LENOIR
WIDENING OF US 321 FROM US 70 IN HICKORY TO US 64/NC 19/NC 90, PLANNING, ENVIRONMENTAL AND DESIGN STUDIES
CATAWBA, BURKE, AND CALDWELL COUNTIES

A meeting was held on Tuesday, May 20, 2014 at the Hudson Uptown Building in Hudson, NC to discuss project issues pertaining to the preliminary design for the interchange of US 321 with US 64 / NC 18/NC 90 in Lenoir. The purpose of the meeting was to solicit comments from project stakeholders in the area. The following persons attended the meeting:

Agency/Organization	Attendee(s)	Email
City of Lenoir	Joe Gibbons	josephlgibbons@yahoo.com
City of Lenoir	Ralph Thomas	rlthomas@ci.lenoir.nc.us
City of Lenoir	Scott Brown	sbrown@ci.lenoir.nc.us
City of Lenoir	Charles Beck	ckbeck@ci.lenoir.nc.us
City of Lenoir	Jared Wright	jwright@ci.lenoir.nc.us
City of Lenoir	Lane Bailey	lbailey@lenoir-nc.gov
City of Lenoir/Council	Ben Willis	ben.willis.lenoir@gmail.com
City of Hickory	Caroline Kone	ckone@hickorync.gov
Town of Granite Falls	Greg Wilson	wilson@granitefallsnc.com
Town of Hudson	Rebecca M. Bentley	rebecca.bentley@townofhudsonnc.com
Caldwell County	Stan Kiser	skiser@caldwellcountync.org
Catawba County Commissioner	Barbara Beatty	bgbeatty@catawbacountync.gov
Lenoir News-Topic	Derek Lacey	dereklacey@newstopic.net
Brackett Flagship Properties, LLC	Thorn Baccich	thorn@brackettflagship.com
WPCOG Board (Lenoir)	Merlin Perry	merlinperry@gmail.com
Greater Hickory MPO	John Marshall	john.marshall@wpcog.org
Caldwell County EDC	Bobby White	(dweese@caldwelledc.org)
Rutherford College	Wayne Annas	laziawa@yahoo.com
NCDOT – Division 11	Dean Ledbetter	dledbetter@ncdot.gov
NCDOT – Division 11	Trent Beaver	tbeaver@ncdot.gov
NCDOT – PDEA	John Conforti	jgconforti@ncdot.gov
NCDOT – PDEA	Dre Major	ujmajor@ncdot.gov
NCDOT – PDEA	Andie Cozzarelli	ancozzarelli@ncdot.gov
NCDOT – Roadway Design	James Speer	jspeer@ncdot.gov
NCDOT – Community Studies	Aspen Price	apprice@ncdot.gov
NCDOT – Right of Way	Wayne Patterson	cpatterson@ncdot.gov
NCDOT – Right of Way	David Angel	jdangel@ncdot.gov
AECOM	Eddie McFalls	eddie.mcfalls@aecom.com
AECOM	Lou Raymond	lou.raymond@aecom.com
Kimley-Horn	Teresa Gresham	teresa.gresham@kimley-horn.com
Parsons	Tim Goins	tim.goins@parsons.com
RK&K	Frank Vick	fvick@rkk.com
RK&K	Brandon McInnis	bmcinnis@rkk.com
RK&K	Kristina Miller	kmiller@rkk.com

Handouts

- Maps of two DDI alternative designs
- Project information handout
- DDI Q&A brochure
- Superstreet Q&A brochure

Discussion

Dre Major opened by providing a description of the project. Attendees introduced themselves.

The project team is led by NCDOT, who is assisted by four consultants: AECOM is preparing designs on the north section, RK&K is providing designs on the south section, Parsons is preparing the environmental document, and Kimley-Horn is providing QC for the environmental document and general coordination.

Mr. Major noted that the schedule is likely to change as part of the reprioritization process. Data values have been assigned to projects, and the next phase is for the Division and RPOs/MPOs to assign local points to each project.

Teresa Gresham provided a brief history of the design of the US 321/US 64 interchange. It is currently an at-grade intersection. The capacity analysis revealed that the intersection is anticipated to operate with an unacceptable level of service (LOS E or F is considered "unacceptable") in the design year (2040). Several alternative at-grade intersection designs were analyzed, including a superstreet and a Michigan-left concept. None of the at-grade options operated with an acceptable level of service, and therefore an interchange was proposed by the project team. After studying different configurations, a diverging diamond interchange (DDI) was selected as the most feasible interchange design that also would minimize impacts. Two DDI options were presented, one with a bridge over Zacks Fork Creek and one with a culvert across the creek.

Eddie McFalls described the designs in more detail. The designs are based on the most recent traffic forecast (completed in 2011), which projects the following volumes:

Location	2011 Volume	2040 Volume
US 321 south of US 64	31,000	43,800
US 321 north of US 64	38,000	53,700
US 64 west of US 321	25,000	35,200
US 64 east of US 321	25,000	29,700

The DDI design provides the best capacity for this location, and has the same footprint as a single-point urban interchange (which was originally shown in the future land use plan). The project proposes to widen US 321 to six lanes with a median from this point south to Hickory. Most of the corridor will be a superstreet. Mr. McFalls explained operations of both the superstreet and the DDI. There are no DDIs currently operational in North Carolina, but the DDI under construction in Cornelius (I-77/Catawba Avenue) will be open soon.

Mayor Gibbons asked if the project would result in congestion north of US 64, where the six lanes narrow back to four lanes. Mr. McFalls said that traffic volumes are lower north of

US 64, and four lanes are anticipated to be sufficient. He also noted that the capacity analysis indicated that a four-lane superstreet may be able to handle traffic sufficiently between McLean Drive to Cedar Valley Road; however, a six-lane continuous section is shown because it is not preferred to switch between multiple typical sections through that short of a segment.

The DDI would result in relocation of approximately 27 businesses in 20 buildings. Converting this intersection to an interchange will require filling in the floodplain. RK&K completed a hydraulic study and found that four additional business relocations are anticipated because of flooding concerns. Kimbrell's is not shown as a relocation because access is still available, and the project only impacts a portion of the parking area. However, it may be determined later that the parking impact is detrimental to the business.

Thirteen residential relocations are anticipated as part of the DDI design with a bridge over the creek, and 17 residential relocations are anticipated as part of the DDI design with a culvert across the creek. Mayor Gibbons noted that the residential relocations would impact the larger neighborhood.

Cost estimates are not yet available, but will be completed prior to a public meeting. In general, the bridge option will be more expensive than a culvert option. A cost estimate will not be prepared for an at-grade option since preliminary designs have not been developed.

A greenway has been partially constructed through this area, and the City has plans to extend it further. Although this was not incorporated into the preliminary design for the DDI, Mr. McFalls did not anticipate that doing so would be problematic. If a culvert is used, one of the barrels could be used for the greenway, similar to the existing culvert crossing.

This is the only location along the project that is proposed to replace a traffic signal with an interchange. Most signalized intersections will be modified to a superstreet design, which will replace the single signalized intersection with two signalized intersections, both which will have a two-phase traffic signal or be unsignalized. The two-phase signals will increase capacity on US 321, and the superstreet design will reduce conflict points along the corridor.

Several City staff noted that this area has started to attract people wanting to commute to Charlotte, which is now only about an hour drive. Although there would be short-term impacts from the interchange, it may have a long-term benefit to the economy and community by encouraging larger businesses and industries who may be looking for easy access to the interstate. Businesses that are currently at the US 321/US 64 intersection are primarily local businesses, and the hope is that they would want to stay in Lenoir and would attempt to relocate to a new site in the area.

The City has several months to consider the options and provide input to the design team. The Environmental Assessment (EA) is currently scheduled to be completed in early 2015, and a preferred alternative will not be selected until after the EA is finished and a public hearing has been held.

Attendees discussed the timing of the public meeting, which has tentatively been scheduled for June 2014. Local officials recommended waiting until more definitive information is available on the project schedule, but asked to have a working session at a

later date. Commissioner Beatty noted that although the project is expected to have a long-term positive affect on the economy and community, short-term impacts may be more concerning to property owners and businesses if the schedule is uncertain. If local staff begins to get questions from the public, NCDOT could send a newsletter with updated project information this year, and wait to hold the public meeting until more information on the schedule is known.

The County does not need to stop issuing building permits, at least until the final document is signed, although it would have the option to do so at any time.

Lane Bailey asked if a future bypass of Lenoir had been considered as part of the traffic analysis. Since a bypass is not funded (it was not funded in the LRTP because of the anticipated cost), it was not included in the traffic analysis. It is likely that if the STI process were to result in funding of a bypass, that the future demand through this interchange would be reduced, and a lesser design (such as an at-grade intersection) may be sufficient.

Police Chief Brown asked what safety features (lighting, signage) has been included in the design. Mr. McFalls said that the superstreet design is inherently safer than a traditional intersection because it reduces conflict points and congestion. Lighting will be considered during final design, which NCDOT will design using their standard procedures. If Lenoir would like additional lighting through the interchange (or in other locations along the corridor), it would be considered a “betterment.” The City could enter into a municipal agreement with NCDOT and provide funds to help pay for the additional lighting.

Mr. Major provided an overview of upcoming activities. The EA will be completed early 2015, and a public hearing will be held afterwards. The project team will meet with resource and permitting agencies following the hearing to select a preferred alternative, the “LEDPA” (Least Environmentally Damaging Practicable Alternative). Once a preferred alternative has been chosen, NCDOT will continue to revise the design to minimize impacts. NCDOT will meet with the agencies to review the minimization efforts, and again to discuss the hydraulic design. NCDOT will meet with the agencies one final time to provide information on the detailed design before submitting permit applications.

U-4700: MEMORANDUM – LOCAL OFFICIALS' INFORMATIONAL MEETING SUMMARY

LOCATION: Western Piedmont COG
MEETING DATE: May 20, 2014 – 1:30 p.m.

SUBJECT: U-4700 STAKEHOLDERS MEETING, FOCUS ON GRANITE FALLS WIDENING OF US 321 FROM US 70 IN HICKORY TO US 64/NC 19/NC 90, PLANNING, ENVIRONMENTAL AND DESIGN STUDIES CATAWBA, BURKE, AND CALDWELL COUNTIES

A meeting was held on Tuesday, May 20, 2014 at the Hudson Uptown Building in Hudson, NC to discuss project issues pertaining to the preliminary design for the interchange of US 321 with Falls Avenue in Granite Falls. The purpose of the meeting was to solicit comments from project stakeholders in the area. The following persons attended the meeting:

Agency/Organization	Attendee(s)	Email
Town of Granite Falls	Jerry Church	church@granitefallsnc.com
Town of Granite Falls	Thomas Laws	laws@granitefallsnc.com
Town of Granite Falls	Greg Wilson	wilson@granitefallsnc.com
Town of Granite Falls	Ritch Bolick	bolick@granitefallspolicenc.com
Town of Granite Falls	Barry Hayes	hayeschem@charter.net
Town of Hudson	Rebecca M. Bentley	rebecca.bentley@townofhudsonnc.com
Town of Sawmills	Seth Eckard	seckard@townofsawmills.com
Burke County	Johnnie Carswell	johnnie.carswell@burkenc.org
Caldwell EDC	Bobby White	(dweese@caldwelledc.org)
Greater Hickory MPO	John Marshall	john.marshall@wpcog.org
Brackett Flagship Properties, LLC	Thorn Baccich	thorn@brackettflagship.com
NCDOT – Division 11	Mike Pettyjohn	mpettyjohn@ncdot.gov
NCDOT – Division 11	Dean Ledbetter	dledbetter@ncdot.gov
NCDOT – Division 11	Trent Beaver	tbeaver@ncdot.gov
NCDOT – Division 12	Reuben Chandler	rchandler@ncdot.gov
NCDOT – PDEA	John Conforti	jgconforti@ncdot.gov
NCDOT – PDEA	Dre Major	ujmajor@ncdot.gov
NCDOT – PDEA	Andie Cozzarelli	ancozzarelli@ncdot.gov
NCDOT – Roadway Design	James Speer	jspeer@ncdot.gov
NCDOT – Community Studies	Aspen Price	apprice@ncdot.gov
AECOM	Eddie McFalls	eddie.mcfalls@aecom.com
AECOM	Lou Raymond	lou.raymond@aecom.com
Kimley-Horn	Teresa Gresham	teresa.gresham@kimley-horn.com
Parsons	Tim Goins	tim.goins@parsons.com
RK&K	Frank Vick	fvick@rkk.com
RK&K	Brandon McInnis	bmcinnis@rkk.com
RK&K	Kristina Miller	kmiller@rkk.com

Handouts

- Maps of three interchange alternative designs
- Project information handout
- Superstreet Q&A brochure

Discussion

Dre Major opened by providing a description of the project. Attendees introduced themselves.

The project team is led by NCDOT, who is assisted by four consultants: AECOM is preparing designs on the north section, RK&K is providing designs on the south section, Parsons is preparing the environmental document, and Kimley-Horn is providing QC for the environmental document and general coordination.

Teresa Gresham gave a brief history of the design of the US 321/Falls Avenue interchange. The existing interchange has a ramp and loop in the southeast quadrant, and slip ramps in the northwest quadrants. The interchange is substandard, and needs to be replaced. The proposed partial clover interchange design is most similar to the existing interchange, replacing the slip ramps with a ramp and loop in the southwest quadrant, and increasing the radii of the loops. To reduce impacts, the design team also considered a "tight" diamond interchange, which has a smaller footprint. The capacity analysis also revealed that an at-grade superstreet design would provide acceptable level of service (D or better), and so a superstreet design has been developed.

Dre Major noted that the project schedule is likely to change as part of the reprioritization process. Data values have been assigned to projects, and the next phase is for the Division and RPOs/MPOs to assign local points to each project.

Brandon McInnis provided a detailed description of the three alternatives. A "normal" intersection would not have acceptable (LOS D or better) level of service in the design year. The traffic forecast projects approximately 54,400 vehicles per day (vpd) on US 321 at this interchange, and 8,000 vpd on Falls Avenue in the 2040 design year. The capacity analysis accounts for additional turns vehicles must make for left-turn movements with the superstreet design, and is based on the 2040 traffic forecast.

Mr. McInnis explained the superstreet operations, which processes more vehicles than a traditional intersection since the signals are only two phase, allowing more green time to the through movement. The superstreet reduces conflicts and congestion, and is a safer design than a traditional intersection. It is less expensive and easier to maintain than an interchange because it does not include a bridge or retaining walls. The superstreet has a smaller footprint than an interchange, and so generally has fewer impacts. (The superstreet option shown includes a new access road, which results in five additional relocations. The access road was designed using NCDOT's standard typical section, and the project team will look for ways to minimize impacts of this and the rest of the project during final design.)

Relocations were estimated based on the preliminary designs. The superstreet design has approximately 20 relocations, the tight diamond has approximately 18 relocations, and the partial clover has approximately 31 relocations. RK&K attempted to capture all individual businesses, not just the retail buildings in the relocation estimation. NCDOT will prepare a

formal relocation report prior to completion of the Environmental Assessment (scheduled for early 2015).

The tight diamond has the largest bridge. Dean Ledbetter suggested considering using roundabouts at the two ramp termini, which would allow the bridge to be reduced to two lanes rather than four. The partial cloverleaf has the high number of relocations. Cost estimates are not yet available, but will be completed prior to a public meeting. In general, the interchange options will be more expensive than the superstreet option.

Police Chief Bolick said that he is concerned about the additional response time resulting from the superstreet design. Currently, the bridge on Falls Avenue allows direct access across US 321 without signals or turns. With a superstreet design, the emergency response vehicles would have to make three turns to get to the same location. Fire Chief Laws also is concerned that the 47-foot ladder trucks will not be able to make the U-turn. There is only one station, and US 321 divides the town nearly in half, so the response vehicles cross the highway frequently. This affects fire, police, and medical responders. Mayor Hayes noted that school buses also will have a longer route.

Local officials and staff had the same concern with the other two Granite Falls intersections that are proposed to be converted to superstreet, but this location is of particular concern because there is currently no delay for east-west traffic over US 321. Mr. Ledbetter noted that the superstreet design, while potentially adding delay for individual vehicles desiring to turn left onto or off of US 321, will reduce the congestion and delays on the entire system. This should benefit the emergency responders and school buses as well who travel along US 321. In addition, the improved safety of a superstreet compared with traditional intersections is anticipated to lead to fewer traffic crashes.

Mr. McInnis said that in some other superstreet locations across the state with high anticipated emergency response use (such as near a fire or police station), a mountable median has been used so fire trucks and other responders can more directly route to the emergency. Chief Bolick and Chief Laws noted that the bigger delay is often other drivers trying to move out of the way; if the response vehicles are crossing the median and moving across US 321 in an unexpected direction, it may be even more difficult for other drivers to anticipate and avoid the response vehicles.

Several attendees asked how the superstreet design would accommodate pedestrians, noting that this is a major crossing for pedestrians and bicyclists traveling between neighborhoods and shopping/schools/medical. It is used by motorized wheelchairs, and some pushing baby strollers. Mr. McInnis said that there would be a refuge in the median of US 321, so pedestrians would cross three to five lanes (depending on how many turn lanes there are) at a time. The traffic signals north and south of Falls Avenue would stop traffic periodically to provide gaps for pedestrians, who would cross using a crosswalk.

For the interchange options, pedestrians would cross the one-lane on ramps and two-lane off ramps. For the tight diamond interchange, crosswalks may be provided across the off-ramps, but would not be across the on-ramps if they are unsignalized. For the partial clover interchange, crosswalks would likely not be provided across the ramps because the on and off ramps intersect with Falls Avenue in the same location. The existing interchange has sidewalks on both sides of the bridge, leading to sidewalks on Falls Avenue east and west of US 321. There is not a crosswalk across the existing on/off ramp in the southeast quadrant.

Greg Wilson commented that the east-west connection across US 321 is important. Granite Falls is centrally located in the Unifour RPO, and commuters use Falls Avenue and other east-west routes. Falls Avenue also connects the community, many whom live on one side of US 321 and work, shop, and go to school on the other side. He felt that the public is going to be concerned about the superstreet option because removing the direct access across US 321 may be seen to “divide” the community. Granite Falls staff asked that NCDOT retain at least one of the interchange alternatives to show to the public along with the superstreet option. From an impact perspective, it appears that the tight diamond interchange would be preferred over the half clover interchange. Mr. Major confirmed that a preferred alternative would not be selected until after the public hearing.

Attendees discussed the schedule for the public meeting. They agreed to wait to hold a public meeting until after more information is available about the schedule of the project.

U-4700: MEMORANDUM – Coordination Conference Call Meeting with the City of Lenoir, Planning and Public Works Departments; NCDOT; and Consultant Team

LOCATION: Conference Call, 919-250-7881

MEETING DATE: August 21, 2014 – 10:00 a.m.

SUBJECT: U-4700 Coordination Meeting, focused on the proposed US 64 Interchange with US 321 (Blowing Rock Blvd)

A conference call was held on Thursday, August 21, 2014 to discuss options for improving the US 64 intersection with US 321 in Lenoir. The following people attended the meeting:

Agency/Organization	Attendee(s)	Email
City of Lenoir	Jenny Wheelock	jwheelock@ci.lenoir.nc.us
City of Lenoir	Charles Beck	ckbeck@ci.lenoir.nc.us
NCDOT – PDEA	Dre Major	ujmajor@ncdot.gov
AECOM	Ben Crawford	ben.crawford@aecom.com
AECOM	Steven Cox	steven.cox@aecom.com
AECOM	Lou Raymond	lou.raymond@aecom.com
Kimley-Horn	Teresa Gresham	teresa.gresham@kimley-horn.com
RK&K	Frank Vick	fvick@rkk.com
RK&K	Kristina Miller	kmiller@rkk.com

Copied:

NCDOT – Roadway Design	James Speer	jspeer@ncdot.gov
NCDOT-TPB	Pam Cook	prcook@ncdot.gov
NCDOT-TPB	Daniel Sellers	dcsellers1.ncdot.gov
Greater Hickory MPO	John Marshall	john.marshall@wpcog.org
NCDOT – Division 11	Mike Pettyjohn	mpettyjohn@ncdot.gov
AECOM	Eddie McFalls	eddie.mcfalls@aecom.com
Parsons	Tim Goins	tim.goins@parsons.com

[Please Note: Italic text shown in brackets indicates supplementary information.]

Discussion

- After introductions, Dre Major opened the discussion by referencing the City's interest in at-grade intersection options for US 321/US 64 in an effort to reduce/avoid business relocations.
- Steven Cox reviewed his analysis of a Superstreet (Michigan Left) Option:
    - For the Superstreet option, the US 321/US 64 intersection would remain at-grade; however, widening improvements to add turn lanes would extend the footprint of the roadways.
    - Mr. Cox provided an explanation of how traffic would flow through the intersection (please see the attached graphics). He noted that this option does not include any left-turn movements. Vehicles that would have otherwise wanted to turn left would make a right-turn, travel along the roadway until they reach a designated location for a u-turn. This would be true for both US 321 and US 64.
    - Widening of US 321 and US 64 with intersection improvements *[that use a traditional full-phase intersection]* would not have an acceptable level of service (LOS). The LOS improves using a Supersteet design, which removes left-turning traffic operations *[and the associated signal phase to provide more time for the heaviest traffic movements to flow through the intersection].*

- Based on the capacity analysis, the Superstreet option would fail in 2016. Specifically, it would have an unacceptable level of service (LOS D, 55-60 sec of delay/vehicle) for all vehicles during the peak hour.

- The Superstreet option with a dual u-turn design provides some improvement over the current intersection, but is unable to provide an acceptable level of service. The current intersection fails during the peak hour now.

- As noted previously, the Superstreet option still includes widening of the roadways. Widening would need to be shifted off of the Historic Broyhill property due to its federal protection. *[More detail regarding Section 4 (f) of the USDOT Act and Section 106 of the NHPA are attached to this meeting summary.]* With the roadway widening shifted away from the Broyhill property, there would still be business relocations. *[Determining the number of relocations would require a functional design and hydraulic analysis.]*

- It would be difficult to access the downtown area for Lenoir with the Superstreet option.

- A Superstreet option with triple u-turn lanes was also analyzed; however, no triple u-turn designs are have been built North Carolina due to operational safety concerns. It is a non-practical, at-grade option because it is not operationally feasible due to crash potential. Access would also be limited with its application.

- Both of the Superstreet options would require control of access between the u-turn bulb areas.

- Since the at-grade option that is safe/practical and provides the best LOS (i.e., Superstreet option with dual u-turn lanes) fails in 2016, the meeting participants agreed that it is also not a satisfactory option for the project.

- The Thoroughfare Plan identifies a proposed interchange at US 321/US 64. Therefore, if any at-grade options continue going forward as alternatives in the environmental document, the MPO, NCDOT-Transportation Planning Branch (TPB) and the Transportation Action Committee (TAC)/Technical Coordinating Committee (TCC) need to meet and review them.

- Jenny Wheelock noted that the timeframe for construction has been a repeated question/concern for local businesses because they are debating if they should proceed with plans to remodel/renovate.

- The construction year for the portion of the project in Lenoir (Section C of U-4700) is after year 2023. The current Strategic Transportation Investment (STI) process is not likely to include funding for right of way or construction for Section C. However, there is funding for the environmental studies. Projects are re-evaluated every two years so there is a potential for the 2017 STIP to identify funding for construction, which would then target a future year, but that is uncertain at this time).

- Ms. Wheelock asked about the federal protection of the Historic Broyhill property. Mr. Major explained that the project can not impact the property if there are other prudent and feasible options to avoiding those impacts. The Diverging Diamond Interchange (DDI) *[shown during the conference call and previously illustrated at the May 20, 2014 meeting with local officials]* avoids property acquisition from the historic property. *[Additional information regarding Section 4(f) is provided in Attachment A, which is on page 5 of this meeting summary.]*

- Ms. Wheelock asked if NCDOT has any other design options to address improvements for the US 321/US 64 intersection. Lou Raymond and Mr. Major explained that the prior Single Point Urban Interchange (SPUI) was reviewed during the thoroughfare process but it had considerably more cost *[due to the shape of the SPUI's bridges]* even though it had a similar footprint and area of right of way acquisition as compared to the DDI. The layout of the SPUI is similar to the DDI

with crossing movements handled at one location. The approaches may be slightly different; however, the ramp terminals are spread out for pedestrian and driver safety. The DDI better accommodates bicyclists and pedestrians.

- Ms. Wheelock asked if bicycle and pedestrian accommodations could be incorporated into the proposed project. Mr. Major said that they can be accommodated and would become part of the municipal agreement.

- Mr. Major reiterated that while the right of way and construction are not funded for this section of the project (Section C), this section is funded for planning. Section A in Hickory is funded for right of way and construction, and has a schedule for delivery. The NEPA planning process takes into account the full 17-mile project, including all three sections (A-C). The environmental document needs to move forward. A re-evaluation will likely be needed for the Lenoir section of the project *[due to the number of years between completion of the final environmental document and the start of right of way acquisition]*. For example, the traffic capacity analysis will be re-evaluated as will the project impacts and costs. Section C needs to move forward in the environmental document with a best plan based on current information. It will be reconsidered during the re-evaluation with updated data at that time.

- The City of Lenoir requested a copy of the thoroughfare plan. Mr. Major provided the contact information for NCDOT-TPB representatives, Pam Cook (919-707-0975) and Daniel Sellers (919-707-0978). *[Please Note: The Caldwell County Urban Area Thoroughfare Plan Report (2005) and Map (2001) are located on the NCDOT website at the following address: https://connect.ncdot.gov/projects/planning/Pages/CTP-Details.aspx?study_id=Caldwell County]*

- A simulation of the intersection and interchange were completed by NCDOT-TPB during the thoroughfare planning process. A representative of NCDOT-TPB will be at TAC/TCC meetings. There will be time for continued coordination with the thoroughfare plan.

- Ms. Wheelock noted that from a planning standpoint, the *[DDI]* design, as proposed, helps the City to understand future planning efforts for the area. With bicycle/pedestrian accommodations and detailed downtown signage, the Planning Department understands this *[DDI]* as the best alternative based on constraints with the historic property.

- Mr. Major asked if Ms. Wheelock had any additional information to share or if she had any suggestions in preparation for the August 26, 2014 meeting with the City. Ms. Wheelock provided the following suggestions:

    - Explain why improvements to US 321/US 64 cannot be completed within the existing road bed.

    - Explain Section 4(f) protection/requirements.

    - *[See additional items for the August 26, 2014 meeting noted on page 4 of this summary.]*

- Mr. Major explained that NCDOT has no other alternatives at this time; however, if the City has any other ideas for alternatives that they would like evaluated *[or design refinements on the DDI]* that NCDOT would like to receive that feedback as soon as possible. Ms. Wheelock noted that the City has not wanted a bypass, but that is another option that causes business impacts. Concern was also noted by meeting participants that a bypass is not expected to remove enough traffic to help operations at the existing US 321/US 64 intersection.

- It was noted that representatives from the Division office will also be at the meeting on Tuesday, August 26, 20114. All City Council members, the Mayor and representatives of the City's Departments from Lenoir will be at the meeting. The concerns to be discussed include:
    - volume of traffic,
    - air quality issues with traffic idling,
    - level of service/delays,
    - relocations,
    - 4(f) protection,
    - timeframe for construction,
    - review of design options, and
    - access through the area.
- Ms. Wheeler asked how access would be provided for study area properties and if a municipal agreement would be necessary. Mr. Major explained that NCDOT would maintain or modify access, depending on the impacts to a property. There are no municipal agreements needed relative to property access. If a business were impacted by the project such that access could no longer be provided, then that business would be relocated.

Action Items:

- Ben Crawford/Lou Raymond/Stephen Cox (AECOM) – Provide a diagram of the Superstreet (Michigan Left) example and a summary of the Superstreet (Michigan Left) capacity analysis discussed during the meeting.
- Jenny Wheelock (City of Lenoir) – Provide any additional comments in preparation for Tuesday's meeting.
- Ben Crawford (AECOM) – Provide an updated pdf file and plot to Mr. Major by Monday for Alternative 1 of the DDI:
    - Greenway shown and labeled
    - Intersection/median at Harper Ave fixed
    - Existing right of way and no property acquisition from the Historic Broyhill property
- Dre Major (NCDOT) – Provide a map to illustrate Sections A, B, and C for Tuesday's meeting.

ATTACHMENT A

The James Edgar Broyhill Estate (14.3-acre parcel) is eligible for the National Register of Historic Places and is protected under Section 4(f) of the USDOT Act and Section 106 of the National Historic Preservation Act.

Section 4(f) of the U.S. Department of Transportation Act

Section 4(f) of the U.S. Department of Transportation Act (USDOT) of 1966 as amended (49 USC Section 303) stipulates that the Federal Highway Administration (FHWA) and other U.S. Department of Transportation (USDOT) agencies cannot approve the use of land from a significant publicly-owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless the following conditions apply:

1. There is no feasible and prudent alternative that completely avoids the use of Section 4(f) property; and

2. That the project includes all possible planning to minimize harm to the Section 4(f) property resulting from the transportation use.

For additional information regarding Section 4(f) of the USDOT Act:

- http://www.environment.fhwa.dot.gov/4f/index.asp
- http://www.environment.fhwa.dot.gov/4f/4fguidance.asp
- http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp#part1

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment.

For additional information regarding Section 106 of the NHPA:

- http://www.achp.gov/106summary.html#intro
- http://www.achp.gov/docs/CitizenGuide.pdf

Project U-4700
Presentation to City of Hickory officials
February 10, 2015

Project Team Attendees
John Marshall, Greater Hickory MPO
Dre Majors, NCDOT PDEA
Teresa Gresham, Kimley-Horn

Presentation by Representative Andy Wells

- Impacts Pizza Hut, Raceway, CVS, Coin building – loss of tax base is as relevant as cost of project. Also will cut off access to other areas of Hickory, with wider indirect impacts. NCDOT is focused on safety and movement of traffic, not on impacts to tax base and access.
- Visitors driving to Blowing Rock and Linville go through Hickory via US 321, and the look and feel of the area is critical to tourism and impression of Hickory.
- Train service needs to remain. Currently it's 2 cars, twice a week, and they have flexibility for when they operate.
- Caldwell County employment is lower than nearby areas.
- The Governor has proposed a bond referendum. The State is more focused on state needs rather than local needs.

Questions from City Officials

- Potential for sales tax referendum?
- If City asks for additional coordination and design, will that affect the schedule?
    - Depends on how extensive changes are.
- Ultimately who makes the decision?
    - NCDOT.
- Interested in look of the bridge, the aesthetics.
- Intent to change the Planning Commission.
- Is there a potential to leave the existing bridge and convert it to a bike/ped facility? There is a recreational facility on the end, in addition to other destinations nearby.
    - That's a possibility. The City would need to take over ownership and maintenance of bridge. Would need to make sure the new construction elements don't conflict with the existing bridge.
- The railroad track is rated for low speeds, can't support a large expansion of new rail traffic. Caldwell County Economic Development has spent funds to buy the rail line, and support use of it. Have they looked at lowering the grade of the rail? Would there be an opportunity to relocate the railroad track to open the water front and positively affect the River Walk?
    - It was investigated, there is not sufficient length to get back up to grade.
- What is decision process for design elements such as the bridge? Are there limited bridge options for the bridge design itself? If there is little opportunity for input on the main design elements, the City wants to provide input on lighting, landscaping, etc. A higher bridge is easier to cross under, but pedestrians probably can get under existing bridge now. Even if greenway is easier under the bridge along the water, still need to get pedestrians across the tracks.
    - Federally funded, and US highway
    - Trying to balance needs of US highway (moving traffic and safety) and economic development (reducing impacts to businesses and future development opportunities)
    - Trying to reduce or eliminate impacts in Catawba River.

- City Council needs to decide if they want to have input on major design elements, or wait until aesthetic discussion.
- US 421 bridge over Cape Fear River in Wilmington (fixed bridge, built in past 7 years) – has nice lighting, pedestrian features. When during the design did community have input into aesthetics, what process did that bridge follow?
    - We are capturing the input today. The City can always submit a written letter as well.
    - NCDOT will do a municipal agreement with the City if there is a desire to provide additional funding for enhancements.
    - Government mandate for aesthetic improvements on bridges.
    - There may be cost differential/options for (1) bridge structure, (2) aesthetics such as painting/brick façade, lighting, landscaping, bike/ped treatments, railing.
    - NCDOT will provide examples of "standard" and "enhanced" bridges that have been built.
- Clement Boulevard – currently using 12th Drive to get from residential area to Old Lenoir Road into downtown.
    - Working on an access to get them to downtown, testing several options to be sure they work operationally.
    - Intent is to show that to the Council before the public meeting (City is willing to come to Raleigh for that meeting).
- Request design files later this year to incorporate into River Walk renderings.

Presentation by Dre Majors and John Marshall

- Trying to have design completed by end of 2015.
- Aesthetic changes won't delay schedule. May require some local funding participation for enhancements.
- Will be grade separating over railroad and river, in anticipation of more trains using the tracks. Exposure index is based on vehicle and train traffic, indication of where grade separation is needed. Consequence is that the bridge almost doubles in length.
- The southbound bridge would need to be replaced anyway. If the railroad track was not grade separated, at least the southbound bridge would need to be replaced.
- Still early in the process. Once we complete the EA, we will seek public input and will meet with local officials. Anticipate a LOIM late summer. At that point, we will still have some options to be determined before final designs begin.

Action Items

- Need visualizations of the new bridge, show existing and future.
    - Consider if there are options for design of the bridge itself, in additional to aesthetic treatments.
    - Look at "standard" bridge design compared with US 421 over Cape Fear River, New Bern Bridge, etc.
- Can we lower the railroad some, and therefore lower the elevation of the new bridge?
- Look at potential to retain existing bridge as a bike/ped route.
- Provide a flow chart showing process with NEPA, Merger, public input, and design.
- Follow up with Andrea as a point of contact for bridge design.

Appendix E

NEPA/Section 404 Merger Team Concurrence Forms

Section 404/NEPA Interagency Agreement

Concurrence Point 1
Purpose and Need

Project Title:	US 321 Improvements from north of US 70 in Hickory to Southwest Boulevard in Lenoir
TIP Project No.:	U-4700
WBS No.:	35993.1.1

The Project Team met on October 14, 2015 and concurs with the following Purpose and Need:

- Need: Some segments of US 321 between Hickory and Lenoir are currently experiencing congestion and operate at level of service (LOS) E and F. Also, a majority of intersections along the project area currently operate at LOS E and F. In 2035, 12 of 13 segments along the mainline and 16 of 18 intersections are projected to operate at LOS F.

- Purpose: The purpose of this project is to reduce congestion on US 321 in order to achieve a LOS of D or better in the Design Year (2040).

Name	Agency	Date
[illegible]	FHWA	10-14-15
Cynthia F. VanDer Wiele	USEPA	10/14/2015
[illegible]	USACE	10/14/2015
[illegible]	USFWS	11/3/15
[illegible]	NCDOT	10/14/2015
Marla Chambers	NCWRC	10/14/2015
[illegible]	NCDWR (DEQ)	10-14-2015
Renee Gledhill-Earley	NCDCR	10.15.15
John Marshall	MPO	10-15-2015

Section 404/NEPA Interagency Agreement

Concurrence Point 2
Design Options for Detailed Study

Project Title: US 321 Improvements from north of US 70 in Hickory to Southwest Boulevard in Lenoir
TIP Project No.: U-4700
WBS No.: 35993.1.1

The Project Team met on October 14, 2015 and concurs with the following alternatives to be carried forward, with a commitment to treat storm water in designated places throughout the project:

- Throughout the project, if intersection spacing permits, the Typical Superstreet Intersection (directional crossover with median U-turns) is utilized.
- One best fit alternative is being analyzed along US 321 with various typical sections throughout.

Typical Section 1: Six-lane divided with 22-foot raised median with a concrete barrier with curb and gutter in outside lanes

Typical Section 2: Six-lane divided with 30-foot raised grassed median with curb and gutter in median and shoulder

Typical Section 3: Six-lane divided with 30-foot raised grassed median with curb and gutter in median and grassed shoulder

U-4700 Segments*	Typical Section Alternatives for Detailed Study
Segment A: North of US 70 to 800 feet north of 2nd Avenue NW in Hickory (0.95 miles)	Typical Section 1/2 (combination)
Segment B: 800 feet north of 2nd Ave. NW to 1300 feet north of Clement Blvd. (0.95 miles)	Typical Section 3
Segment C: 1300 feet north of Clement Blvd to just south of Grace Chapel Rd. (1.12 miles)	Replace bridges over Catawba River and grade-separate RR crossing
Segment D: Just south of Grace Chapel Rd. to 400 feet south of Gunpowder Creek (8.10 miles)	Typical Section 3
Segment E: 400 feet south of Gunpowder Creek to Southwest Blvd. (2.04 miles)	Typical Section 3

*These segments are for CP2 purposes-these are not the STIP sections

Name	Agency	Date
[signature]	FHWA	10-14-15
Cynthia F. Van Der Wiele	USEPA	10. 14. 2015
[signature]	USACE	10/14/2015
[signature]	USFWS	11/3/15
Andrea Major	NCDOT	10/14/2015
[signature]	NCWRC	10/14/2015
[signature]	NCDWR DEQ	10-14-2015
Renee Hedrick-Early	NCDCR	10.15.15
John Marshall	MPO	10-15-2015

Section 404/NEPA Interagency Agreement

Concurrence Point 2A
Design Options for Detailed Study

Project Title: US 321 Improvements from north of US 70 in Hickory to Southwest Boulevard in Lenoir
TIP Project No.: U-4700
WBS No.: 35993.1.1

The Project Team met on October 14, 2015 and concurs with the following major drainage structures:

Site No.	Proposed Hydraulic Structure
1	Extend 2 – 10' x 10' RCBC (26' LT & 15' RT)
2	2 – New Bridges (1 @ 825' & 1 @ 944')
3	Extend 1 – 6' x 7' RCBC (73' LT & 89' RT)
4	Extend 2 – 6' x 7' RCBC (56' LT & 49' RT)
5	Extend 1 – 38' x 18' RC Arch (20' LT & 22.5' RT)
6	2 – Widen Bridges (1 @ 158' & 1 @ 173')
7	Extend 3 – 9' x 9' RCBC (31' LT & 15' RT)
8	Extend 1 – 7' x 7' RCBC (41' LT & 23' RT)
16	Extend 3 – 10' x 8' RCBC (60' LT & 59' RT)
17	Extend 1 – 72" CMP (28' RT)

Name	Agency	Date
[illegible]	FHWA	10-14-15
Cynthia F. VanDerWiele	USEPA	10.14.2015
[illegible]	USACE	10/14/2015
[illegible]	USFWS	11/3/2015
Andrea Major	NCDOT	10/14/2015
Marla Chambers	NCWRC	10/14/2015
[illegible]	PER NCDWR	10-14-15
Renee Gledhill-Earley	NCDCR	10.15.15
John Marshall	MPO	10-15-2015

Appendix F

GeoEnvironmental Site Information

GeoEnvironmental Impact Evaluation

USTs, Landfills & Other Potentially Contaminated Sites

TIP Sec	Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
A	1	UST	6706 Limbaugh Lane	Unknown	Jimmy Saunders	Unknown	Petroleum contaminated soils	Low	321 Bait & Tackle
B	2	Pesticide	5052 Hickory Blvd	None	John & Fred Winkler	None	Pesticides	Low	Bonus Termite & Pest
B	3	UST	5008 Hickory Blvd	Unknown	Avis Gachet	Unknown	Petroleum contaminated soils	Low	Wonderland Books
B	4	UST	5002 Hickory Blvd	Unknown	Travis Robbins	Unknown	Petroleum contaminated soils	Low	Connect
B	5	UST	4929 Hickory Blvd	0-007967	Huffman Finishing	Huffman Finishing	Petroleum contaminated soils	Low	Huffman Hosiery Mill
B	6	UST	4931 Hickory Blvd	0-007967	Huffman Finishing	Huffman Finishing	Petroleum contaminated soils	Low	Huffman Hosiery Mill
B	7	UST	Hickory Blvd	Unknown	Yount & Starnes LLC	Unknown	Petroleum contaminated soils	Low	Cranes Rigging
B	8	UST	4782 Hickory Blvd	Unknown	Ray Starns	Rymer Oil Co.	Petroleum contaminated soils	Low	Bob's 66
B	9	Automotive Repair	4550 Hickory Blvd	None	Terry Church	Unknown	Petroleum contaminated soils	Low	Church's Body Shop
B	**10**	**UST**	**4497 Hickory Blvd**	**Unknown**	**Kenneth Hamby**	**Unknown**	**Petroleum contaminated soils**	**Low**	**K&S AutoSales**
B	11	UST	4289 Hickory Blvds	Unknown	Samuel Erby	Unknown	Petroleum contaminated soils	Low	AirBorne Hobbies

Notes: **Bold** sites were not impacted by the preliminary design slope stakes plus 25 feet.
This information is from the 2004 NCDOT GeoEnvironmental Section's GeoEnvironmental Impact Evaluation Report.

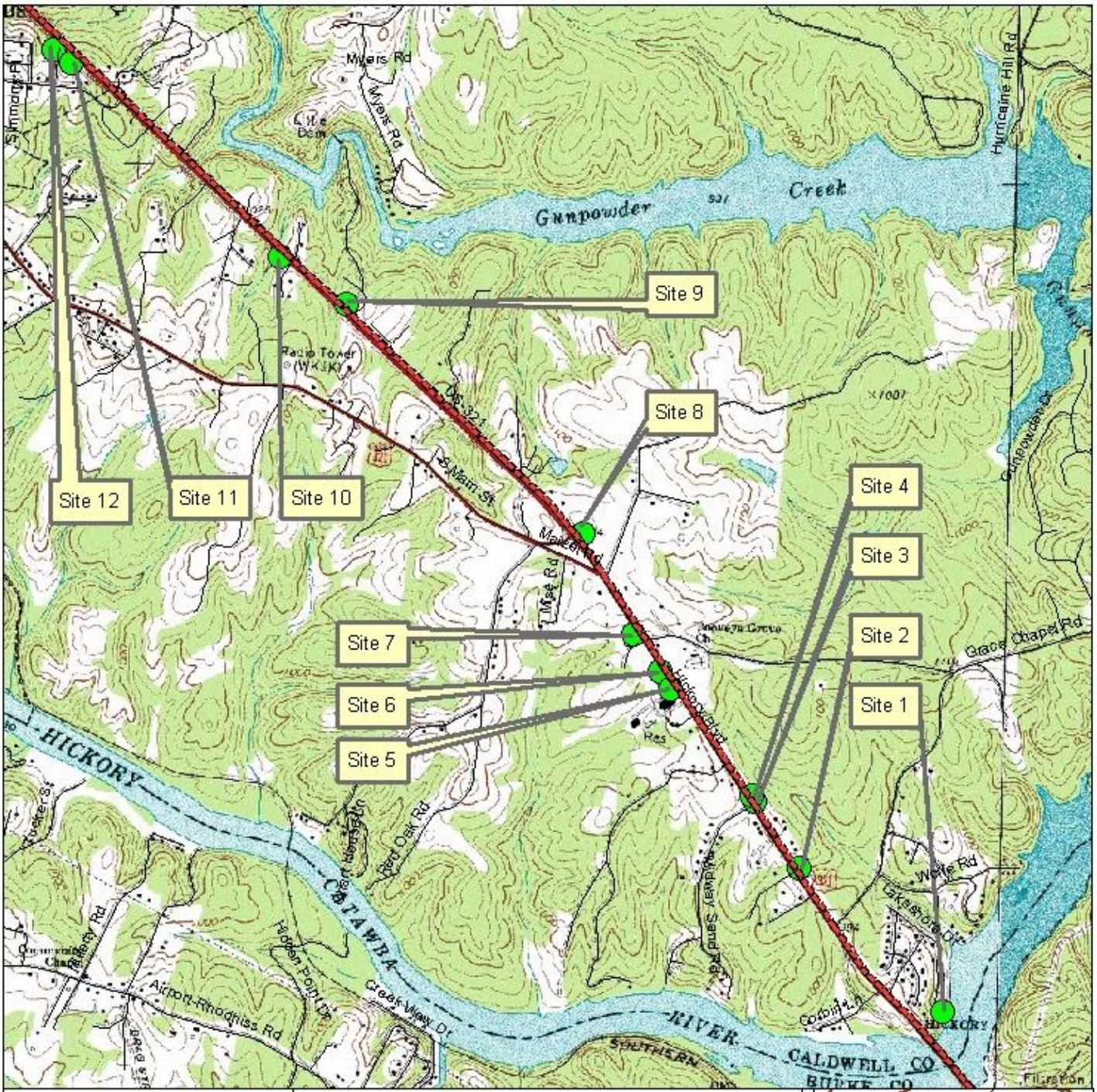
TIP Sec	Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
B	12	UST	4279 Hickory Blvd	Unknown	Michael Bumgarner	Unknown	Petroleum contaminated soils	Low	Former Hollifield Wholesale
B	13	UST	62 Falls Ave.	0-004931	Burke Inc.	Jack B Inc.	Petroleum contaminated soils	Low	Jack B Quick #2
B	14	UST	4086 Hickory Blvd	Unknown	W. Corpening Investments LTD	Unknown	Petroleum contaminated soils	Low	Mammy's Country Kitchen
B	15	UST	4075 Hickory Blvd	0-007702	James Henson DBA	James Henson DBA	Petroleum contaminated soils	Low	321 Fuel Stop
B	16	Automotive Repair	25 Pinewood Road	None	Island Lubes, LLC	Unknown	Petroleum contaminated soils	Low	Grease Monkey
B	**17**	**UST**	**3950 Hickory Blvd**	**0-035511**	**Kid's Stuff LLC**	**G&B Oil Co.**	**Petroleum contaminated soils**	**Low**	**Exxon GB Express**
B	18	UST	Hickory Blvd	0-026790	Robert Lineberger	Valley Chevrolet	Petroleum contaminated soils	Low	Former Valley Chevrolet
B	19	UST	545 Lower Cedar Road	Unknown	Royal Hosiery Company	Unknown	Petroleum contaminated soils	Low	Former Royal Hosiery Company, Inc.
B	20	Automotive Repair	3730 Hickory Blvd	Unknown	Carey Wimbish	Unknown	Petroleum contaminated soils	Low	Careys Auto Shop
B	21	Automotive Repair	3457 Hickory Blvd	Unknown	John Russell	Unknown	Petroleum contaminated soils	Low	Innovative Auto Inc.
B	22	UST	3419 Hickory Blvd	Unknown	Roby Miller	Unknown	Petroleum contaminated soils	Low	Miller Electronics

Notes: **Bold** sites were not impacted by the preliminary design slope stakes plus 25 feet.
This information is from the 2004 NCDOT GeoEnvironmental Section's GeoEnvironmental Impact Evaluation Report.

TIP Sec	Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
B	23	UST	3369 Hickory Blvd	0-035695	Colonial Hudson, LLC	JAST. Inc.	Petroleum contaminated soils	Low	Corner Express
C	24	UST	3330 Hickory Blvd	Unknown	Jeffery Powell	Unknown	Petroleum contaminated soils	Low	Caldwell Chiropractic Center
C	**25**	**UST**	**3206 Hickory Blvd**	**Unknown**	**Stanley Hall**	**Unknown**	**Petroleum contaminated soils**	**Low**	**Lail Photography**
C	26	UST	309 Pine Mountain Road	0-024241	State of North Carolina	State of North Carolina	Petroleum contaminated soils	Low	Caldwell Co. DMV
C	27	UST	2990 Hickory Blvd	Unknown	Jewelry Junction & Tanning, LLC	Unknown	Petroleum contaminated soils	Low	Jewelry Junction & Tanning
C	28	UST	2855 Hickory Blvd	0-033417	Caldwell Technical Institute	Caldwell Community College	Petroleum contaminated soils	Low	Caldwell Community College
C	29	UST	2765 Hickory Blvd	0-036482	ABBM Properties LLC	Arey Oil Co.	Petroleum contaminated soils	Low	OneStop #126
C	30	UST	2617 Hickory Blvd, Hudson	Unknown	A.P. Anderson	Unknown	Petroleum contaminated soils	Low	Hamby Unlimited Mower Depot
C	31	UST	2581 Hickory Blvd, Sawmills	Unknown	Bush Inc.	Unknown	Petroleum contaminated soils	Low	Rooster Bush GMC
C	32	UST	2566 Hickory Blvd, Hudson	Unknown	Robert Greene	Unknown	Petroleum contaminated soils	Low	Tarheel Tractor, Inc

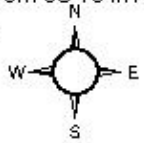
Notes: **Bold** sites were not impacted by the preliminary design slope stakes plus 25 feet.
This information is from the 2004 NCDOT GeoEnvironmental Section's GeoEnvironmental Impact Evaluation Report.

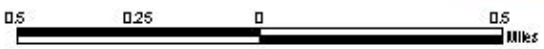
Figure 1a
Locations of UST, Landfills, and Other Potentially Contaminated Sites

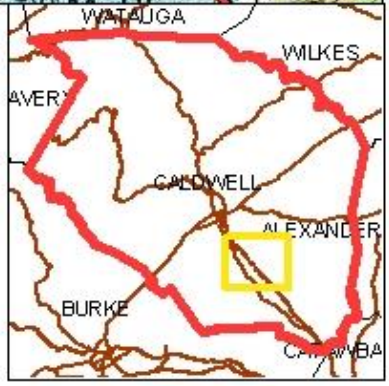


NCDOT Geotechnical Engineering Unit
GeoEnvironmental Section

TIP U-4700
US 321 from US 70 in Hickory to US 64 in Lenoir

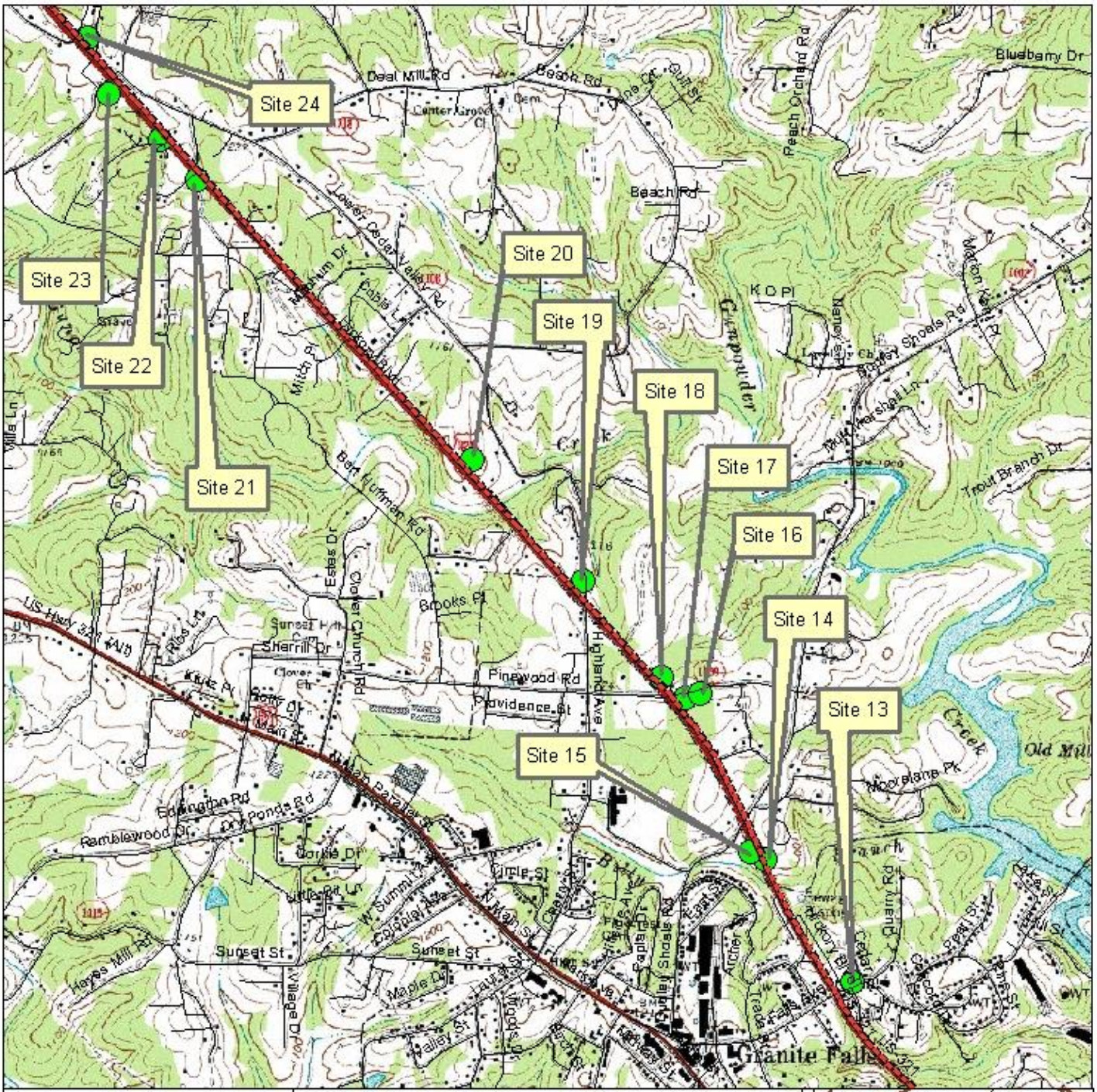






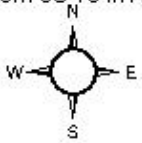
This information is from the 2004 NCDOT GeoEnvironmental Section's GeoEnvironmental Impact Evaluation Report.

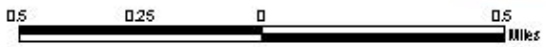
Figure 1b
Locations of UST, Landfills, and Other Potentially Contaminated Sites

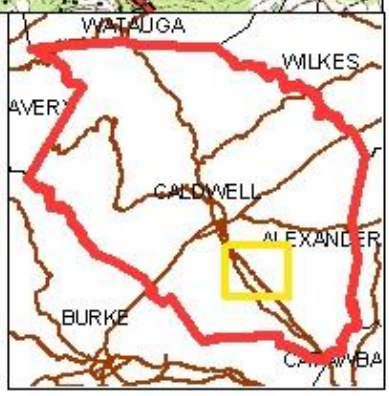


NCDOT Geotechnical Engineering Unit
GeoEnvironmental Section

TIP U-4700
US 321 from US 70 in Hickory to US 64 in Lenoir







This information is from the 2004 NCDOT GeoEnvironmental Section's GeoEnvironmental Impact Evaluation Report.

Figure 1c
Locations of UST, Landfills, and Other Potentially Contaminated Sites

Sites 33 through 36 are shown in the figure but are not listed in the table because they are outside of the current project limits. This information is from the 2004 NCDOT GeoEnvironmental Section's GeoEnvironmental Impact Evaluation Report.