

**PROJECT DATA SHEET**

Date: 12/20/2017

TIP No.: U-5767, U-5771	County: Mecklenburg
Federal-aid No.: N/A	WBS No.: 50180.1.1
NCDOT Division: 10	Scoping Meeting Date: 01/18/2018

**Project Description:**

- Length: Approximately 3.4 miles combined length along US 21
  - U-5767: Approximately 1.2 miles
  - U-5771: Approximately 2.2 miles
- Termini (US Hwy / SR):
  - U-5767: Northern Termini – SR 2147 (Westmoreland Road), Southern Termini – Northcross Center Court
  - U-5771: Northern Termini – Holly Point Drive, Southern Termini – SR 2136 (Gilead Road)
- MPO / RPO: Charlotte Regional Transportation Planning Organization (CRTPO)
- NEPA / 404 Merger Candidate?     Yes     No     Unknown
- General Description of Project:

U-5767 and U-5771 propose to widen two sections of US 21 from SR 2147 (Westmoreland Road) to Northcross Center Court and from Holly Point Drive to SR 2136 (Gilead Road). The projects are to be developed and built as one project and will be processed as a combined State EA/FONSI.

**Design Data (Existing Conditions):**

- Functional Classification: Minor Arterial
- Strategic Highway Corridor: No
- CTP Designation (Facility Type):
  - US 21 north of NC 73 (Sam Furr Road) – Major Thoroughfare
  - US 21 south of NC 73 (Sam Furr Road) – Boulevard
- Type of Access Control: No control of access, with exception of partial control near some major intersections
- Typical Section: 2 lanes with CLTL in some sections
- Right of Way: 120 to 150 feet with legacy right of way for future lanes
- Posted Speed: 45 mph
- Structure Inventory (bridges, RCBC, Walls, etc):

- Triple 8' x 7' RCBC for Caldwell Station Creek near Northcross Center Court
- Dual 6' x 6' RCBC for Torrence Creek Trib 1 near Bankside Drive
- Dual 5' x 7' RCBC for Torrence Creek Trib 2 near Boulder Park Drive

- Other TIP Projects in the Area

- **STIP I-5405:** Add Express Lanes to I-77 from I-277 (Brookshire Freeway/Exit 11) to Catawba Avenue (Exit 28). Under Construction.
- **STIP I-5715:** Upgrade the existing interchange of NC 73 (Sam Furr Road) and I-77 to a split diamond interchange. Programmed for Right of Way in 2019 and Construction in 2020.
- **STIP I-5714:** Upgrade the existing interchange of I-77 and Gilead Road (SR 2136) to a diverging diamond interchange. Programmed for Right of Way in 2017 and Construction in 2018.
- **STIP U-5114:** Intersection improvements at US 21 and Gilead Road (SR 2136). Programmed for Construction in 2018. Administered by the Town of Huntersville.
- **STIP U-5807:** Widen Gilead Road (SR 2136) to multi-lanes from US 21 (Statesville Road) to NC 115. Programmed for Right of Way and Utilities in 2022 with Construction in 2024.
- **STIP U-5108:** Extend Northcross Drive from the existing northern terminus to Westmoreland Road. Programmed for Right of Way in 2018 and Construction in 2020. Administered by the Town of Cornelius.
- **STIP U-5765:** Improve NC 73 (Sam Furr Road) from Catawba Avenue to Northcross Drive. Programmed for Right of Way and Utilities in 2020 and Construction in 2022.
- **Local Project:** Town of Cornelius, Bailey Road Extension: Town project will extend existing Bailey Road from near Poole Place Drive to US 21. Construction estimated in 2019.

- Railroad Involvement:

N/A

**Long Range Plan History:**

Both projects are included in the CRTPO 2040 Metropolitan Transportation Plan (MTP) as fiscally constrained projects in the 2025 Horizon Year (2016-2025).

*Bike!Cornelius* (January 2017) was adopted to address bicycle facilities that are within the public street right of way and make key recommendations. US 21 south of Westmoreland Road to Northcross Center Court is listed as a priority section. The recommended concept includes two 11-foot travel lanes in each direction divided by a 23-foot median, with 5-foot bike lanes, curb and gutter, and a 6-foot planting strip on each side. In addition, a 10-foot multi-use path is recommended on the east side and a 5-foot sidewalk is recommended on the west side.

The *Town of Huntersville 2030 Community Plan* (June 2011) recognizes the rapid growth occurring in Huntersville and highlights the need for a renewed emphasis on long-range transportation planning and system development. Transportation policies and action items included in the plan emphasize support for NCDOT's Complete Streets Policy and context-sensitive design. In terms of multi-modal connections, the plan includes policies to support the installation of sidewalks, bikeways, and greenway trails connecting residential, commercial, employment, recreational, and institutional uses.

**Traffic Data (AADT):**

Current Year	2016	14,000 to 29,500 <sup>1</sup>	2 to 3% Duals	1% TTST
Design Year	2040	20,000 to 34,500 <sup>2</sup> 20,000 to 61,400 <sup>3</sup>	2 to 3% Duals	1% TTST
Source of Traffic Data:	U-5767/U-5771 Project Level Traffic Forecast Report (10/13/2016) and Addendum (2/15/17)			

<sup>1</sup>2016 No-Build Forecast

<sup>2</sup>2040 No-Build Forecast

<sup>3</sup>2040 Build Forecast – 6 lanes

Notes:

- All of the scenarios assumed I-485, Section E (R-2248E) was complete and open to traffic
- No scenarios included I-77 at Westmoreland Road Interchange
- None of the planned improvements at I-77 and NC 73 (Exit 25) as part of I-5715 were included in traffic forecast

**Cost Estimates:**

	Construction	Right-of-Way	Utilities	Total
TIP Estimate <sup>1</sup>				
U-5767	\$21 million	\$0.8 million	\$1.4 million	\$23.2 million
U-5771	\$16.5 million	\$2.7 million	\$0.3 million	\$19.5 million
Current Estimate (2017)	<i>Not available</i>	\$5.3 million <sup>2</sup>	\$5.9 million <sup>3</sup>	<i>Not available</i>

<sup>1</sup>Source: NCDOT 2018-2027 STIP

<sup>2</sup>Based on RS&H Right of Way Estimate Summary (Dec 2017) for 4-lane superstreet

<sup>3</sup>Based on Utility Estimate Worksheet from NCDOT (October 2017) for 4-lane superstreet

**Project Schedule:**

Environmental Document	State EA/FONSI	Summer 2018
Right-of-Way	December 2018	
Let	December 2020	

**Initial Scoping Comments** (from Internal Scoping held 5/9/16):

The **NCDOT Division of Bicycle and Pedestrian Transportation** noted that Westmoreland Road has an existing bike route and is designated as a proposed Carolina Thread Trail connection. In addition, Gilead Road carries State Bicycle Route 6. They recommend that bicycle lanes be provided for the entire length of both project corridors (U-5767 and U-5771). Minimum recommended lane width is 5 feet, but 6-foot lanes are specifically recommended for these projects due to the speed and volume on the road. For pedestrians, they recommend consideration of sidewalk for the entire corridor, especially to fill in gaps in commercial areas. A minimum 5-foot 6-inch sidewalk is recommended. They acknowledge that shared use paths are planned along or intersecting the project corridors and recommend working with municipalities to ensure that these roadway projects accommodate (or do not hinder) planned multi-modal facilities.

The **NCDOT GeoEnvironmental Section** identified 6 UST facilities, 3 auto repair shops, 1 lawn equipment repair shop, 1 auto body shop, and 2 dry cleaners within the project study area. Field verification of hazardous waste sites and identification of unknown sites should be performed when the design is further refined and prior to ROW.

**Utilities**

- All utilities are present along the corridor. Assume there is a power pole every 280 feet.
- Utility estimates from the STIP may be low.
- Do not move transmission lines or towers if at all possible.
- Utilities will provide additional information upon receipt of the preliminary design.

**Division 10** noted that U-5114 will improve US 21 north of Gilead to just south of Torrence Creek. This project will overlap with U-5771, so we will need to tie into those improvements (around Arahova Drive). U-5114 is anticipated to be let with U-5714 (Gilead Road/I-77 interchange improvements). Coordination between these projects will be important to minimize any tear out. It was further noted that the U-5114 improvements as well as the NC 73 intersection improvements (constructed under R-2632AA) would be impacted if a 6-lane section is selected for U-5767 and U-5771.

### **Roadway**

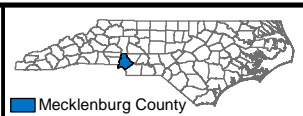
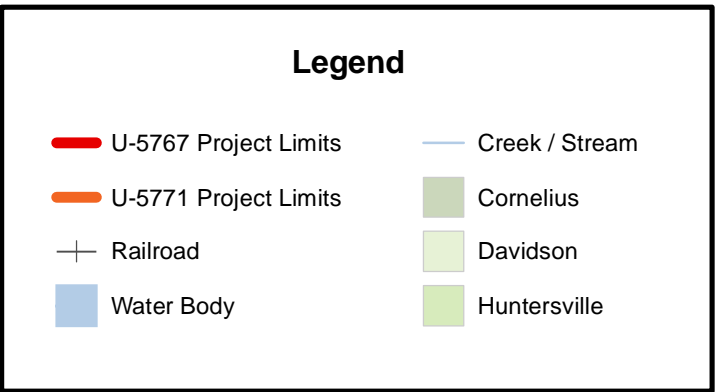
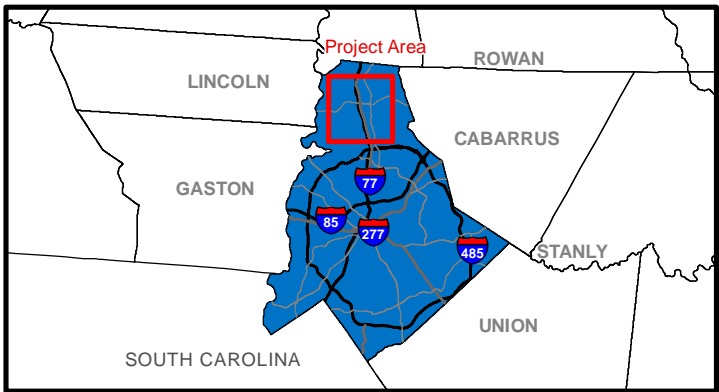
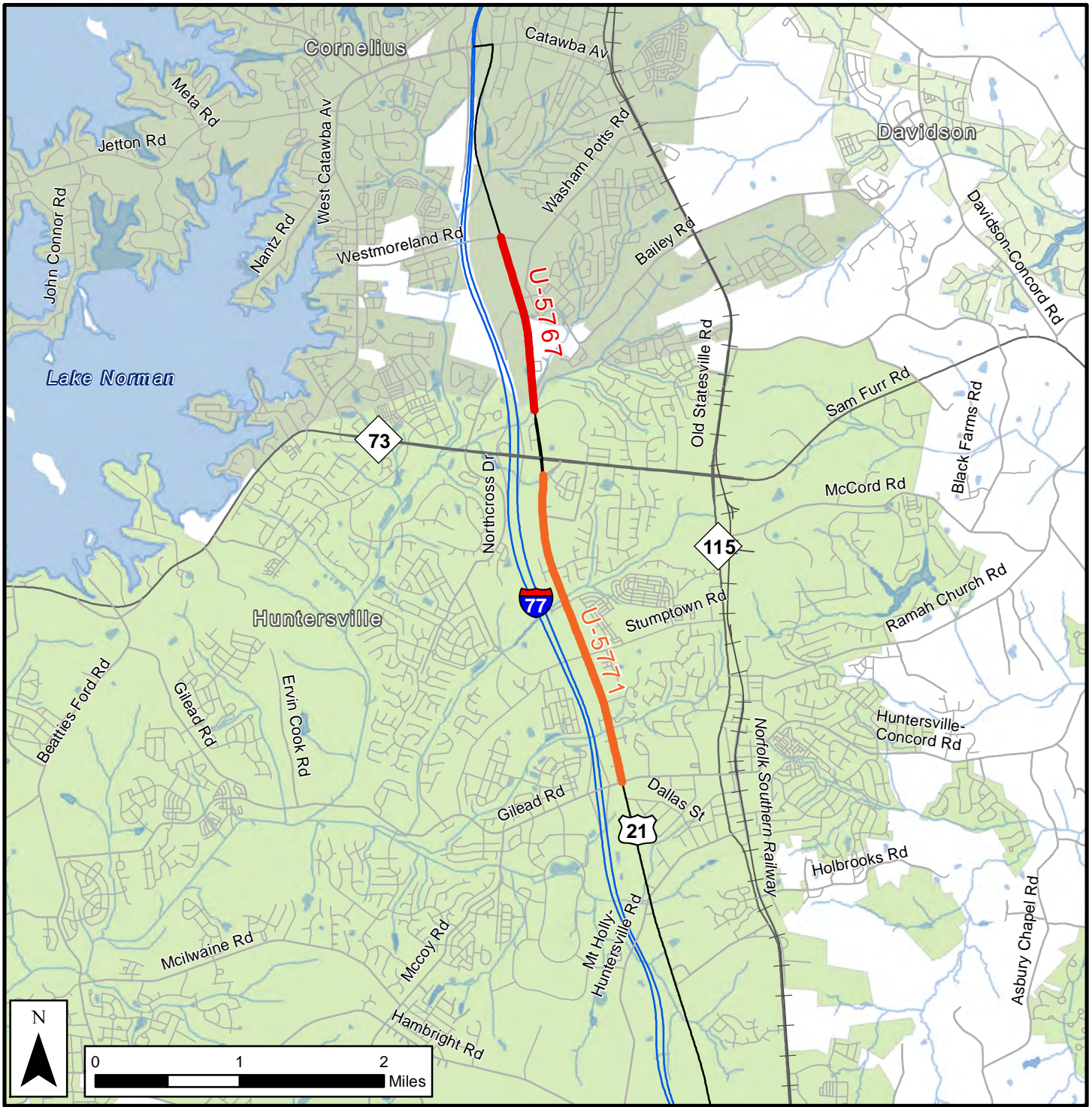
- Roadway asked for Division's preference with respect to a depressed 46-foot median on the 6-lane section. Division 10 noted that a narrower (23 to 30-foot) raised median would be preferred and would reduce impacts.
  - Roadway asked for the 6-lane typical to be updated to show the raised median. US 401 in Raleigh (where it splits from Capital Boulevard) is an example of a 6-lane section with a raised median.
- Congestion Management noted that the design should ensure that storage lengths for the U-turns for superstreet intersections do not overlap with the left turn lanes' storage lengths.
- The Towns are requesting berm widths that exceed the NCDOT standard (10 feet). Currently, a 17-foot berm is proposed on the east side and a 12-foot berm is proposed on the west side. Cost sharing will need to be discussed as the project moves forward.
- U-turn bulb-outs should be designed for WB-67 vehicles. If a certain U-turn bulb-out cannot accommodate the movement due to excessive impacts, it may be designed for a smaller vehicle and WB-67s can be directed to do a U-turn at the next intersection.

### **Hydraulics**

- There are three stream crossings and all are FEMA-detailed streams.

### **Natural Environment Section**

- There are three streams and a proposed greenway.
- NES noted that the I-77 Express Lanes project is adding a new culvert to carry the Torrence Creek (Tributary #2) Greenway under I-77 and suggested that we may need to account for a pedestrian culvert in our project as well.



**US 21 Corridor Improvements**  
 SR 2136 (Gilead Road) to Holly Point Drive  
 and Northcross Center Court to SR 2147  
 (Westmoreland Road)

TIP No.  
 U-5767/U-5771  
 Division: 10

**Figure: 1**  
 Vicinity Map

## Purpose and Need Data

### Draft Project Need:

- Traffic Congestion – Average travel speeds slow to less than 25 miles per hour during peak periods (posted speed is 45 mph).
- Unreliable Travel Times – Travel times during peak periods can take 2-3 times longer than during off-peak periods.
- Parallel route to I-77 – US 21 serves as an alternate route to I-77.

### Draft Project Purpose:

The purpose of the project is to improve traffic flow through the project corridor. Additionally, the project will provide multi-modal accommodations in accordance with state and local planning goals.

## Design Data (Proposed Conditions)

### The following initial alternatives have been developed by NCDOT:

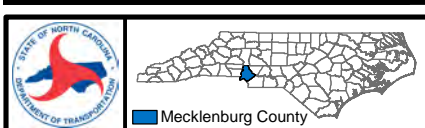
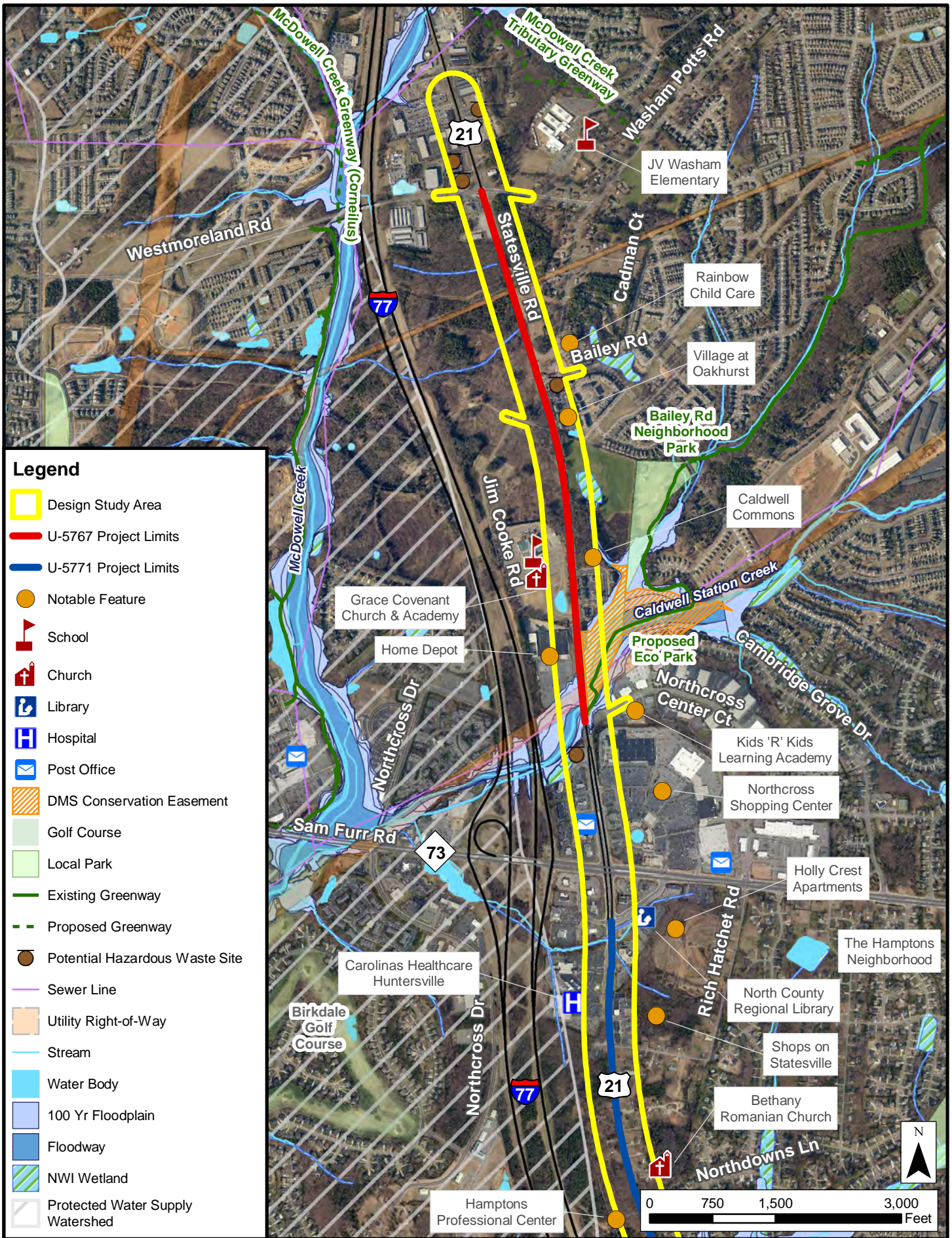
1. 4-lane divided facility with superstreet intersections and curb and gutter on the outside shoulders
2. 4-lane divided facility with traditional intersections and curb and gutter on the outside shoulders
3. 6-lane divided facility with superstreet intersections and curb and gutter on the outside shoulders
4. 6-lane divided facility with traditional intersections and curb and gutter on the outside shoulders

All initial alternatives included the following:

- 50 mph design speed (45 mph posted)
- 11-foot travel lanes
- 30-foot raised median
- 5-foot bike lanes
- 5-foot sidewalk and 6-foot planting strip on west side\*
- 10-foot multi-use path and 6-foot planting strip on east side\*

\*NCDOT statewide standard calls for a 10' berm, which includes a 5' sidewalk and 4' planting strip. NCDOT has agreed to pay for 10' berms and the state's share of a 5' sidewalk. However, anything wider than a 10' berm will be 100% municipality cost. These costs include but are not limited to earthwork, right of way, and multi-use path materials.



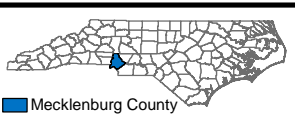
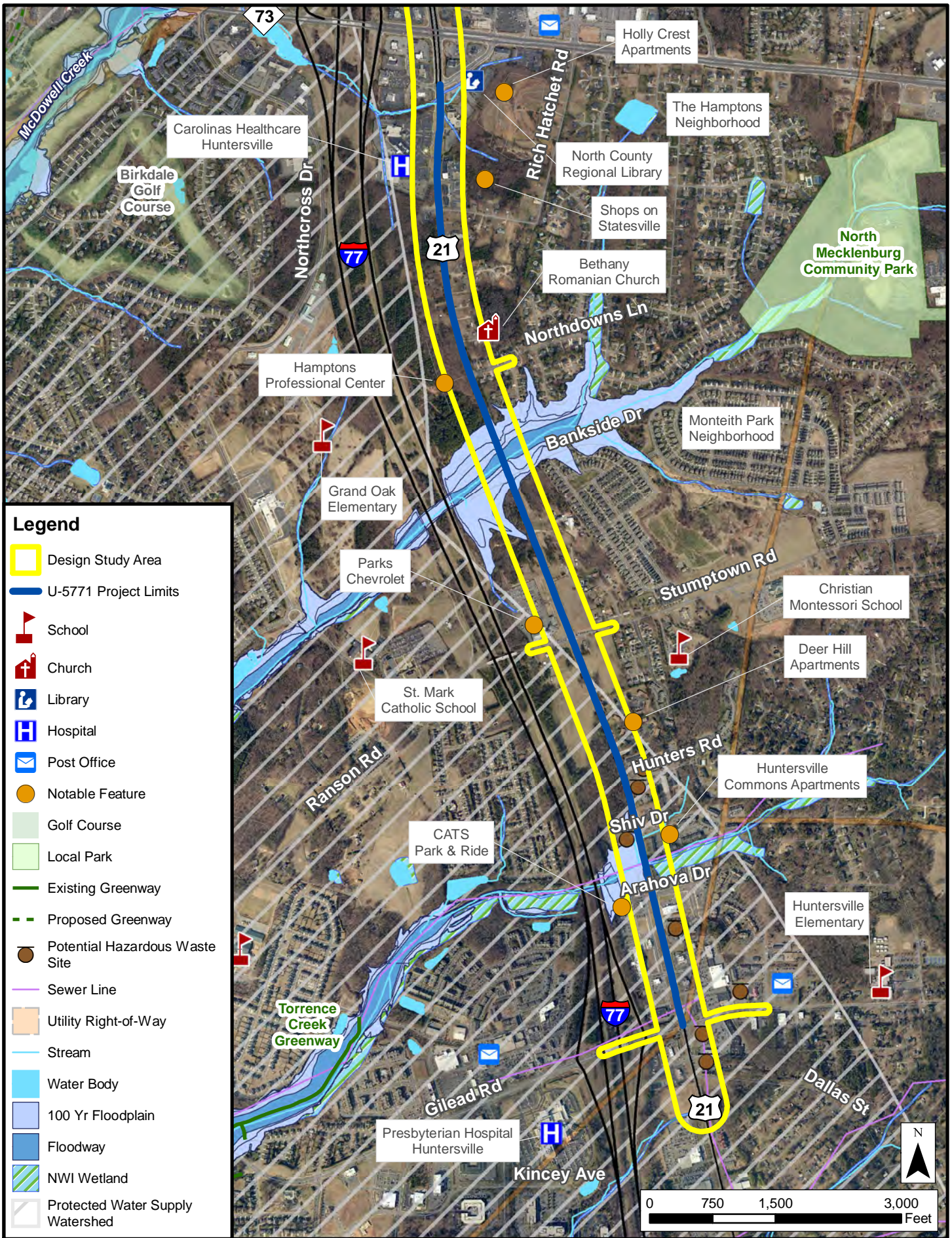


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**Figure: 2A**  
 Environmental  
 Features





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**Figure: 2B**  
 Environmental  
 Features



**Updated Jurisdictional Impacts**

Based on a July 2017 coordination meeting between NCDOT and the Towns of Huntersville and Cornelius, the 4-lane superstreet alternative was determined to be the preferred alternative for this project. In addition, the Towns requested a revised typical section to include a 7-foot planting strip, 5-foot cycle track, and 8-foot pedestrian zone on each side.

Updated stream and wetland impacts were calculated based on the revised design, with the following assumptions:

- The design is for a 4-lane superstreet with 12-foot lanes, a 30-foot median, and a 21.5-foot berm on each side (to accommodate the requested cycle tracks and pedestrian zone). Note that the median will likely be reduced to 23 feet, but we wanted to be conservative in estimating impacts.
- The stream and wetland locations are based on the surveyed locations from the NRTR.
- Stream and wetland impacts were calculated based on slope stakes plus 25 feet.
- There is a note on Area 10 that impacts may change based on revised designs in that area. This is near the Westmoreland Road intersection where there was discussion about whether to carry the superstreet concept through this intersection. Also, some new developments have been approved in the area that may require shifting the alignment slightly to the west.

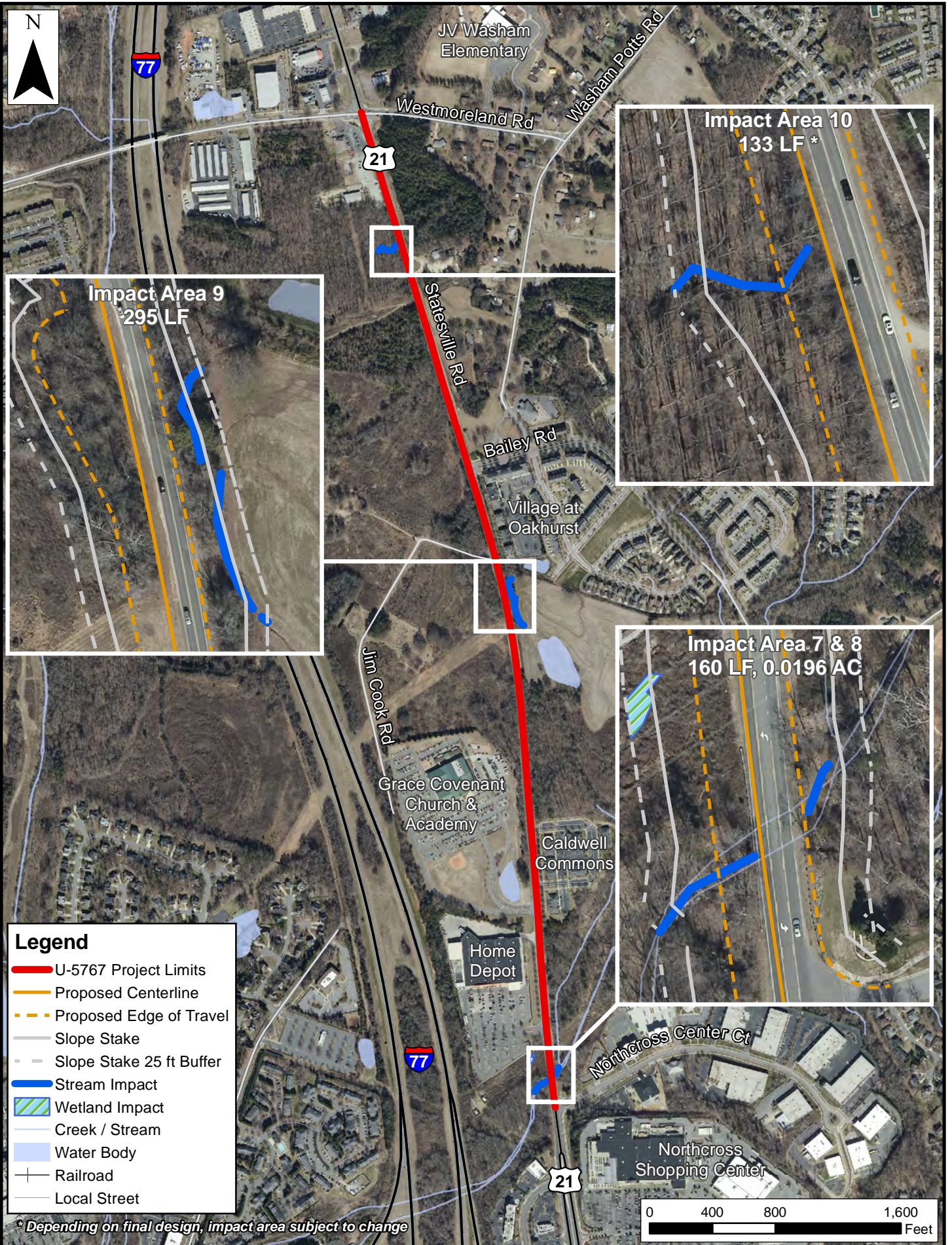
The following table summarizes the wetland and stream impacts. The areas listed in the table correspond with the mapping shown on Figure 3.

**U-5767/U-5771 Wetland and Stream Impacts  
 (4-Lane Superstreet Alternative)**

Area	Station	Wetland Impact (ac)	Stream Impact (LF)
1	17+60.40		67
2	17+56.24		85
3	23+31.30	0.03	
4	59+15.87		96
5	68+96.52	0.02	57
6	68+56.35		42
7	140+04.37		160
8	142+04.39	0.02	
9	169+62.94		295
10	194+63.47		133*
<b>Total</b>		<b>0.07</b>	<b>935</b>

\*Pending revisions to Westmoreland Rd end of project

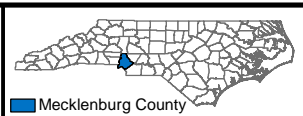
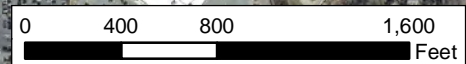




**Legend**

- U-5767 Project Limits
- Proposed Centerline
- - - Proposed Edge of Travel
- Slope Stake
- - - Slope Stake 25 ft Buffer
- Stream Impact
- / - Wetland Impact
- Creek / Stream
- Water Body
- + Railroad
- Local Street

\* Depending on final design, impact area subject to change

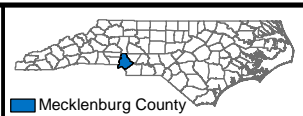
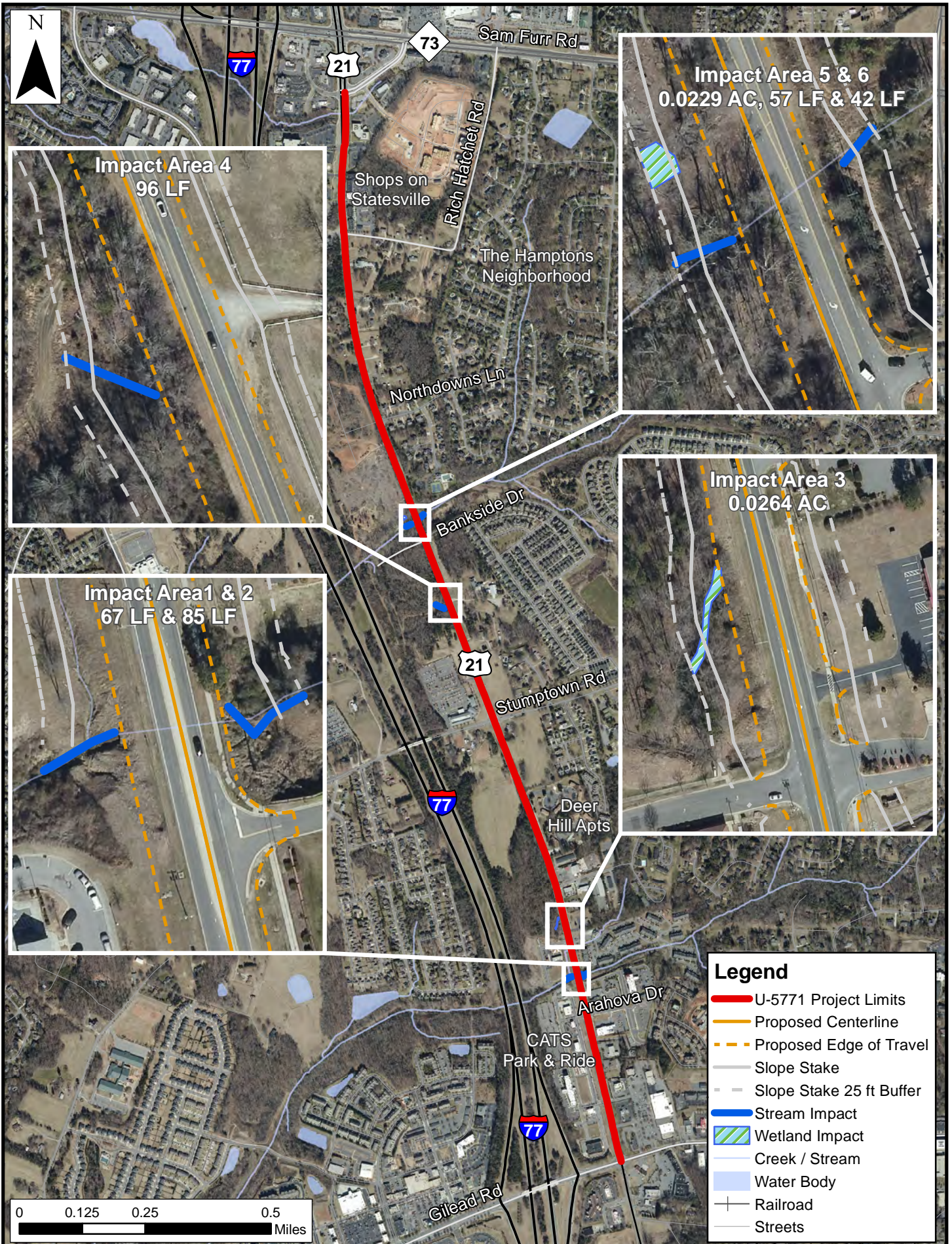


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**Figure: 3A**  
 Stream/Wetland  
 Impacts





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**Figure: 3B**  
 Stream/Wetland  
 Impacts