

**Combined Concurrence Meeting**  
**CP1 and CP2**

**NC 127**

NC 127 from Cloninger Mill Road (SR 1400) to Richey Road (SR 1156).  
Upgrade the existing two-lanes and provide some multi-lane curb and gutter.

Alexander and Catawba Counties

WBS No. 38870.1.2  
NCDOT STIP Project No. R-3603A



July 18, 2018  
North Carolina Department of Transportation  
Structures Management Conference Room C  
NCDOT Century Center Complex – Building A  
1000 Birch Ridge Drive, Raleigh NC 27610

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## **PROJECT INFORMATION**

### **Long Range and Local Plans**

The 2040 Greater Hickory Urban Area Long Range Transportation Plan (Greater Hickory MPO, 2014) classifies NC 127 as a major north-south radial serving the Hickory-Brookford-Mountain View area. NC 127 is one of only two major crossings over Lake Hickory between Alexander and Catawba Counties, making it a critical link for travel between the counties. The Plan recommends widening NC 127 to a 4-lane divided boulevard with a grass median within the project limits. Improvements/widening of NC 127 within the project limits is also included in the following documents:

- FY 2016-2025 MTIP for the Greater Hickory Urban Area
- 2008 Alexander County Comprehensive Plan
- 1995 Alexander County Thoroughfare Plan

### **Roadway Classification and Use**

NC 127 is classified as a Minor Arterial in the project area from Cloninger Mill Road (SR 1400) north to Richey Road (SR 1156).

South of the project area, starting at Cloninger Mill Road, NC 127 is classified as Other Principal Arterial. North of the project area, starting at Richey Road, NC 127 is classified as Major Collector.

### **Existing Roadway Conditions**

- NC 127 – 450 feet north of SR 1351 (1<sup>st</sup> Street NW)/ SR 1400 (Cloninger Mill Road) to 1,100 feet north of SR 1400. Two 11-foot lanes NB and SB tapering to one NB and SB lane in each direction with an 8-foot striped median and 2-foot paved and 4-foot grassed shoulders in each direction.
- NC 127 approximately 1,100 feet north of SR 1351 (1<sup>st</sup> Street NW)/ SR 1400 (Cloninger Mill Rd) to Bridge No. 91 over Lake Hickory. One 11-foot lane and 2-foot paved and 4-foot grassed shoulders in each direction.
- NC 127 from Bridge No. 91 to SR 1181 (S&K Road), one 12-foot lane in each direction with 4-foot or 5-foot grassed shoulders.
- NC 127 from SR 1181 (S&K Road) to SR 1156 (Richey Road), one 10-foot lane in each direction with a 4-foot or 5-foot SB grassed shoulder and a 4-foot NB grassed shoulder.
- NC 127 is posted 45 MPH in the project area

### **Existing Right of Way**

- 170 feet - SR 1400 (Cloninger Mill Road) to Catawba County/ Alexander County line.
- 100 feet – Alexander County/ Catawba County line to SR 1181 (S&K Road).
- 60 feet – SR 1181 (S&K Road) to SR 1156 (Richey Road).

### **Drainage Structures**

Bridge No. 91 carrying NC 127 over Lake Hickory is a seven-span reinforced concrete deck with steel girders, 941 feet long, and has a clear deck width of 34.0 feet. Built in 1968, this bridge has a sufficiency rating of 73.8 (March 2017 Bridge Inspection Report). Bridge maintenance and preservation funds have been used on the existing bridge over the last several years to maintain a condition which should not require significant rehabilitation or replacement for 20 or more years.

## **Project Setting**

Currently the NC 127 crossing of the Catawba River (known as Lake Hickory within the project limits) is one of two roadways that connect Alexander County and Catawba County. NC 127 is a key route by which Alexander County vehicles can travel to/from the Hickory Metro area, which is the primary employment and commercial activity center for the region.

Land use within the project limits is primarily residential, transitioning from suburban residential neighborhoods near the southern project terminus to rural residential and undeveloped parcels near the northern project limit. Commercial development is interspersed with residential development along the alignment and is heaviest between Gazebo Road and Hubbard Road in the center of the unincorporated community of Bethlehem.

NC 127 crosses Lake Hickory via Bridge No. 91. If this bridge were to be out of service, the resulting situation would be a hardship to travelers using NC 127 because the detour would be approximately 15 miles for local road users; greater for commercial traffic. The nearest alternative crossings are located on NC 16 and US 321. The widening of NC 127 will result in an additional bridge over the Lake Hickory which would reduce the likelihood that travel to and from the Hickory Metro by Alexander County travelers would be interrupted due to emergency or bridge maintenance.

West of NC 127 on Lake Hickory are two Watershed Protection Districts. A Critical Area District extends approximately ½ mile from the lake or to the ridgeline of the watershed. A Protection Area District extends five miles upstream of the critical area, draining to the portions of Lake Hickory west of the NC 127 bridge, or to the ridgeline of the watershed.

## **Cultural and Community Resources**

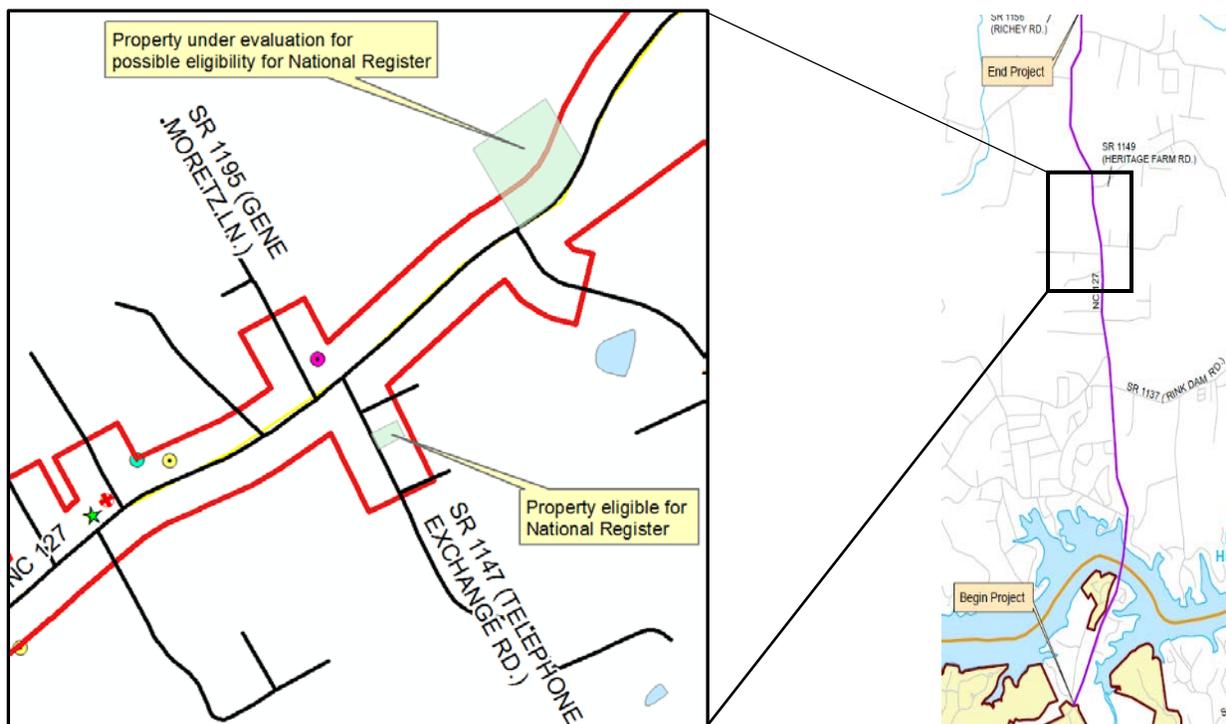
### **Historic Architecture**

Eight locations were evaluated for eligibility for listing on the National Register, seven in Alexander County and one in Catawba:

- 7031 NC Highway 127 (Alexander County)
- 225 Richey Road (Alexander County)
- 7625 NC Highway 127 (Alexander County)
- 8290 NC Highway 127 (Alexander County)
- 93 Telephone Exchange Road (Alexander County)
- 9042 NC Highway 127 - Mount Bethel United Methodist Church (Alexander County)
- 1011 Shiloh Church Road – Shiloh Lutheran Church (Alexander County)
- 4405 N. Center Street (Catawba County)

One property, 93 Telephone Exchange Road, was found eligible for listing on the National Register. HPO has requested additional information concerning 8290 NC Hwy 127 (see below). The distance between the proposed project alignment and the property at 93 Telephone Exchange Road should prevent any direct impact. The property at 8290 NC Hwy 127 falls along

the proposed road widening and will require additional consideration if found to be eligible for the NR.



### Archaeological

An archaeological resources review for the project area did not indicate any areas of interest; however, NCDOT has indicated that the undisturbed areas in the project area should be studied.

### Churches

- Shiloh Lutheran Church
- Mt. Pisgah Lutheran Church
- Grace Baptist Church
- Mt. Bethel United Methodist Church
- Promised Land Ministries
- Bethlehem Baptist Church

### Cemeteries

- Shiloh Lutheran Church Cemetery
- Mt. Bethel United Methodist Church Cemetery
- Promised Land Ministries Church Cemetery
- Bethlehem Baptist Church Cemetery

### FERC

Lake Hickory is a hydroelectric facility, owned by Duke Power and regulated by the Federal Energy Regulatory Commission (FERC) under the Catawba-Wataree hydroelectric project, which provides recreational opportunities to residents along the lake (FERC Permit P-2232).

## **Natural Environmental Features**

### **Threatened or Endangered species** – present or unresolved

Two communities of Dwarf-flowered heartleaf are present within the project study area: one just past SR 1400 (Cloninger Mill Road) along the east side of NC 127 and one just before SR 1139 (Chigger Ridge Road) along the east side of NC 127.

Northern long-eared bat – the U.S. Army Corps of Engineers (USACE) will act as the lead agency for issues related to the northern long-eared bat (NLEB). The USACE has developed a Standard Local Operating Procedure for Endangered Species (SLOPES) to address NLEB when they are the lead agency, which NCDOT will follow for this project. The requirements of the SLOPES for NLEB will be completed prior to Let and will be submitted to USACE.

All other federally listed species have a biological conclusion of “No Effect”.

### **Other STIP Projects in the area**

There are six (6) STIP Projects within a 3-mile radius of this project: B-5150, B-5549, B-5954, C-5196, and U-2307; five (5) of which will have no potential affect or will be affected by this project. STIP Project U-6040 proposes to add a right turn lane onto NC 127 at the intersection of NC 127 and SR 1146 (Bethlehem School Road).

## **Project Schedule, Background and Preliminary Cost**

### **Project Schedule**

The tentative schedule for this project is:

- Combined State EA/FONSI                      October 2019
- Right-of-Way Acquisition                      July 2020
- Let for Construction                              July 2022

*Schedule subject to change*

### **Project Background**

- A Pre-Scoping meeting to establish the scope of the project work was held on November 3, 2015 with Michael Baker Engineering (MBE) and NCDOT personnel.
- An Internal Scoping meeting was held on July 20, 2016 to discuss the project elements to consider and gather data for an External Scoping meeting.
- Start of Study letters were sent to Federal and State agencies as well as local officials on October 7, 2016. The Start of Study letters notified that preliminary studies were beginning for the project and invited interested parties to comment. NCDOT Bicycle and Pedestrian Unit provided comment concerning bicycle and pedestrian usage in the area.
- An External Scoping meeting was held on December 7, 2016 to introduce the project to the various agencies and provide information previously gathered.
- A Merger Screening meeting was held on December 7, 2016 following the External Scoping portion of the meeting. The group consensus was that the project should begin in Merger and then be re-evaluated to see if the group wants to remove from the Merger process.
- A Local Officials and Public Meeting was held on November 14, 2017 in Taylorsville, NC to provide information and receive comment. Eighteen people signed in for the Local Officials meeting and approximately 70 people attended the Public Meeting.

## **Preliminary Cost for project**

As listed in the 2018 NCDOT Current STIP (June 2018)

Right-of-Way	\$ 3,400,000
Utilities	\$ 100,000
Construction	\$ 27,300,000
Total	\$ 30,800,000

## **Traffic Information**

The 2016 No-Build traffic forecast indicates that NC127 at the southern end of the project has an AADT of 18,700 vpd which drops down to an AADT of 5,000 vpd at the northern end of the project. The 2040 No-Build indicates these same locations will see an increase of AADT to approximately 20,000 vpd at the southern end of the project and 6,000 vpd at the northern end. The forecast for the 2040 Build alternative shows that traffic will increase to approximately 24,000 at the southern end and drop to approximately 7,000 at the northern end.

Two intersections within the project area operate at a Level of Service (LOS) E during peak hour operation: NC 127 and 1<sup>st</sup> Street NW / Cloninger Mill Road (westbound approach) and NC 127 and Hubbard Road / Rink Dam Road (eastbound approach). All un-signalized intersection movements operate at a LOS C or better during peak hour operation.

Turn-lane storage deficiencies have been identified at the following locations during at least one peak hour:

- NC 127 at Cloninger Mill Road / 1<sup>st</sup> Street NW – WBL, NBL, SBL
- NC 127 at Shiloh Church Road / Chigger Ridge Road – EBR, NBL
- NC 127 at Hubbard Road / Rink Dam Road – WBL
- NC 127 at Heritage Farm Road – EBL

Turn-lane storage deficiency as well as a lack of on-site queue storage servicing Bethlehem Elementary School has been noted to cause school traffic to routinely spill back to the intersection of Bethlehem School Road and NC 127.

Area residents also experience significant delays on NC 127 near the two-lane bridge over Lake Hickory that creates a bottleneck along the project corridor.

## **Crash Data**

With the amount of traffic NC 127 carries through the project area, and being projected to increase in the future, safety is an important consideration for the project. Without improvements, the number of crashes in the area is expected to grow. Traffic crashes are often considered to indicate deficiencies in the capacity of a transportation facility.

NCDOT reported crash data was obtained for the project area (Cloninger Mill Road to Richey Road) from the period from June 1, 2011 through May 31, 2016. There were 202 reported crashes in the project area during this period. Of those crashes, nearly half (94) involved rear-end, slow, or stop collisions. This type of crash is expected to occur where a combination of high traffic volumes and slowing, stopping, and/or turning movements cause interruptions to the traffic flow. Most of the crashes were located at or near an intersection.

Table 1: Study Area Crash Locations (along NC 127)

Segment	Crashes	Rear End Crashes in Segment	Percentage of Rear End Crashes in Segment
Cloninger Mill Road to Catawba/ Alexander County Line	46	20	21.3%
Catawba/ Alexander County Line to Hubbard Road/ Rink Dam Road	49	35	37.2%
Hubbard Road/ Rink Dam Road to Shiloh Church Road	24	15	16.0%
Shiloh Church Road to Telephone Exchange Road	24	7	7.4%
Telephone Exchange Road to Bethlehem School Road	27	8	8.5%
Bethlehem School Road to Richey Road	32	9	9.6%
Total	202	94	100.0%

June 1, 2011 – May 31, 2016 crash analysis (NCDOT)

Table 2: Crash Data for NC 127 (mainline only, not -Y- lines)

Category	Crashes <sup>1,4</sup>	Crash Rate <sup>2</sup>	Statewide Average Crash Rate <sup>3</sup>
Total	202	<b>226.87</b>	174.39
Fatal	0	0	1.94
Non-Fatal Injury	80	<b>89.85</b>	53.32
Night	48	53.91	68.53
Wet	40	<b>44.92</b>	29.92

<sup>1</sup> June 1, 2011 – May 31, 2016 crash analysis (NCDOT)

<sup>2</sup> 2012 – 2015 statewide crash rate for rural 2-lane undivided (per 100 million vehicle miles travelled)

<sup>3</sup> Based on the statewide crash rate (95% level of confidence)

<sup>4</sup> BOLD indicates crash rate higher than state average crash rate and critical crash rate

## **CONCURRENCE POINT 1**

### **Purpose and Need and Study Area Defined**

#### **PROJECT PURPOSE and NEED**

##### **Proposed Project Purpose**

The purpose of the project is to diminish peak hour traffic queues at major intersections by improving Level of Service to LOS D, improve safety for multi-modal road users, and improve system linkage by providing an additional bridge crossing at Lake Hickory between the Hickory Metropolitan Area and Alexander County.

##### **Proposed Project Need**

The needs to be addressed by this project include:

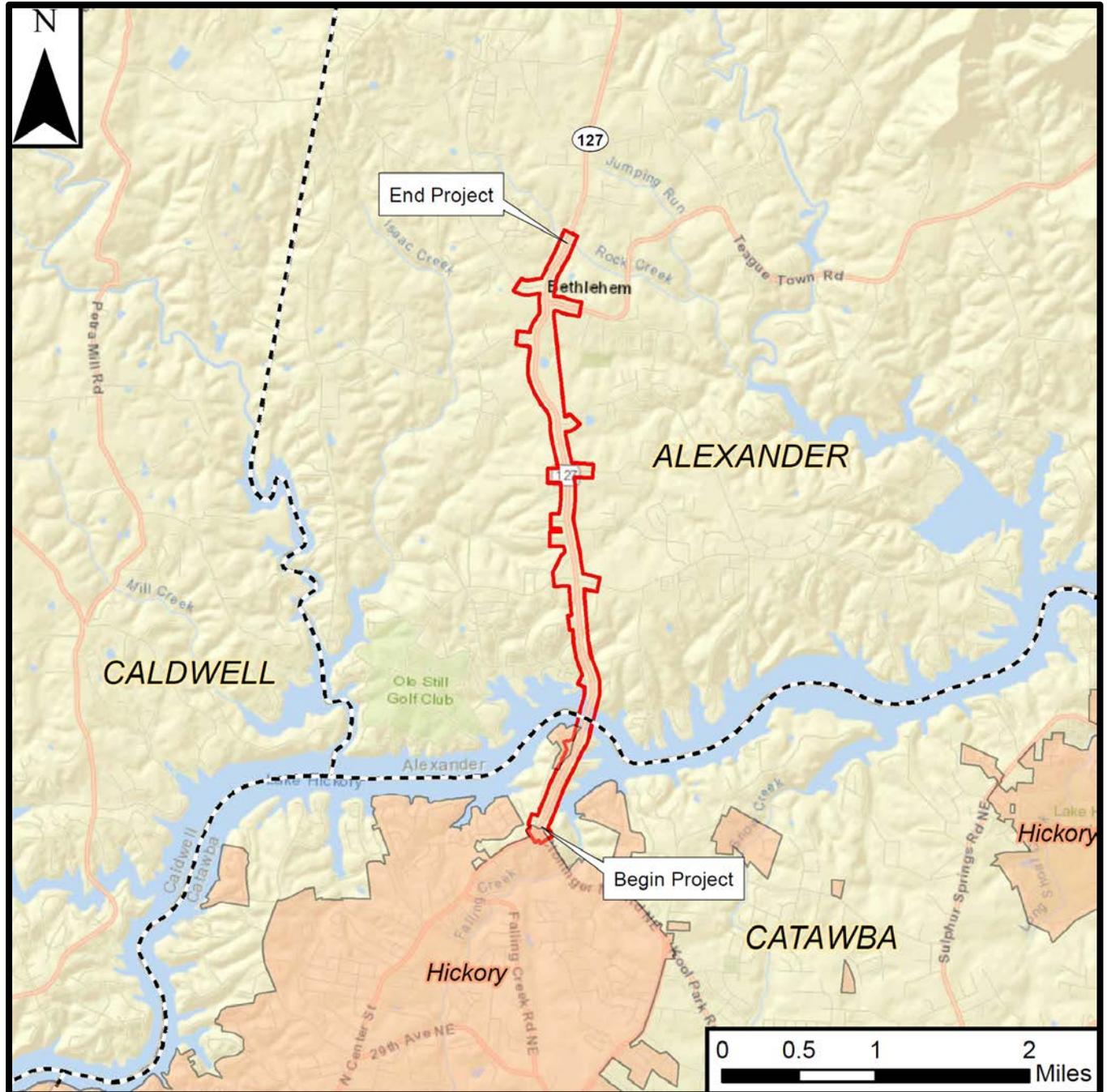
- The existing two-lane arterial has substandard lane widths of 10-feet over much of the project length with 12-foot lanes being the minimum lane width for a minor arterial road classification and a 50 MPH design speed.
- Travel volumes and lack of accommodations along NC 127 limit bicycle and pedestrian activity along an important multi-modal transportation route. Route 1 of the Western Piedmont Bicycle Plan begins just north of the bridge over Lake Hickory and proceeds north through the entire project area. A leg of the Carolina Thread Trail is located just south of the project on NC 127 from Cloninger Mill Road south.
- A single two-lane bridge provides access along NC 127 across the Catawba River from the Hickory Metropolitan Area to Alexander County. Providing an additional bridge crossing at this location will improve system linkage between Alexander County and Catawba County. Catawba River crossings in the project vicinity are limited which cause detour distances of approximately 15 miles for average road users, and greater for commercial users, if the existing bridge is out of service.

#### **PROJECT STUDY AREA**

The proposed project study area is shown below. The study area begins 500 feet south of the intersection of NC 127 and Cloninger Mill Road (SR 1400) and ends 2,000 feet north of the intersection of NC 127 and Richey Road (SR 1156), encompassing 250-foot each side of centerline for the majority of the project and expanding to approximately 1,100 feet towards the east between SR 1149 (Heritage Farm Road) and SR 1150 (Teague Town Road) to allow for a new alignment through that area to be considered. The study area includes -Y- lines for a distance of 500 feet and 1000 feet to allow for tying -Y- lines back into existing.

The original Study Area, which was displayed at the November 2017 public meeting, followed the existing alignment symmetrically throughout the project. However, numerous comments were received from that public meeting requesting NCDOT consider a new location alignment segment from approximately Heritage Farm Road to Teague Town Road. According to commenters, this alignment would divert traffic away from the Bethlehem Elementary School entrance, and would reduce the potential for property acquisition at Bethlehem Baptist Church. Due to the lack of on-site queue storage, school traffic routinely spills back to Bethlehem School Road and NC 127. Two additional commenters expressed concern regarding property acquisition at Bethlehem Baptist Church. Bethlehem Baptist Church is currently going through construction

/ expansion. The Church is constructing play fields on the south side of the property, as well as constructing an additional building between the existing and NC 127, both of which could be impacted by an NC 127 widening.



## **Logical Termini**

The proposed termini for the project is the intersection of NC 127 and Cloninger Mill Road on the southern end and a point approximately 2000-feet north of the intersection of NC 127 and Richey Road.

### **Southern Terminus**

The southern project terminus is defined by the differences in the roadway cross-section north and south of Cloninger Mill Road. South of Cloninger Mill Road, NC 127 has a five-lane curb and gutter cross-section, 64-feet wide from face-to-face of the curbs. North of Cloninger Mill Road NC 127 is a two-lane, two-way roadway with a pavement width of 22 feet and grass shoulders. Due to this transition to a substandard roadway width north of Cloninger Mill Road, it was established as the logical southern project terminus.

### **Northern Terminus**

The northern project terminus for the project corridor is defined by major differences in traffic volumes north and south of Richey Road. Traffic volumes north of Richey Road are 33% lower than volumes south of Richey Road under both the Existing and No-Build scenarios (see Appendix A for 2017 and 2040 No-Build AADT). The AADT throughout the project significantly declines from south to north along NC 127 up to Richey Road, becoming more constant from Richey Road to US 64 NC 90.

From both a project development and an environmental analysis standpoint, the project termini represent rational end points for a transportation improvement considering the project needs, and the study area is sufficient for an evaluation of environmental impacts for a widening and new location project.

## **Independent Utility**

NCDOT STIP Project R-3603 is divided into two segments: R-3603A – from SR 1400 (Cloninger Mill Road) / SR 1351 (1<sup>st</sup> Street NW) in Catawba County to SR 1156 (Richey Road) in Alexander County, and R-3603B – from SR 1156 (Richey Road) to US 64 / NC 90. R-3603A proposes to widen NC 127 to four-lanes to relieve congestion and R-3603B proposes to remain a two-lane facility which incorporates minor road improvements as well as add left-turn lanes.

A project is considered to have independent utility if phases of a project can be constructed even if the other phases were not built. Neither segment of the R-3603 project are dependent on the other, allowing each segment to be considered as separate singular and complete projects with independent utility. Construction activities along either segment of the R-3603 project will not restrict alternatives from being considered for the other segment, nor from any future, foreseeable project.

## CONCURRENCE POINT 2

### Detailed Study Alternatives Carried Forward

#### **No-Build Alternative**

The No-Build Alternative is a baseline comparative for the design year (2040). The No-Build Alternative would not provide any reduction in congestion; therefore, a reduction in rear-end collisions would not be anticipated.

#### **Build Alternatives**

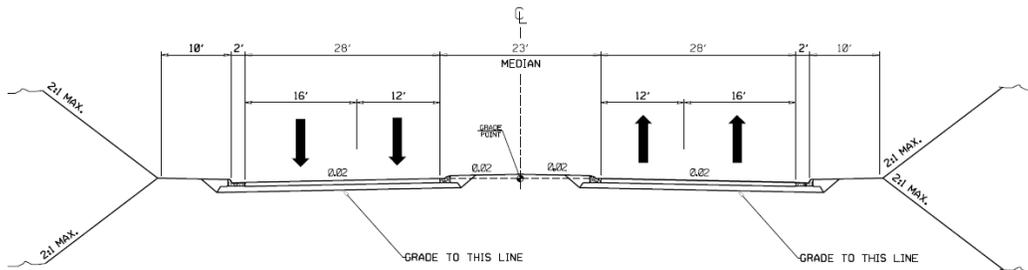
**Alternative 1:** proposes a four-lane median divided “best fit” widening along the existing NC 127, traversing the existing alignment as necessary to minimize impacts along the project limits.

**Alternative 2:** same as Alternative 1 except will include a new alignment section between SR 1149 (Heritage Farm Road) and SR 1150 (Teague Town Road). This alignment will eliminate potential impacts to Bethlehem School property as well as assist with traffic storage and queuing issues entering the school during peak school times.

#### **Structure Summary**

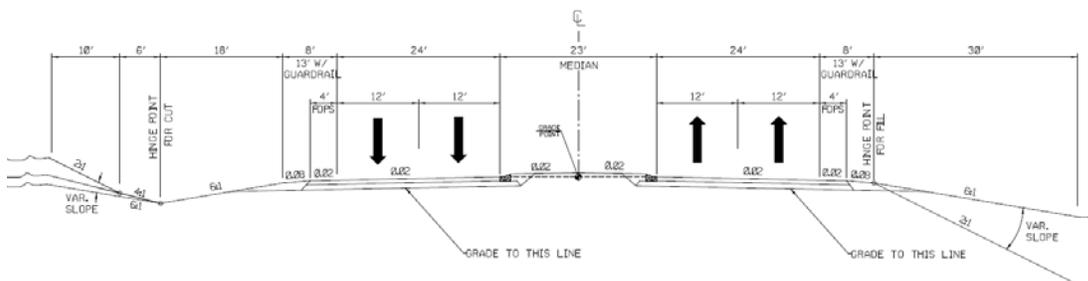
Both alternatives propose to add a new bridge over Lake Hickory, to the west of existing, of similar length and width. The new parallel structure should provide a minimum 12-foot navigational vertical clearance above Lake Hickory’s normal pool elevation, El. 935, for at least the middle third of the center span or 10-feet, whichever is greater.

#### **Preliminary Typical Sections**



#### **Typical Section No. 1**

From Cloninger Mill Road to Shiloh Church



#### **Typical Section No. 2**

From Shiloh Church Road to end of project

## **Attachments**

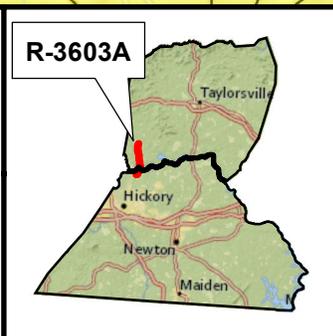
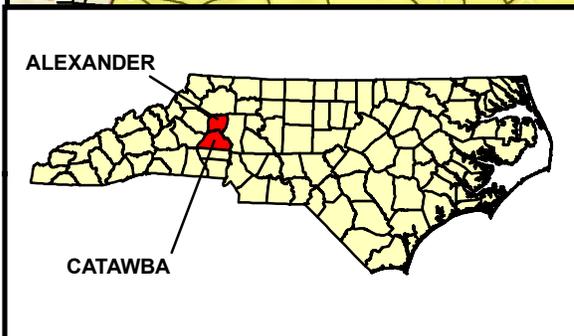
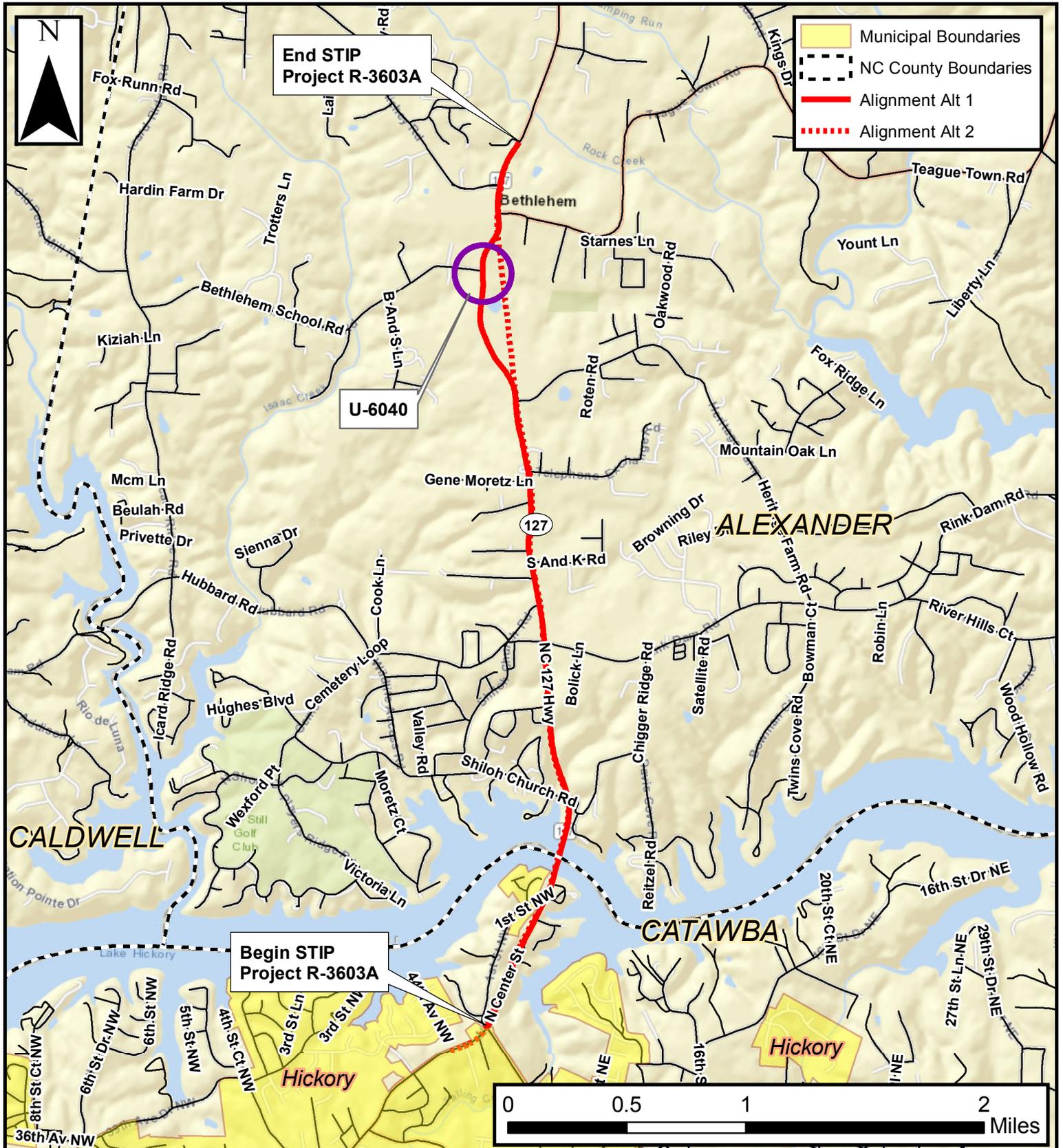
Project Vicinity Map – Figure 1

Project Environmental Maps – Figures 2a – 2e

2016 AADT

2040 AADT

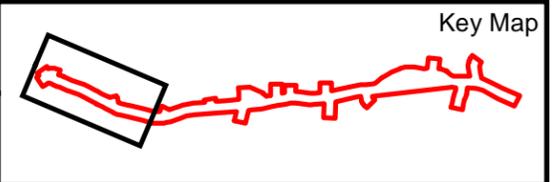
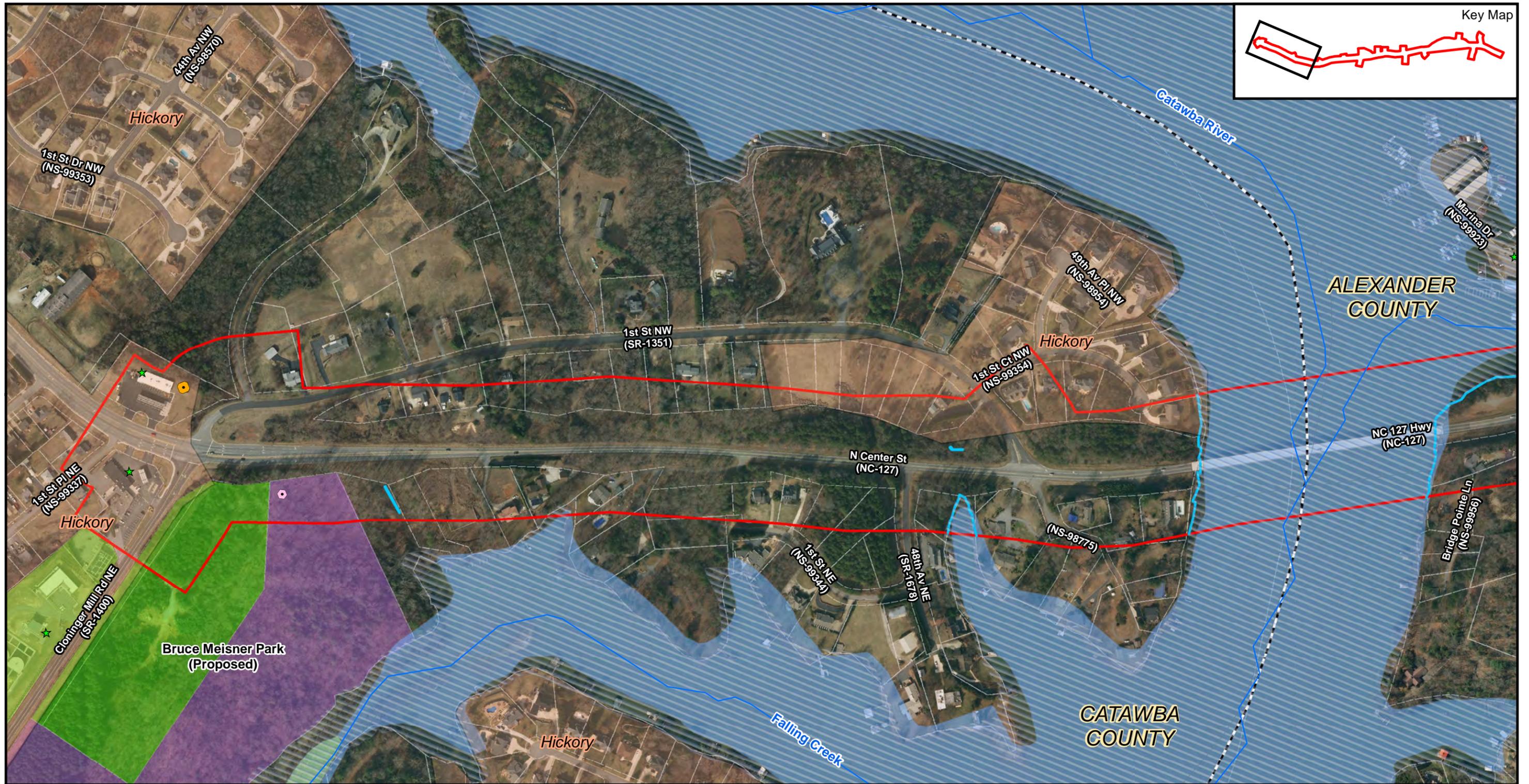
Concurrence Forms



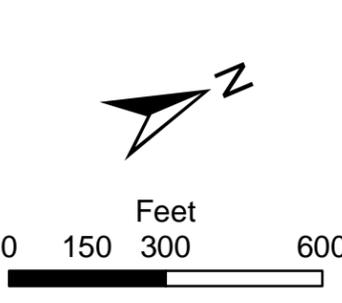

 NC DEPARTMENT OF TRANSPORTATION  
 PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT

**UPGRADE NC 127 FROM SR 1400 (CLONINGER MILL RD.) TO SR 1156 (RICHEY RD.) CATAWBA & ALEXANDER COUNTIES STIP PROJECT: R-3603A**

**FIGURE 1 - VICINITY MAP**



<ul style="list-style-type: none"> <li><span style="color: red;">■</span> STUDY AREA</li> <li><span style="border: 1px dashed black; display: inline-block; width: 10px; height: 10px;"></span> COUNTY BOUNDARY</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> MUNICIPAL BOUNDARIES</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> PROPERTY LINES</li> <li><span style="color: blue;">—</span> NHD STREAMS</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> 100-yr-floodplain</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> DELINEATED WETLANDS*</li> <li><span style="color: blue;">—</span> DELINEATED STREAMS*</li> <li><span style="background-color: pink; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> POTENTIAL ENVIRONMENTAL JUSTICE AREA</li> <li><span style="color: purple;">●</span> DWARF-FLOWERED HEARTLEAF LOCATIONS</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: yellow;">●</span> CHURCH</li> <li><span style="color: red;">✶</span> FIRE STATION</li> <li><span style="color: green;">✶</span> LIBRARY</li> <li><span style="color: magenta;">●</span> UTILITIES</li> <li><span style="color: green;">✶</span> POTENTIAL HAZARDOUS MATERIAL SITE</li> <li><span style="color: green;">✶</span> SCHOOL</li> <li><span style="color: yellow;">●</span> CELL TOWER</li> <li><span style="color: red;">✶</span> EMS STATION</li> <li><span style="color: cyan;">●</span> CEMETERY</li> </ul>	<ul style="list-style-type: none"> <li><span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> PARK</li> <li><span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> CITY-OWNED PROPERTY</li> <li><span style="background-color: purple; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> MANAGED AREA</li> <li><b>NATIONAL WETLAND INVENTORY TYPE</b></li> <li><span style="background-color: lightyellow; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Freshwater Emergent Wetland</li> <li><span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Freshwater Forested/Shrub Wetland</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Freshwater Pond</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Lake</li> <li><span style="background-color: pink; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Riverine</li> </ul>
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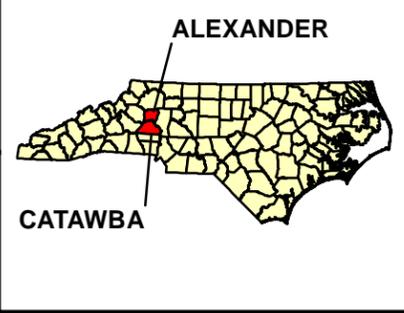
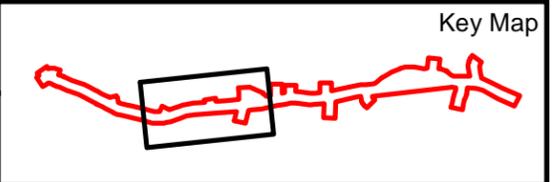
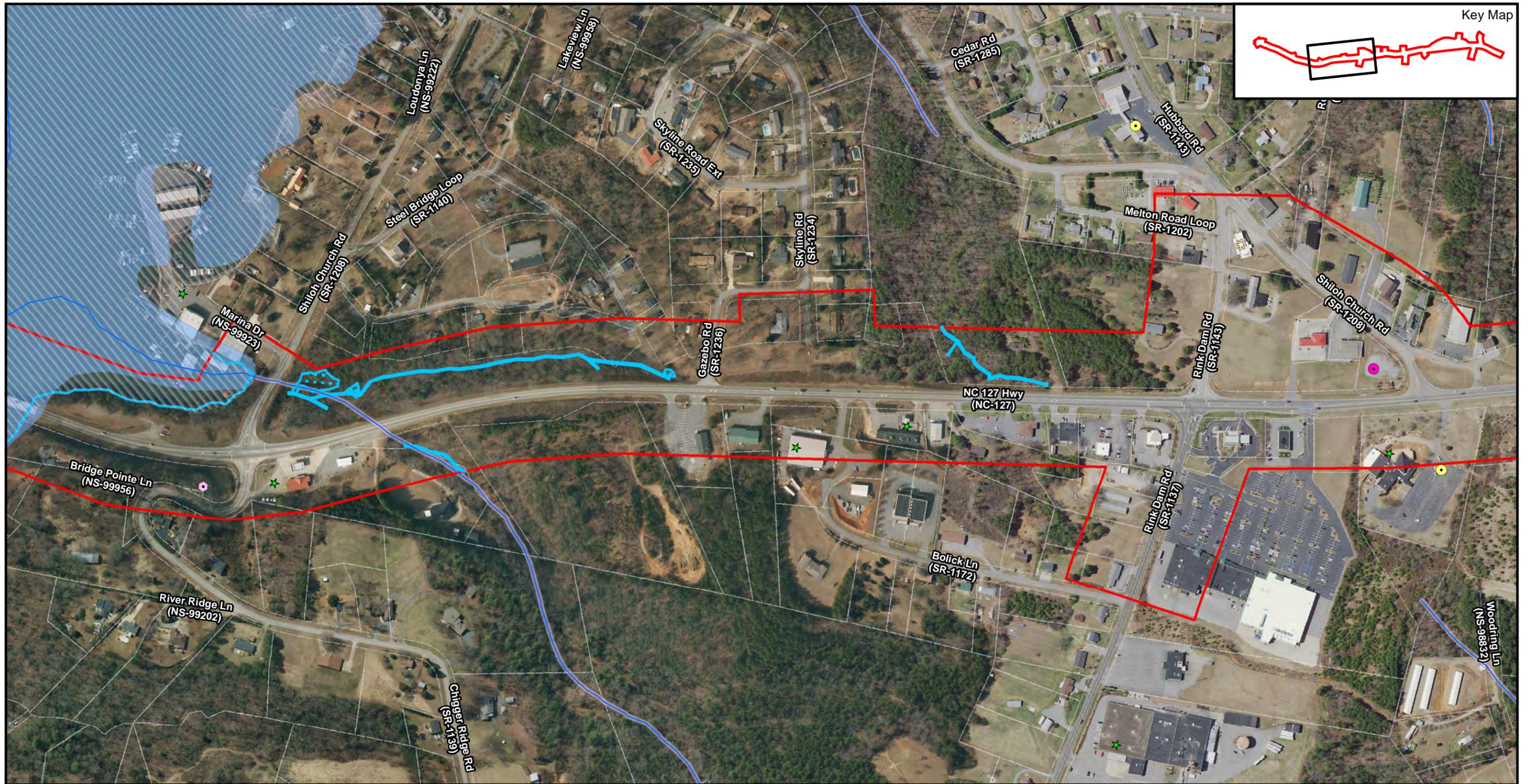


**NC DEPARTMENT OF TRANSPORTATION  
PROJECT MANAGEMENT UNIT**

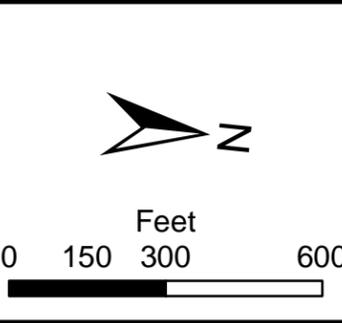
NC 127  
 NC 127 FROM SR 1400 (CLONINGER MILL RD.) TO SR 1156 (RICHEY RD.)  
 CATAWBA & ALEXANDER COUNTIES  
 STIP PROJECT: R-3603A

**FIGURE 2 - A: ENVIRONMENTAL FEATURES MAP**

\* DELINEATED FETAURES BASED ON FIELD WORK FOR ALIGNMENT ALT 2 EXPANSION COMPLETED APRIL 17, 2018. AWAITING FINAL NES SURVEYS FOR EXPANSION AREA.



<ul style="list-style-type: none"> <li><span style="color: red;">■</span> STUDY AREA</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> COUNTY BOUNDARY</li> <li><span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> MUNICIPAL BOUNDARIES</li> <li><span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> PROPERTY LINES</li> <li><span style="color: blue;">—</span> NHD STREAMS</li> <li><span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 10px; height: 10px;"></span> 100-yr-floodplain</li> <li><span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 10px; height: 10px;"></span> DELINEATED WETLANDS*</li> <li><span style="color: blue;">—</span> DELINEATED STREAMS*</li> <li><span style="background-color: pink; border: 1px solid pink; display: inline-block; width: 10px; height: 10px;"></span> POTENTIAL ENVIRONMENTAL JUSTICE AREA</li> <li><span style="background-color: pink; border: 1px solid pink; display: inline-block; width: 10px; height: 10px;"></span> DWARF-FLOWERED HEARTLEAF LOCATIONS</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: yellow;">●</span> CHURCH</li> <li><span style="color: red;">✶</span> FIRE STATION</li> <li><span style="color: green;">✶</span> LIBRARY</li> <li><span style="color: magenta;">●</span> UTILITIES</li> <li><span style="color: green;">★</span> POTENTIAL HAZARDOUS MATERIAL SITE</li> <li><span style="color: green;">✶</span> SCHOOL</li> <li><span style="color: yellow;">●</span> CELL TOWER</li> <li><span style="color: red;">✶</span> EMS STATION</li> <li><span style="color: cyan;">●</span> CEMETERY</li> </ul>	<ul style="list-style-type: none"> <li><span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> PARK</li> <li><span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> CITY-OWNED PROPERTY</li> <li><span style="background-color: lightpurple; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> MANAGED AREA</li> <li><b>NATIONAL WETLAND INVENTORY TYPE</b></li> <li><span style="background-color: lightyellow; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Freshwater Emergent Wetland</li> <li><span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Freshwater Forested/Shrub Wetland</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Freshwater Pond</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Lake</li> <li><span style="background-color: lightpink; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Riverine</li> </ul>
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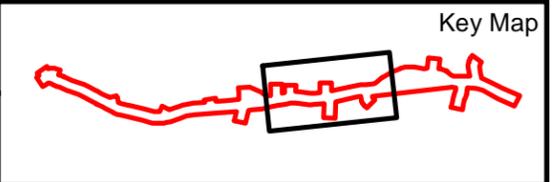
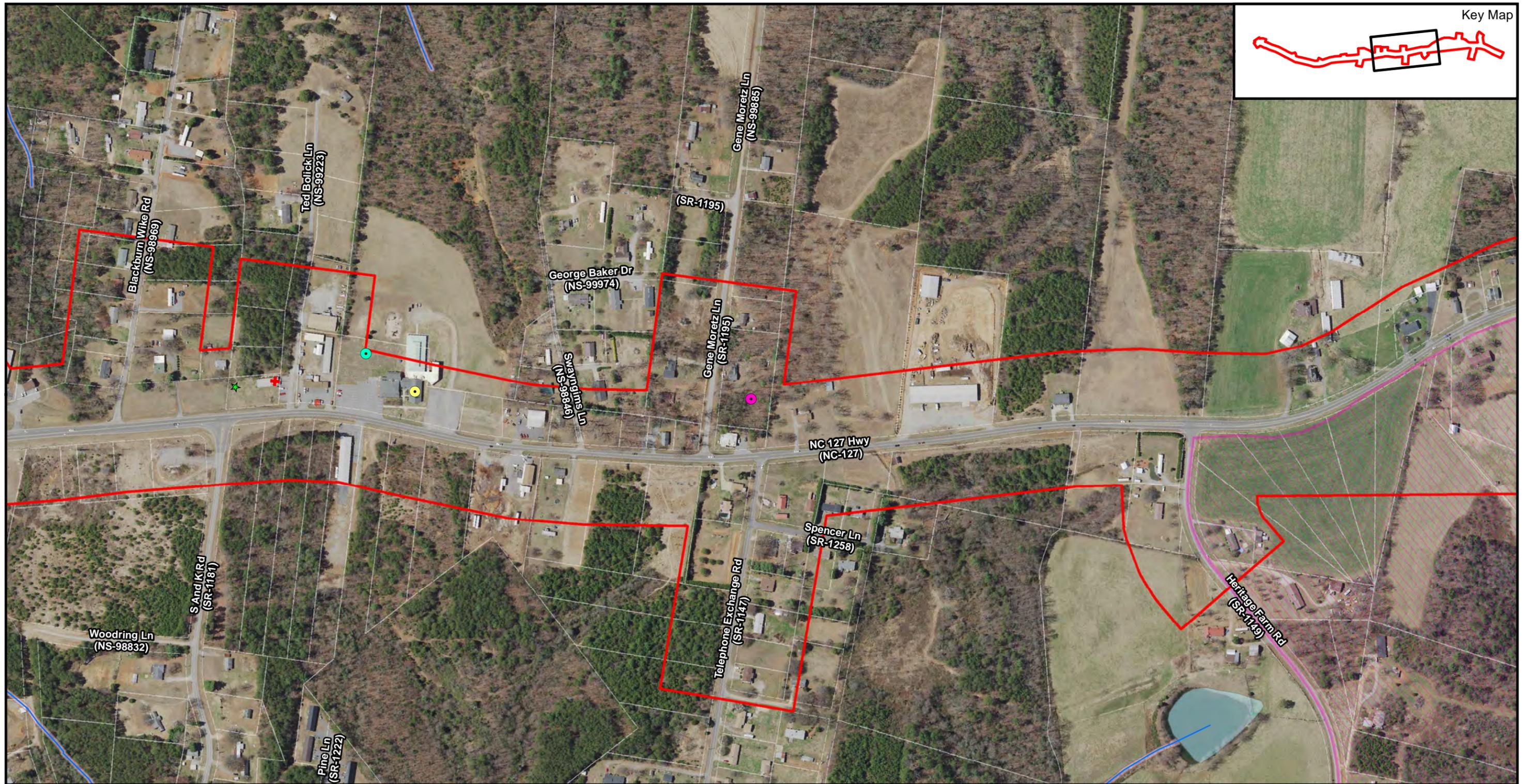


**NC DEPARTMENT OF TRANSPORTATION  
PROJECT MANAGEMENT UNIT**

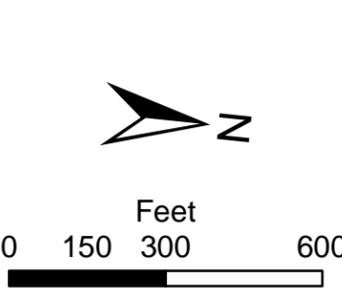
NC 127  
NC 127 FROM SR 1400 (CLONINGER  
MILL RD.) TO SR 1156 (RICHEY RD.)  
CATAWBA & ALEXANDER COUNTIES  
STIP PROJECT: R-3603A

FIGURE 2- B: ENVIRONMENTAL FEATURES MAP

\* DELINEATED FETAURES BASED ON FIELD WORK FOR ALIGNMENT ALT 2 EXPANSION COMPLETED APRIL 17, 2018. AWAITING FINAL NES SURVEYS FOR EXPANSION AREA.



- |                                      |                                   |  |
|--------------------------------------|-----------------------------------|--|
| STUDY AREA                           | CHURCH                            | PARK                                   |
| COUNTY BOUNDARY                      | FIRE STATION                      | CITY-OWNED PROPERTY                    |
| MUNICIPAL BOUNDARIES                 | LIBRARY                           | MANAGED AREA                           |
| PROPERTY LINES                       | UTILITIES                         | <b>NATIONAL WETLAND INVENTORY TYPE</b> |
| NHD STREAMS                          | POTENTIAL HAZARDOUS MATERIAL SITE | Freshwater Emergent Wetland            |
| 100-yr-floodplain                    | SCHOOL                            | Freshwater Forested/Shrub Wetland      |
| DELINEATED WETLANDS*                 | CELL TOWER                        | Freshwater Pond                        |
| DELINEATED STREAMS*                  | EMS STATION                       | Lake                                   |
| POTENTIAL ENVIRONMENTAL JUSTICE AREA | CEMETERY                          | Riverine                               |
| DWARF-FLOWERED HEARTLEAF LOCATIONS   |                                   |  |

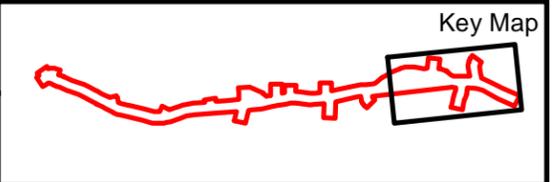
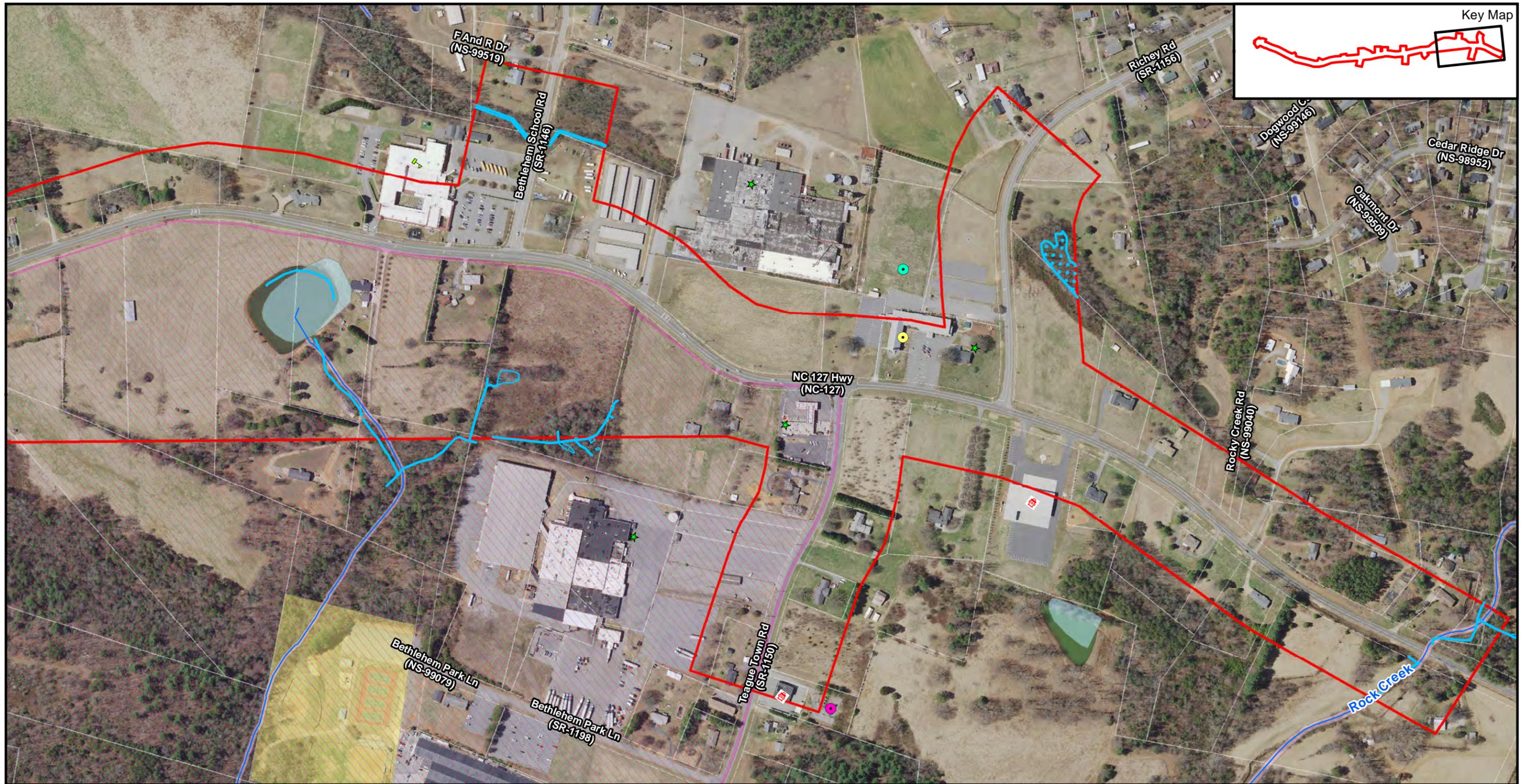


NC DEPARTMENT OF TRANSPORTATION  
PROJECT MANAGEMENT UNIT

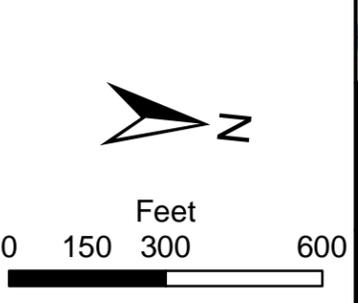
NC 127  
NC 127 FROM SR 1400 (CLONINGER MILL RD.) TO SR 1156 (RICHEY RD.)  
CATAWBA & ALEXANDER COUNTIES  
STIP PROJECT: R-3603A

**FIGURE 2- C: ENVIRONMENTAL FEATURES MAP**

\* DELINEATED FETAURES BASED ON FIELD WORK FOR ALIGNMENT ALT 2 EXPANSION COMPLETED APRIL 17, 2018. AWAITING FINAL NES SURVEYS FOR EXPANSION AREA.



- STUDY AREA
- COUNTY BOUNDARY
- MUNICIPAL BOUNDARIES
- PROPERTY LINES
- NHD STREAMS
- 100-yr-floodplain
- DELINEATED WETLANDS\*
- DELINEATED STREAMS\*
- POTENTIAL ENVIRONMENTAL JUSTICE AREA
- DWARF-FLOWERED HEARTLEAF LOCATIONS
- CHURCH
- ✖ FIRE STATION
- ✱ LIBRARY
- UTILITIES
- ★ POTENTIAL HAZARDOUS MATERIAL SITE
- ✪ SCHOOL
- CELL TOWER
- + EMS STATION
- CEMETERY
- PARK
- CITY-OWNED PROPERTY
- MANAGED AREA
- NATIONAL WETLAND INVENTORY TYPE**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

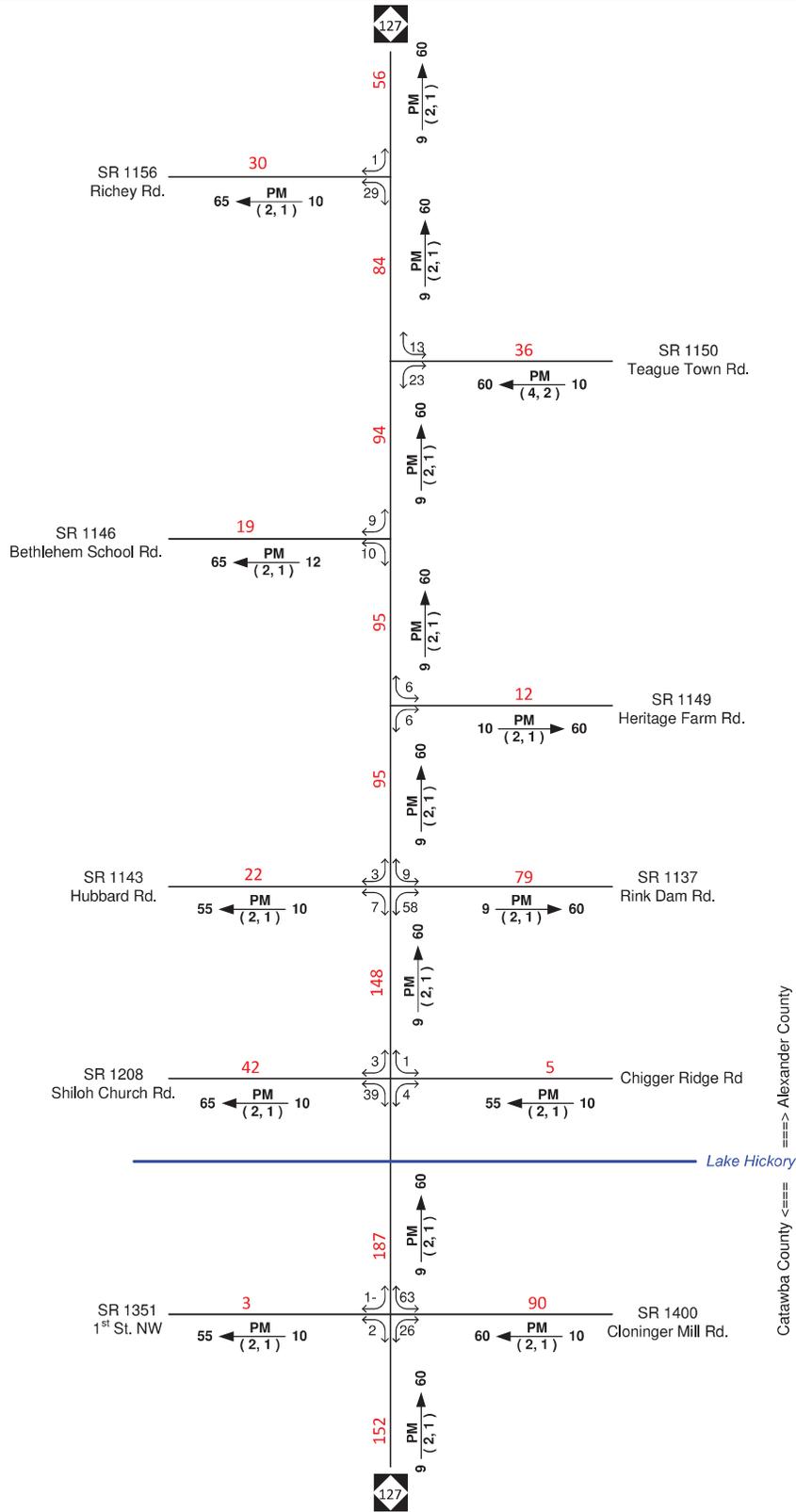


**NC DEPARTMENT OF TRANSPORTATION  
PROJECT MANAGEMENT UNIT**

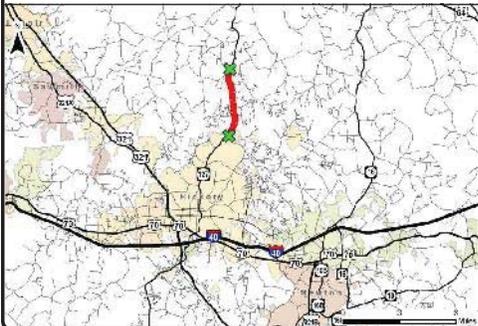
NC 127  
 NC 127 FROM SR 1400 (CLONINGER MILL RD.) TO SR 1156 (RICHEY RD.)  
 CATAWBA & ALEXANDER COUNTIES  
 STIP PROJECT: R-3603A

**FIGURE 2 - D: ENVIRONMENTAL FEATURES MAP**

\* DELINEATED FETAURES BASED ON FIELD WORK FOR ALIGNMENT ALT 2 EXPANSION COMPLETED APRIL 17, 2018. AWAITING FINAL NES SURVEYS FOR EXPANSION AREA.



====> Alexander County  
Catawba County <====



## 2016-No Build

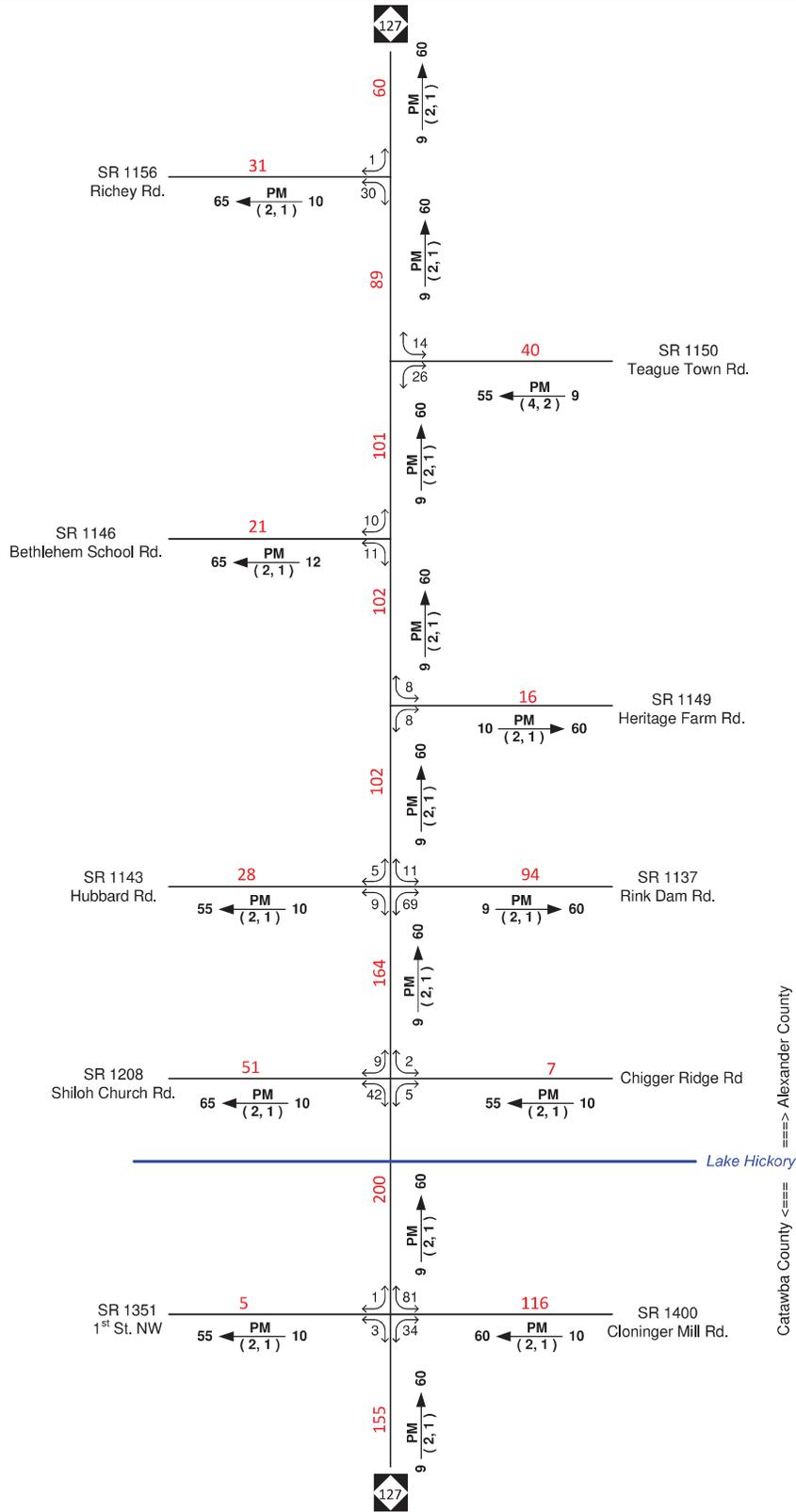
AVERAGE ANNUAL DAILY TRAFFIC

SHEET 1 OF 4

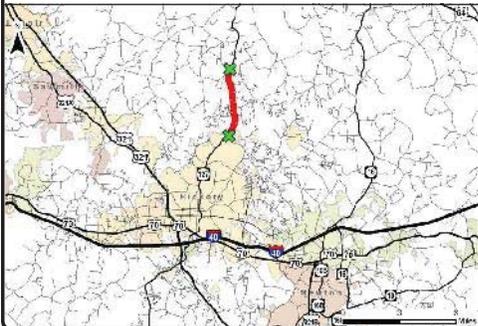
**LEGEND**

###	No. of Vehicles Per Day in 100s
1-	Less than 50 vpd
X	Movement Prohibited
K	Design Hour Factor (%)
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
( d, t )	Duals, TT-STs (%)

TIP: R-3603A	WBS: 38870.1.2
COUNTY: Catawba/Alexander	DIVISION: 12
DATE: 12/06/2017	
Forecaster: Michael Orr	
Prepared by: Chris McKoy	
LOCATION: NC-127	
PROJECT: 4 Lining of NC 127 from SR 1400 (Cloninger Mill Road) to SR 1156 (Richey Road)	



====> Alexander County  
Catawba County <====



# 2040-No Build

AVERAGE ANNUAL DAILY TRAFFIC

SHEET 3 OF 4

**LEGEND**

###	No. of Vehicles Per Day in 100s
1-	Less than 50 vpd
X	Movement Prohibited
K	Design Hour Factor (%)
PM	PM Peak Period
D	Peak Hour Directional Split (%)
→	Indicates Direction of D
( d, t )	Duals, TT-STs (%)

<b>TIP:</b> R-3603A	<b>WBS:</b> 38870.1.2
<b>COUNTY:</b> Catawba/Alexander	<b>DIVISION:</b> 12
<b>DATE:</b> 12/06/2017	
<b>Forecaster:</b> Michael Orr	
<b>Prepared by:</b> Chris McKoy	
<b>LOCATION:</b> NC-127	
<b>PROJECT:</b> 4 Lining of NC 127 from SR 1400 (Cloninger Mill Road) to SR 1156 (Richey Road)	

**Section 404/NEPA Interagency Agreement  
Concurrence Point No. 1  
Purpose and Need and Study Area Defined  
R-3603A**

**Project Description:** Upgrade NC 127 from SR 1400 (Cloninger Mill Road) to SR 1156 (Richey Road). Upgrade the existing two-lanes and provide some multi-lane curb and gutter.

**Proposed Project Purpose**

The purpose of the project is to diminish peak hour traffic queues at major intersections by improving Level of Service to LOS D, improve safety for multi-modal road users, and improve system linkage by providing an additional bridge crossing at Lake Hickory between the Hickory Metropolitan Area and Alexander County.

**Proposed Project Need**

The needs to be addressed by this project include:

- The existing two-lane arterial has substandard lane widths of 10-feet over much of the project length with 12-foot lanes being the minimum lane width for a minor arterial road classification and a 50 MPH design speed.
- Travel volumes and lack of accommodations along NC 127 limit bicycle and pedestrian activity along an important multi-modal transportation route. Route 1 of the Western Piedmont Bicycle Plan begins just north of the bridge over Lake Hickory and proceeds north through the entire project area. A leg of the Carolina Thread Trail is located just south of the project on NC 127 from Cloninger Mill Road south.
- A single two-lane bridge provides access along NC 127 across the Catawba River from the Hickory Metropolitan Area to Alexander County. Providing an additional bridge crossing at this location will improve system linkage between Alexander County and Catawba County. Catawba River crossings in the project vicinity are limited which cause detour distances of approximately 15 miles for average road users, and greater for commercial users, if the existing bridge is out of service.

The project Study Area boundaries are shown in Figure 2. The study area incorporates approximately 250-feet each side of the existing road centerline, widening to an unsymmetrical width of approximately 1,100-feet at the proposed new location section.

**Section 404/NEPA Interagency Agreement  
Concurrence Point No. 1  
Purpose and Need and Study Area Defined  
R-3603A**

**The Project Team Members listed below have concurred with the provided Purpose and Need as stated above and the project study area shown in Figure 2:**

Team Member Signatures

US Army Corps of Engineers \_\_\_\_\_ Date

NC Division of Water Resources \_\_\_\_\_ Date

NC Wildlife Resource Commission \_\_\_\_\_ Date

Environmental Protection Agency \_\_\_\_\_ Date

NC State Historic Preservation Office \_\_\_\_\_ Date

US Fish and Wildlife Service \_\_\_\_\_ Date

NC Department of Transportation \_\_\_\_\_ Date

Greater Hickory MPO \_\_\_\_\_ Date

**Section 404/NEPA Interagency Agreement  
Concurrence Point No. 2  
Detailed Study Alternatives Carried Forward  
R-3603A**

**Project Description:** Upgrade NC 127 from SR 1400 (Cloninger Mill Road) to SR 1156 (Richey Road). Upgrade the existing two-lanes and provide some multi-lane curb and gutter.

Alternatives for Detailed Study

The following alternatives have been proposed for consideration. Alternative A and B are to be carried forward for detailed study. One design concept, conventional, will be considered for each of the build alternatives.

- **No-Build Alternative**
- **Build Alternative 1:** Best-fit widening along NC 127 from Cloninger Mill Road to Richey Road. Existing turn lanes will be lengthened and dedicated turn lanes will be added throughout the project area.
- **Build Alternative 2:** Best-fit widening along NC 127 from Cloninger Mill Road to just north of Heritage Farm Road, becoming a new alignment from north of Heritage Farm Road to Richey Road.

**The Project Team Members listed below have concurred with the proposed alternatives for detailed study listed above.**

Team Member Signatures

US Army Corps of Engineers \_\_\_\_\_ Date

NC Division of Water Resources \_\_\_\_\_ Date

NC Wildlife Resource Commission \_\_\_\_\_ Date

Environmental Protection Agency \_\_\_\_\_ Date

NC State Historic Preservation Office \_\_\_\_\_ Date

US Fish and Wildlife Service \_\_\_\_\_ Date

NC Department of Transportation \_\_\_\_\_ Date

Greater Hickory MPO \_\_\_\_\_ Date