MERGER TEAM MEETING – CONCURRENCE POINT 2A BRIDGING DECISIONS AND ALIGNMENT REVIEW

NC 73 IMPROVEMENTS – NC 16 TO NORTHCROSS DRIVE (SR 2316) LINCOLN AND MECKLENBURG COUNTIES STIP PROJECT NOS. R-5721 and U-5765

JUNE 6, 2018

PURPOSE OF THIS MEETING

The purpose of today's meeting is to provide the Merger team with a project update and to discuss bridging locations and preliminary alignment. Concurrence will be requested on bridging decisions and alignment review for Concurrence Point 2A (CP 2A).

PROJECT DESCRIPTION

North Carolina State Transportation Improvement Program (STIP) Project Nos. R-5721 and U-5765 consist of widening NC 73 from NC 16 to Northcross Drive (SR 2316), a distance of approximately 8.5 miles. These projects are included in the 2018-2027 STIP. The limits for each project are described as follows and are shown on Figures 1 and 2:

- R-5710 – Improve the intersection of NC 73 and NC 16 Business, Lincoln County. ***Deleted at the December 2017 Board of Transportation meeting. Improvements to be included under R-5721.***
- R-5721 – Widen NC 73 to multi-lanes from NC 16 to West Catawba Avenue (SR 5544), Lincoln and Mecklenburg Counties
- U-5765 – Widen NC 73 from West Catawba Avenue to Northcross Drive, Mecklenburg County

PROJECT SCHEDULE/COST

The right of way acquisition and construction schedule for the project in the 2018-2027 STIP is currently:

Begin Right of Way Acquisition: Fiscal Year (FY) 2020
Begin Construction: FY 2022

Estimated costs are described in Table 1.

Table 1: Cost Estimates (STIP)

	R-5721	U-5765
ROW	$75,180,000	$3,900,000
Utilities	$7,100,000	$500,000
Construction	$70,350,000	$7,000,000
Total Cost	$152,630,000	$11,400,000
Grand Total	$164,030,000	

PROJECT PURPOSE & STUDY AREA

Initial concurrence on the purpose of the project (CP 1) was reached at a NEPA/404 Merger Team meeting held on August 9, 2017. Due to minor study area expansions, CP 1 was revisited and formal concurrence on the changes was reached on March 22, 2018.

Purpose statement: *The purpose of the proposed project is to increase the traffic carrying capacity of NC 73 within the study area to operate at an acceptable level of service (LOS D or better) through the design year 2040 and preserve long-term mobility of the corridor. A secondary purpose is to safely accommodate multi-modal uses of the corridor.*

ALTERNATIVES FOR DETAILED STUDY

Initial concurrence on the alternatives for detailed study (CP 2) was reached at a NEPA/404 Merger Team meeting held on August 9, 2017. The alternatives were revisited and formal concurrence was reached on March 22, 2018. Team members agreed on the study alternatives described below:

- No-Build Alternative
- Alternative 1: Best Fit Widening Along Existing NC 73
- Alternatives 2A and 2B: Best Fit Widening Along Existing NC 73 with Realignment in the Vicinity of the McGuire Nuclear Station and Beatties Ford Road
    - Alternative 2A resembles an alignment proposed in local and regional plans
    - Alternative 2B provides a more shallow realignment than Alternative 2A

The Alternatives are compared in Table 2.

PUBLIC INVOLVEMENT

A Public Meeting for STIP Project Nos. R-5721, U-5765, and I-5715 was held on February 5, 2018 at Meadowlake Church in Huntersville. A second Public Meeting for STIP Project Nos. R-5721 and U-5765 was held on February 6, 2018 at East Lincoln Community Center.

The Town of Huntersville held a meeting with the Birkdale neighborhood on March 7, 2018 to provide information and answer questions.

The Town of Cornelius hosted a meeting on March 12, 2018. NCDOT gave a presentation on the project and answered questions from the public.

The Birkdale Homeowner's Association hosted a meeting on April 17, 2018. NCDOT gave a presentation on the project and answered questions from the public.

BRIDGING DECISIONS AND ALIGNMENT REVIEW

CP 2A consists of the identification of potential impacts to jurisdictional areas including streams, wetlands, and other surface waters based on the preliminary design. CP 2A also includes a discussion of NCDOT hydraulic requirements and potential bridging locations being proposed at major stream or wetland crossings. Water resources in the study area are part of the Catawba River Basin. Based on a preliminary hydraulic study, eight crossings require structures that are 72 inches or greater in diameter. All other crossings can be contained in smaller pipes. The structure locations and hydraulic sites are described in Table 3 and illustrated on Figures 3.1-3.4 and 4.1-4.7. Jurisdictional areas have been surveyed and mapped using GPS. The impact area for streams and wetlands is defined as the slope stakes plus a 25-foot buffer area.

The Merger team's concurrence with the drainage structure recommendations included in this packet is requested.

DR/ws

Table 2. Detailed Study Alternative Comparison

Resource/Affected Environment	Alternative 1	Alternative 2 Realignments*	
		Alt 2A	Alt 2B
General Project Information			
Length of Alternative (miles)	8.5	1.8	1.1
Cultural Resources			
NRHP (eligible sites, districts, etc.) (#)	Stillwell-Hubbard Complex (DOE)		
Archaeology	*Archaeological Survey Of Federalized Permit Areas Is Recommended Prior To Permitting Activities.*		
Human Environment			
Churches/Cemetery (#)**	4	0	1
Schools**	2	0	0
Public Parks	Blythe Landing Community Park	0	
Greenways, Game Lands, Land and Water Conservation Fund Properties, etc. (#)	3 – Hwy 73 Access Area, Cowans Ford Waterfowl Refuge, McDowell Creek Greenway	0	
High % Special Populations	Language Assistance (Spanish)		
Natural Environment			
Threatened or Endangered Species with a 'No Effect' Biological Conclusion	4 – Dwarf-flowered heartleaf, Michaux's sumac, Schweinitz's sunflower, Smooth coneflower		
Threatened or Endangered Species Requiring Additional Surveys	2 – Northern long-eared bat, Carolina heelsplitter		
Streams (linear feet)	1,560 - 2,475	1,360	860
Wetlands (acres)	2.11 - 4.08	0.00	0.92
Critical Water Supply Watersheds	2 – Lake Norman, Mountain Island Lake		
Riparian Buffer Rules	Catawba River Basin		
Identified Critical Habitat/ESA Spp. (# known)	None known		
Physical Environment			
Haz Mat (# suspected/known sites)	*Impacts To Be Determined*		
Utilities	McGuire Nuclear Station, electric, water, sewer, power transmission corridors and towers, phone		
Voluntary Agricultural District (VAD)	2 – VAD parcels (one operation)	0	
Noise	*Impacts To Be Determined*		
Federal Energy Regulatory Commission (FERC) Licensing			
3 – Highway 73 Access Area, Catawba-Wateree Project (Mountain Island Development and Cowans Ford Development)		N/A	

**** The impacts for the Alternative 2 realignment options reflect only the section of realignment between approximately McGuire Nuclear Station and Beatties Ford Road.***

*** Does not indicate relocation – only potential impact.*

Table 3. Major Drainage Structures

Site No.	Name/ Map ID	Drainage Area (mi^2)	Existing Structure	FEMA Stream	Hydraulic Recommendation	Estimated Minimum Bridge Dimensions	Culvert Extension / Total Length	Culvert Cost[1]	Bridge Cost[1]	Stream Class-ification	Culvert Impacts to Streams / Wetlands[2]	Bridge Impacts to Streams / Wetlands[2]	Intermittent / Perennial / Channel Dimensions	Riparian Buffer Impacts	Figure #
1	Catawba River Tributary 6/SDD	2.4	2@9'X8' RCBC	Yes; Limited Detailed Study	(1A) 2@9'x10' RCBC	(1A) 45'X407' Dual Bridges	(A) N/A / 453'	Structure: $1.7 mil Mitigation: $700K Total: $2.4 mil	Structure: $6.7 mil Mitigation: $300K Total: $7.0 mil	WS-IV; CA	(1A) 585' / 1.7 ac.	(1A) 175' / 1.1 ac.	Perennial Bank width 10-12 ft., water depth 10-20 in.	N/A	3.1, 4.1-4.4
					(1B) 2@9'x10' RCBC	(1B) 45'X1063' Dual Bridges	(B) N/A / 802'	Structure: $3.0 mil Mitigation: $1.6 mil Total: $4.6 mil	Structure: $14.3 mil Mitigation: $200K Total: $14.5 mil		(1B) 1,340' / 3.5 ac.	(1B) 0' / 1.0 ac.			
					(1C) Retain Existing and Extend and New 2@9'x10' RCBC	(1C)[3] 45'X185' Single Bridge	(C) Existing 127' / 297' New N/A / 195'	Structures: $2.5 mil Mitigation: $1.1 mil Total: $3.6 mil	Structures: $2.9 mil Mitigation: $700K Total: $3.6 mil		(1C) 905' / 2.5 ac.	(1C) 500' / 1.9 ac.			
					(1D) 2@9'x10' RCBC	(1D) 45'X454' Dual Bridges	(D) N/A / 583'	Structure: $2.2 mil Mitigation: $1.0 mil Total: $3.2 mil	Structure: $7.4 mil Mitigation: $500K Total: $7.9 mil		(1D) 875' / 2.3 ac.	(1D) 320' / 1.5 ac.			
2	Catawba River	1,778	Bridge No. 50, 33'X883'	Yes; Redelineated	Dual Bridges	45'X883'	N/A	N/A	Structure: $14.8 mil Mitigation: $30K Total: $14.83 mil	WS-IV; CA	N/A	0' / 0.2 ac.	Perennial Bank width 743 ft., water depth 12 ft.	Catawba River	3.1, 4.1-4.4
3	UT to McDowell Creek/SBB	0.16	72" CMP	No Study	Retain Existing and Extend Upstream	Not Practical	15' / 765'	N/A	N/A	WS-IV	10' / 0 ac.	N/A	Perennial Bank width 3 ft., water depth 6-12 in.	N/A	3.3, 4.7
4	McDowell Creek	3.52	Culvert #83, 3@8'X9' RCBC	Yes; Detailed Study; 100 yr. flood event overtops roadway	Retain Existing RCBC and Extend Each Side	Not Practical	103' / 220'	N/A	N/A	WS-IV	135' / 0.1 ac.	N/A	Perennial Bank width 12 ft., water depth 6-12 in.	N/A	3.3, 4.7
5	Caldwell Station Creek	3.16	Culvert #84, 2@10'X9' RCBC	Yes; Detailed Study	Retain Existing RCBC and Extend Each Side	Not Practical	96' / 230'	N/A	N/A	WS-IV	345' / 0.1 ac	N/A	Perennial Bank width 12 ft., water depth 4-16 in.	N/A	3.3, 4.7
6	Caldwell Station Creek	3.14	Culvert #16 2@10'X8' RCBC	Yes; Detailed Study	Retain Existing RCBC and Extend Each Side	Not Practical	93' / 180'	N/A	N/A	WS-IV	205' / 0 ac.	N/A	Perennial Bank width 12 ft., water depth 4-16 in.	N/A	3.3, 4.7
7	UT to Caldwell Station Creek/SCC	0.36	1@8'X5' RCBC	No Study	Retain Existing RCBC and Extend Upstream	Not Practical	30' / 453'	N/A	N/A	WS-IV	55' / 0 ac.	N/A	Perennial Bank width 3-5 ft., water depth 2-12 in.	N/A	3.3, 4.7
8	UT9 to Catawba River/SJ	0.32	N/A	No Study	1@8'x7' RCBC	45'x131' Dual Bridges	0' / 192'	Structure: $325K Mitigation: $200K Total: $525K	Structure: $2.2 mil Mitigation: $0 Total: $2.2 mil	WS-IV; CA	260' / 0 ac.	0' / 0.0 ac.	Perennial Bank width 7-9 ft., water depth 6-12 in.	N/A	3.2, 4.5

Notes:

Highlighted text represents updates/revisions made since CP 2A package distribution on May 24. CMP = Corrugated Metal Pipe, RCBC = Reinforced Concrete Box Culvert

[1] Mitigation costs are at the higher fee HUC at a 2:1 Ratio. $394 per linear foot of stream and $71,772 per acre of riparian wetland.

[2] Impacts are based on 25' beyond the slope stakes. There are additional wetland impacts beyond those documented near the major drainage structure areas.

[3] Only one bridge is feasible under Option 1C (split median concept) for eastbound traffic. Option 1C requires a 200' longer bridge over the Catawba River at Site 2. Option 1C accounts for this additional cost.

Other impacted streams that do not require a major drainage structure 72" or greater in diameter include: SD, SE, SF, SFF, SG, SI, and SK.

Impacted wetlands across all possible alternative scenarios include: WB, WS, WR, WN, WO, WQ, WL, WK, WI, and WJ.

All impacted streams and wetlands are illustrated on Figures 3.1-3.3.

Alternative 2 realignment 2B does not involve crossings that require a major drainage structure.

SITE 1

SITE 2

SITE 3

SITE 4

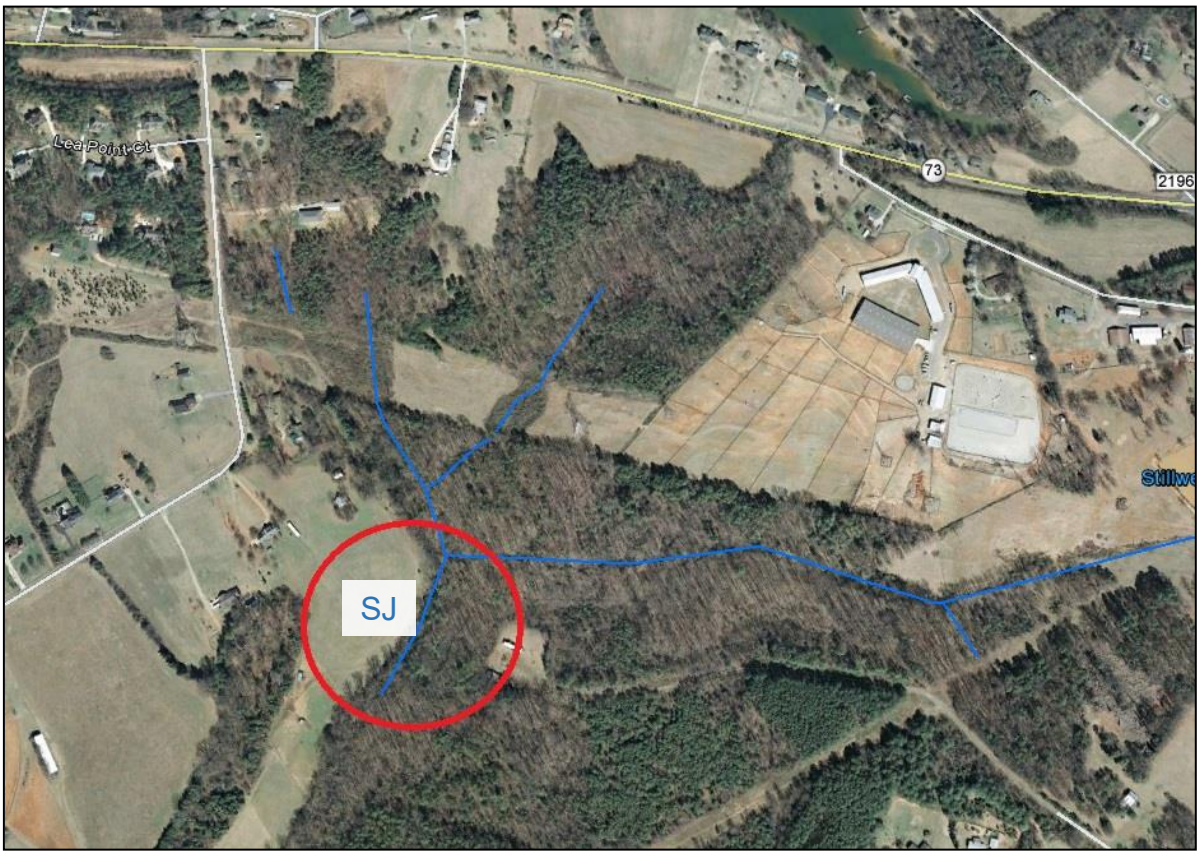
SITE 5

SITE 6

SITE 7

SITE 8


Hubbard Rd
SJ
Image Kucera Intl /Mecklenburg County
Google


Lea Point Ct
73
2196
SJ

NEPA/404 MERGER TEAM AGREEMENT

Concurrence Point No. 2A: *Bridging Decisions and Alignment Review*

PROJECT DESCRIPTION:
NC 73 Improvements from NC 16 to SR 2316 (Northcross Drive), Lincoln and Mecklenburg Counties
STIP Project Nos. R-5721 and U-5765

Recommended Major Structures

SITE NO.	MAP ID	EXISTING STRUCTURE NO., SIZE, TYPE	PROPOSED STRUCTURE SIZE, TYPE				
			Catawba River Options				Realignment Options*
			Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 2A
1	SDD	2@9'x8' RCBC	Replace with 2@9'x10' RCBC	Replace with 2@9'x10' RCBC	Retain and Extend Existing 2@9'x8' RCBC and Construct New 2@9'x10' RCBC	Replace with 2@9'x10' RCBC	
2	Catawba River	Bridge No. 50, 33'x883'	Replace with Dual Bridges 45'x883'	Replace with Dual Bridges 45'x883'	Replace with Dual Bridges 45'x883' 45'x1088'	Replace with Dual Bridges 45'x883'	
3	SBB	72" CMP	Retain Existing 72" CMP and Extend Upstream				
4	McDowell Creek	Culvert #83, 3@8'x9' RCBC	Retain Existing RCBC and Extend Each Side				
5	Caldwell Station Creek	Culvert #84, 2@10x8' RCBC	Retain Existing RCBC and Extend Each Side				
6	Caldwell Station Creek	Culvert #16, 2@10x8' RCBC	Retain Existing RCBC and Extend Each Side				
7	SCC	1@8'x5' RCBC	Retain Existing RCBC and Extend Upstream				
8	SJ	N/A					1@8'x7 RCBC

NOTES: CMP = Corrugated Metal Pipe, RCBC = Reinforced Concrete Box Culvert
See Figures 3.1-3.3 and 4.1-4.7 for Locations of Hydraulic Sites and Jurisdictional Streams
There are no major drainage structures for Alternative 2B.

The Project Team concurred on this date of June 6, 2018 with the structures to be considered for the proposed project as described above.

US Army Corps of Engineers

US Environmental Protection Agency

US Fish and Wildlife Service

NC Wildlife Resources Commission

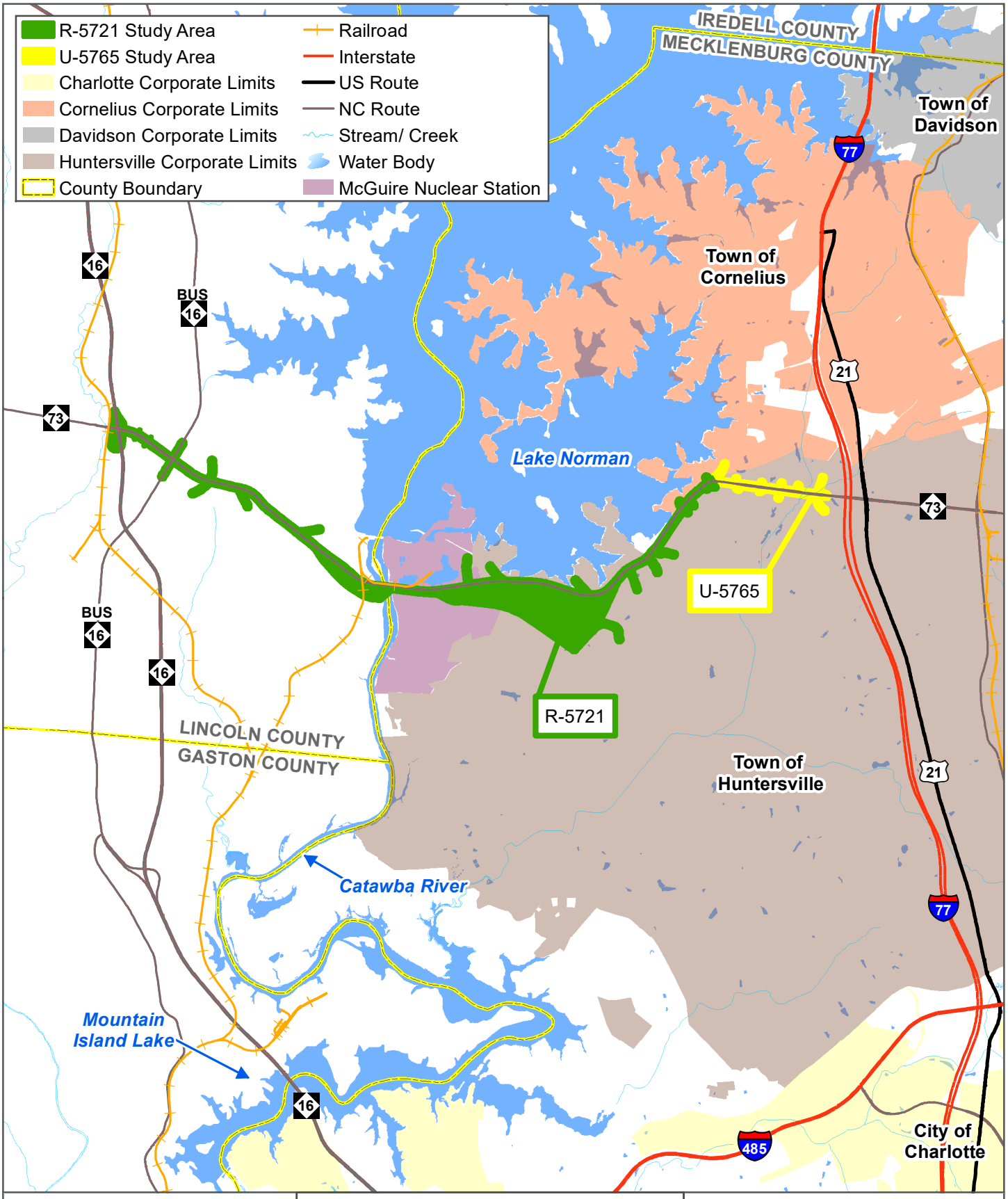
NC Division of Water Resources

NC Department of Natural and Cultural Resources

Charlotte Regional TPO

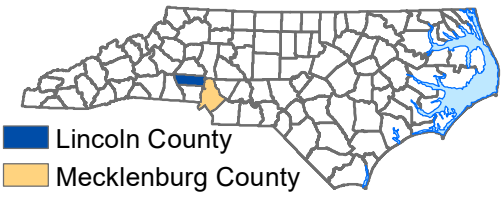
NC Department of Transportation

Gaston-Cleveland-Lincoln MPO



N

0 1 2 Miles



DATA SOURCES: Mecklenburg County, Lincoln County, NC OneMap, NCDOT GIS

FIGURE 1
PROJECT VICINITY MAP
R-5721 & U-5765
LINCOLN AND
MECKLENBURG COUNTIES

JUNE 2018

DATA SOURCES: Mecklenburg County, Lincoln County, NC OneMap, NCDOT GIS

Town of Cornelius

Lake Norman***

Begin Project

End Project

BUS 16

16

Club Dr (SR 1395)

Pilot Knob Rd (SR 1394)

Forney Creek

East Lincoln Fire Station

Cowans Ford Country Club

LINCOLN COUNTY

MECKLENBURG COUNTY

Cowans Ford Dam

McGuire Nuclear Station

Southlake Christian Academy

Windaliere Dr

Blythe Landing Community Park

West Catawba Ave (SR 5544)

Birkdale Commons Pkwy

McDowell Creek Greenway

Westmoreland Regional Park

Caldwell Station Creek

21

77

73

U-5765

Birkdale Golf Club

Norman View Ln

CMC Huntersville

Northcross Dr (SR 2316)

Charlotte Water Treatment Plant

Johnson Creek

Killian Farm Rd (SR 1396)

Hwy 73 Access Area

Duke Energy Power Station

R-5721

Caldwell Presbyterian Cemetery

Huntersville Fire Station No. 2

Future Park

Catawba River

Mountain Island Lake Forest

Beatties Ford Rd (SR 2128)

Gilead Rd (SR 2136)

McDowell Creek

Town of Huntersville

Stephen's Road Nature Preserve

Water Supply Watershed

Critical Water Supply Watershed

* Voluntary Agricultural District (VAD)
** Environmental Study Area (ESA)
*** Lake Norman is a 303(d) Water Body

0 0.5 1 Miles

Lincoln County

Mecklenburg County

Educational Facility
Place of Worship
Fire Station
Power Station
Cemetery
Medical Facility

Rail Crossing
303(d) Water
Stream/ Creek
Railroad
Greenway
VAD*

100 Year Floodplain
Water Body
Natural Heritage Area
Park
Golf Course
County Boundary

NWI Wetland
Study Area Expansion
R-5721 ESA**
U-5765 ESA**
McGuire Nuclear Station
Water Treatment Facility

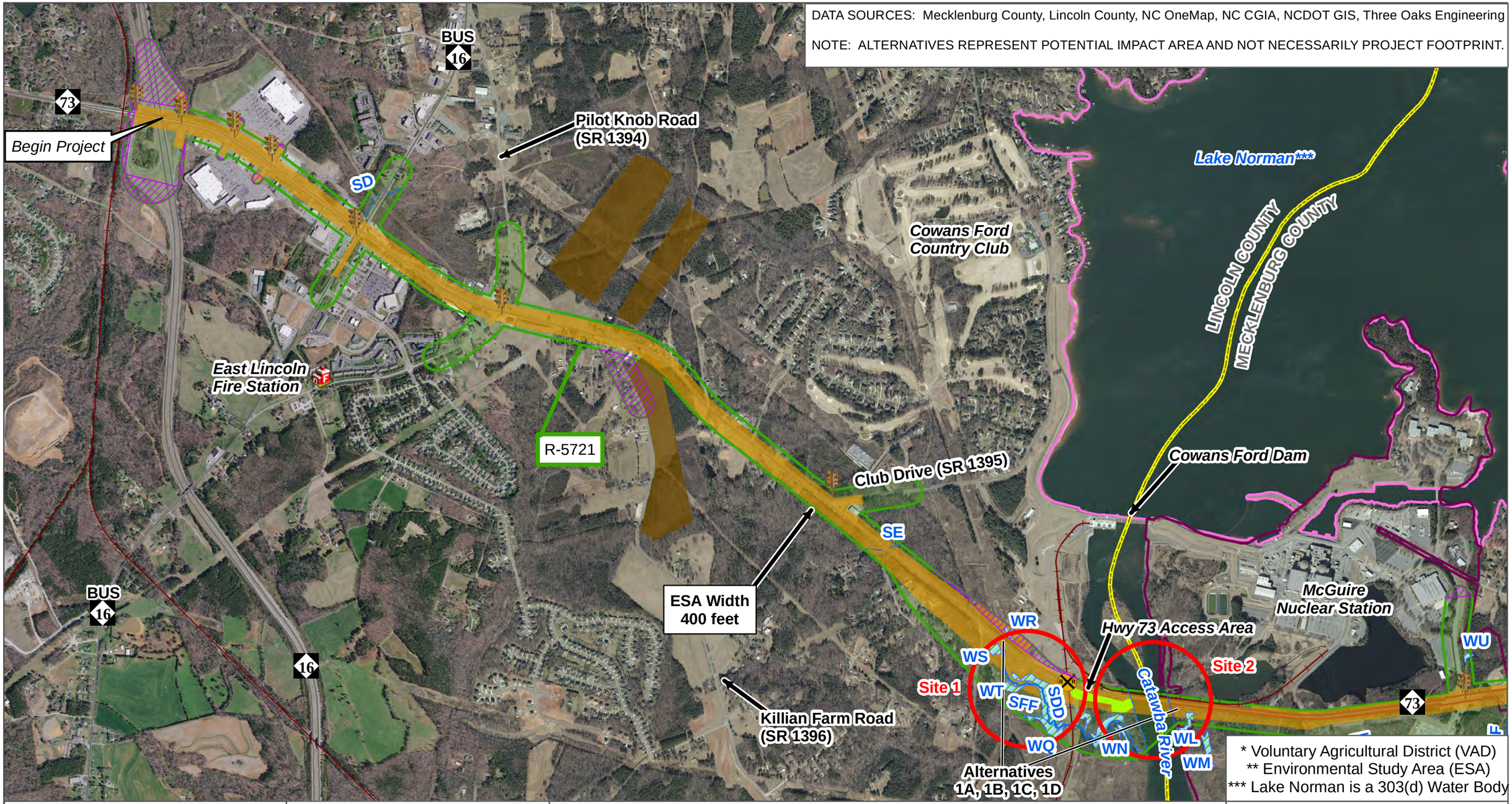
FIGURE 2
ENVIRONMENTAL STUDY AREAS AND FEATURES

R-5721 & U-5765
LINCOLN & MECKLENBURG COUNTIES

JUNE 2018

DATA SOURCES: Mecklenburg County, Lincoln County, NC OneMap, NC CGIA, NCDOT GIS, Three Oaks Engineering

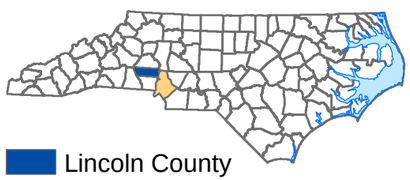
NOTE: ALTERNATIVES REPRESENT POTENTIAL IMPACT AREA AND NOT NECESSARILY PROJECT FOOTPRINT.



* Voluntary Agricultural District (VAD)
** Environmental Study Area (ESA)
*** Lake Norman is a 303(d) Water Body

N

0 0.25 0.5 Miles



Lincoln County
Mecklenburg County

- Educational Facility
- Place of Worship
- Fire Station
- Power Station
- Cemetery
- Medical Facility
- Traffic Signal
- Rail Crossing
- 303(d) Water
- Stream/ Creek
- Railroad
- VAD*
- Alternative 1
- Alternative 2A
- Alternative 2B
- Jurisdictional Pond
- Jurisdictional Wetland
- Water Treatment
- R-5721 ESA**
- U-5765 ESA**
- Park
- County Boundary
- McGuire Nuclear Station
- Study Area Expansion

FIGURE 3.1
ENVIRONMENTAL STUDY AREA AND PRELIMINARY ALTERNATIVES

R-5721 & U-5765
LINCOLN & MECKLENBURG COUNTIES

JUNE 2018

DATA SOURCES: Mecklenburg County, Lincoln County, NC OneMap, NC CGIA, NCDOT GIS, Three Oaks Engineering

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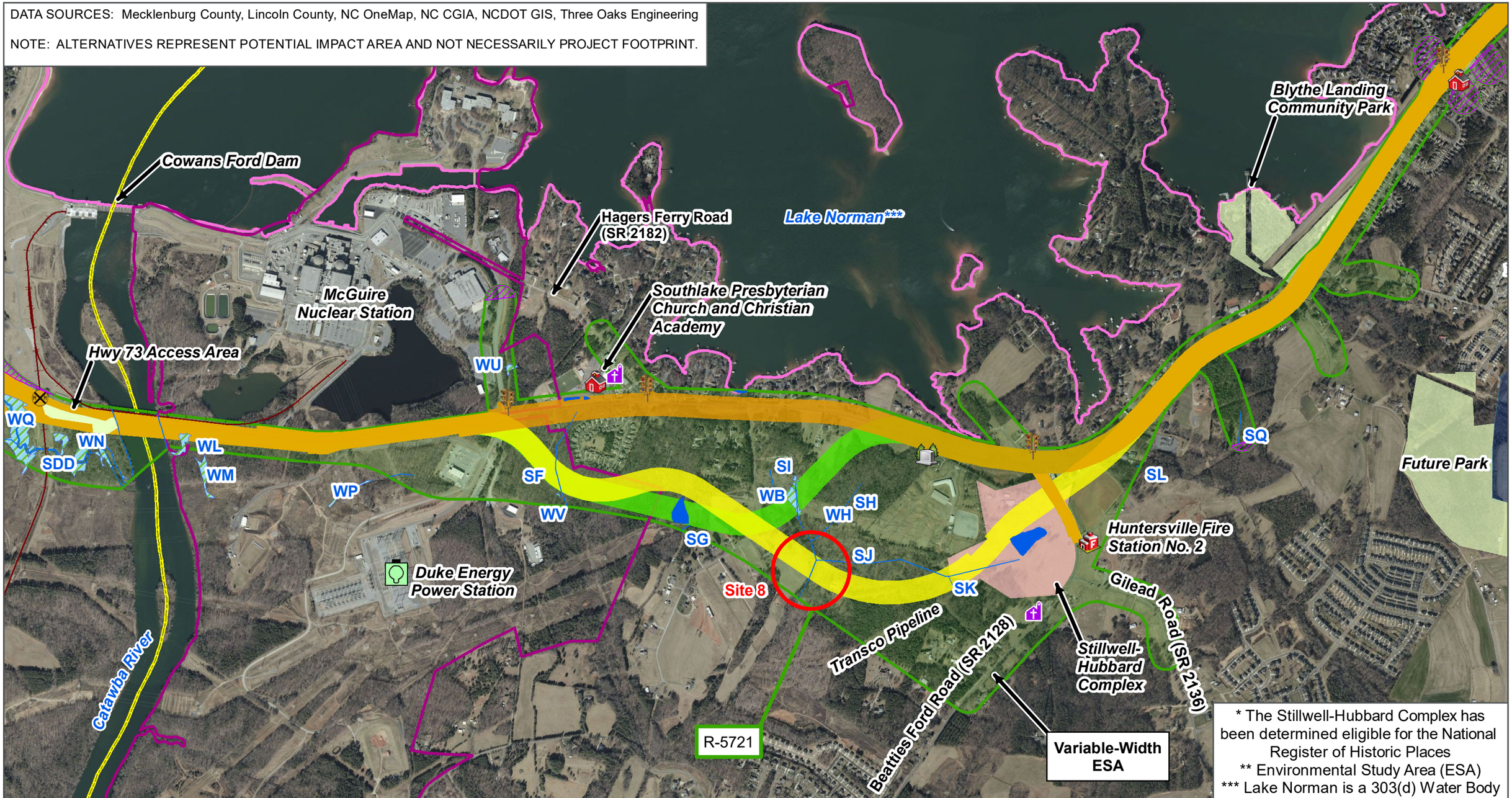
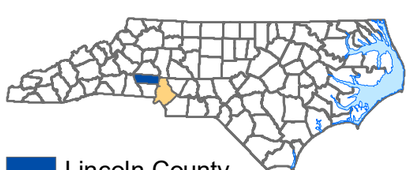


* The Stillwell-Hubbard Complex has been determined eligible for the National Register of Historic Places
** Environmental Study Area (ESA)
*** Lake Norman is a 303(d) Water Body

N

0 0.25 0.5 Miles



Lincoln County
Mecklenburg County

- Educational Facility
- Place of Worship
- Fire Station
- Power Station
- Cemetery
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- Study Area Expansion

ENVIRONMENTAL STUDY AREA AND PRELIMINARY ALTERNATIVES

R-5721 & U-5765
LINCOLN & MECKLENBURG COUNTIES

JUNE 2018

DATA SOURCES: Mecklenburg County, Lincoln County, NC OneMap, NC CGIA, NCDOT GIS, Three Oaks Engineering

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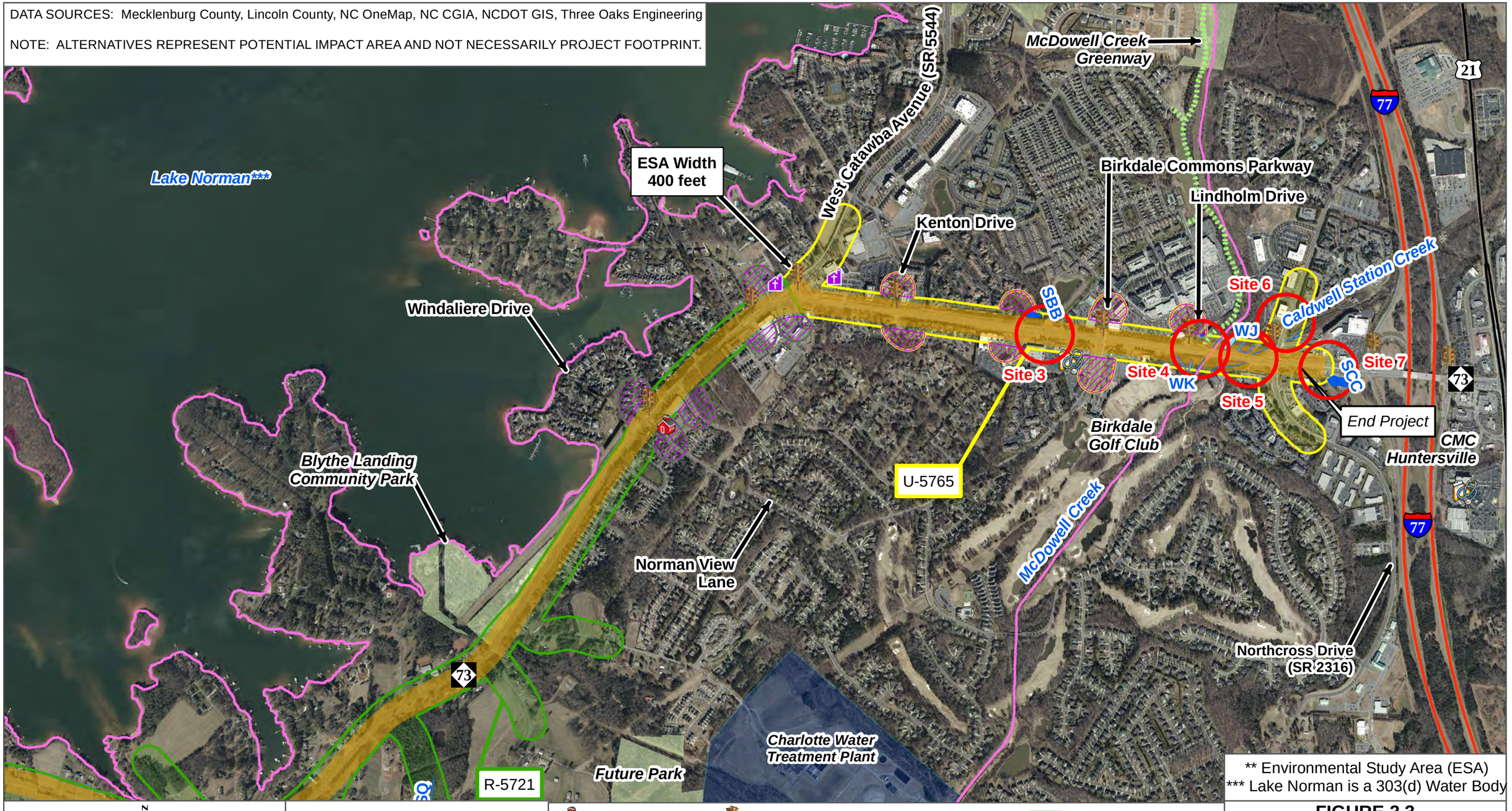


** Environmental Study Area (ESA)
*** Lake Norman is a 303(d) Water Body

N

0 0.25 0.5 Miles

Lincoln County
Mecklenburg County

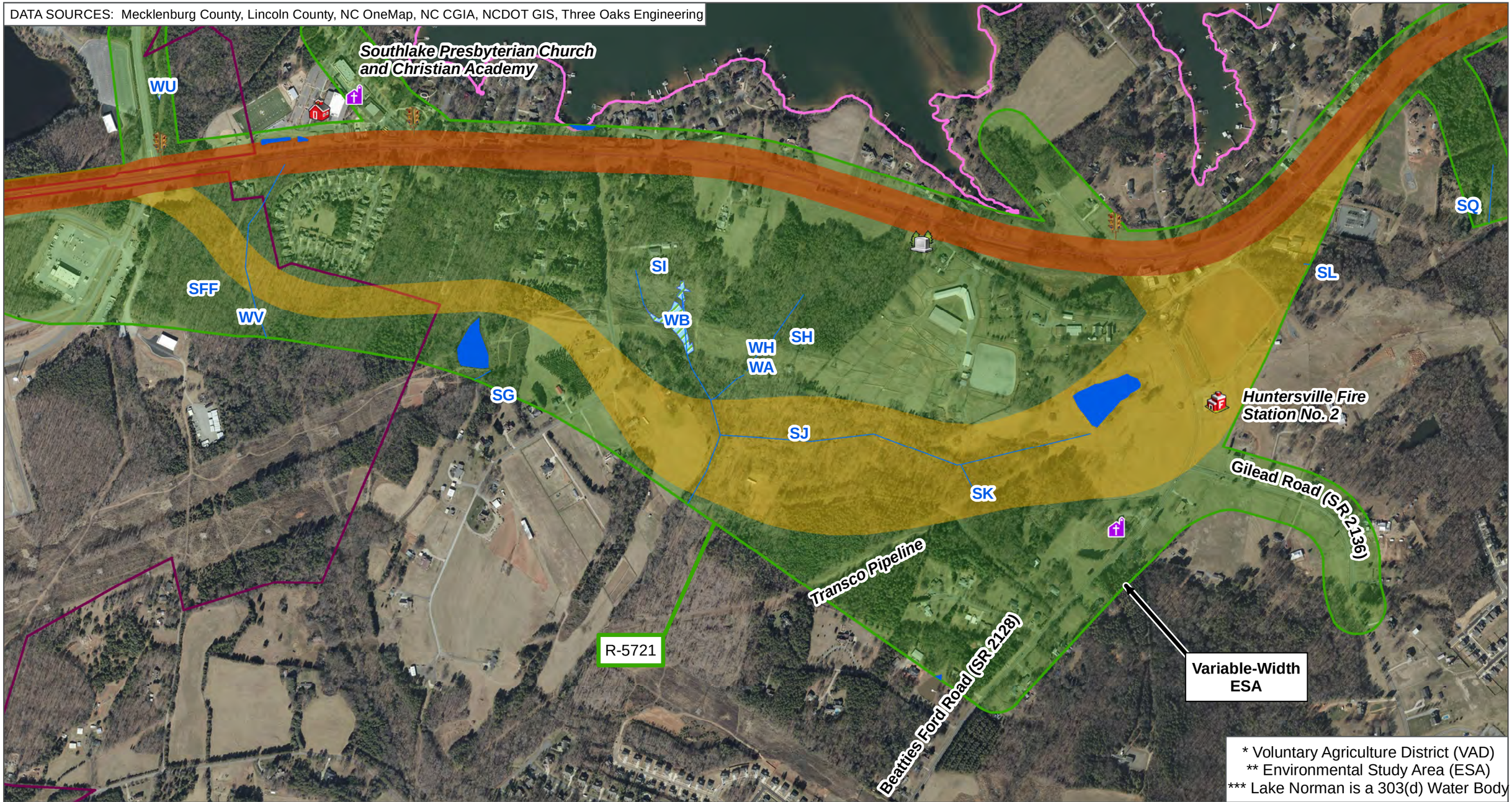
- Educational Facility
- Place of Worship
- Fire Station
- Power Station
- Cemetery
- Medical Facility
- Traffic Signal
- Rail Crossing
- 303(d) Water
- Stream/ Creek
- Railroad
- Greenway
- Alternative 1
- Alternative 2A
- Alternative 2B
- Jurisdictional Pond
- Jurisdictional Wetland
- Water Treatment
- R-5721 ESA**
- U-5765 ESA**
- Park
- County Boundary
- McGuire Nuclear Station
- Study Area Expansion

FIGURE 3.3
ENVIRONMENTAL STUDY AREA AND PRELIMINARY ALTERNATIVES

R-5721 & U-5765
LINCOLN & MECKLENBURG COUNTIES

JUNE 2018

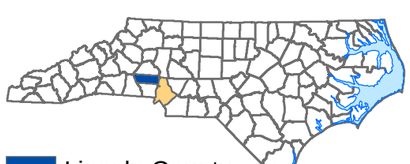
DATA SOURCES: Mecklenburg County, Lincoln County, NC OneMap, NC CGIA, NCDOT GIS, Three Oaks Engineering



* Voluntary Agriculture District (VAD)
** Environmental Study Area (ESA)
*** Lake Norman is a 303(d) Water Body

N

0 500 1,000
Feet



Lincoln County
Mecklenburg County

- Educational Facility
- Place of Worship
- Fire Station
- Power Station
- Cemetery
- Medical Facility
- Traffic Signal
- Rail Crossing
- 303(d) Water
- Stream/ Creek
- Railroad
- VAD*
- Alternative 1
- Alternative 2
- Jurisdictional Pond
- Jurisdictional Wetland
- Park
- Water Treatment Facility
- R-5710 ESA**
- R-5721 ESA**
- U-5765 ESA**
- County Boundary
- McGuire Nuclear Station

FIGURE 3.4
ESA AND PRELIMINARY ALTERNATIVES AS PRESENTED AT CP 1/2
R-5721, R-5710, & U-5765
LINCOLN & MECKLENBURG COUNTIES

JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R–5721A, R–5721B, U–5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 1A

LEGEND

- STUDY AREA
- PROPERTY LINES
- LAKES, RIVERS, STREAMS AND PONDS
- WETLAND BOUNDARIES
- PRELIMINARY CONSTRUCTION LIMITS
- PROPOSED STRUCTURE
- EXISTING STRUCTURES
- EXISTING STRUCTURES TO BE REMOVED
- TRANSMISSION TOWER

200′ 0′ 200′ 400′
GRAPHIC SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DATE OF ORTHOPHOTOGRAPHY = 2015

McGUIRE NUCLEAR STATION

McGUIRE NUCLEAR STATION RD

HAGERS FERRY

GENERAL DAVIDSON MONUMENT

DUKE SPUR RR TRACK

DUKE ENERGY POWER STATION

COWANS FORD DAM

CATAWBA RIVER

SITE 2– EXISTING 883′ STEEL GIRDER BRIDGE TO BE REPLACED

PROPOSED DUAL BRIDGES 45' x 883'

COWANS FORD COUNTRY CLUB

CLUB DR (SR 1395)

EASTLAKE LN

CATAWBA RIVER TRIBUTARY 6

SITE 1– EXISTING 2@9′X8′ RCBC TO BE REPLACED
Culvert: 2@9' x 10' RCBC
Bridge: 45'x407' Duals

COWANS FORD DAM OVERLOOK

Site 2

Site 1

COWANS FORD RD (SR 1543)

CASWELL RD (SR 1578)

SDD

APPROXIMATE NC 73 ACCESS AREA

AT GRADE RR CROSSING

MECKLENBURG COUNTY

LINCOLN COUNTY

73

13

FIGURE 4.1
ALTERNATIVE 1A
JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R–5721A, R–5721B, U–5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 1B

LEGEND

- STUDY AREA
- PROPERTY LINES
- LAKES, RIVERS, STREAMS AND PONDS
- WETLAND BOUNDARIES
- PRELIMINARY CONSTRUCTION LIMITS
- PROPOSED STRUCTURE
- EXISTING STRUCTURES
- EXISTING STRUCTURES TO BE REMOVED
- TRANSMISSION TOWER

200′ 0′ 200′ 400′
GRAPHIC SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DATE OF ORTHOPHOTOGRAPHY = 2015

McGUIRE NUCLEAR STATION

McGUIRE NUCLEAR STATION RD

HAGERS FERRY

GENERAL DAVIDSON MONUMENT

DUKE SPUR RR TRACK

COWANS FORD DAM

CATAWBA RIVER

SITE 2– EXISTING 883′ STEEL GIRDER BRIDGE TO BE REPLACED

PROPOSED DUAL BRIDGES 45′ x 883′

DUKE ENERGY POWER STATION

COWANS FORD COUNTRY CLUB

CLUB DR (SR 1395)

EASTLAKE LN

CATAWBA RIVER TRIBUTARY 6

SITE 1– EXISTING 2@9′X8′ RCBC TO BE REPLACED

COWANS FORD DAM OVERLOOK

Culvert: 2@9′ x 10′ RCBC
Bridge: 45′x1063′ Duals

Site 2

Site 1

SDD

APPROXIMATE NC 73 ACCESS AREA

MECKLENBURG COUNTY

LINCOLN COUNTY

COWANS FORD RD (SR 1543)

CASWELL RD (SR 1578)

13

73

FIGURE 4.2
ALTERNATIVE 1B
JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R–5721A, R–5721B, U–5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 1C

LEGEND

- STUDY AREA
- PROPERTY LINES
- LAKES, RIVERS, STREAMS AND PONDS
- WETLAND BOUNDARIES
- PRELIMINARY CONSTRUCTION LIMITS
- PROPOSED STRUCTURE
- EXISTING STRUCTURES
- EXISTING STRUCTURES TO BE REMOVED
- TRANSMISSION TOWER

200′ 0′ 200′ 400′
GRAPHIC SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DATE OF ORTHOPHOTOGRAPHY = 2015

McGUIRE NUCLEAR STATION

McGUIRE NUCLEAR STATION RD

HAGERS FERRY

GENERAL DAVIDSON MONUMENT

DUKE SPUR RR TRACK

DUKE ENERGY POWER STATION

COWANS FORD DAM

CATAWBA RIVER

SITE 2– EXISTING 883′ STEEL GIRDER BRIDGE TO BE REPLACED
PROPOSED DUAL BRIDGES 45' x 883' & 45' x 1088'

COWANS FORD COUNTRY CLUB

CLUB DR (SR 1395)

EASTLAKE LN

CATAWBA RIVER TRIBUTARY 6

SITE 1– EXTEND EXISTING 2@9′X8′ RCBC

COWANS FORD DAM OVERLOOK

73

13

Site 2

MECKLENBURG COUNTY

LINCOLN COUNTY

SDD

APPROXIMATE NC 73 ACCESS AREA

COWANS FORD RD (SR 1543)

CASWELL RD (SR 1578)

Culvert: 2@9' x 10' RCBC
Bridge: 45'x185' Single

Site 1

DUKE SPUR RR TRACK

FIGURE 4.3
ALTERNATIVE 1C
JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R-5721A, R-5721B, U-5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 1D

LEGEND

- STUDY AREA
- PROPERTY LINES
- LAKES, RIVERS, STREAMS AND PONDS
- WETLAND BOUNDARIES
- PRELIMINARY CONSTRUCTION LIMITS
- PROPOSED STRUCTURE
- EXISTING STRUCTURES
- EXISTING STRUCTURES TO BE REMOVED
- TRANSMISSION TOWER

200′ 0′ 200′ 400′
GRAPHIC SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DATE OF ORTHOPHOTOGRAPHY = 2015

COWANS FORD COUNTRY CLUB
CLUB DR (SR 1395)
CATAWBA RIVER TRIBUTARY 6
EASTLAKE LN
COWANS FORD DAM
CATAWBA RIVER
McGUIRE NUCLEAR STATION
McGUIRE NUCLEAR STATION RD
DUKE SPUR RR TRACK
GENERAL DAVIDSON MONUMENT
HAGERS FERRY
DUKE ENERGY POWER STATION
SITE 2– EXISTING 883′ STEEL GIRDER BRIDGE TO BE REPLACED
PROPOSED DUAL BRIDGES 45′ x 883′
SITE 1– EXISTING 2@9′X8′ RCBC TO BE REPLACED
Culvert: 2@9′ x 10′ RCBC
Bridge: 45′x454′ Duals
COWANS FORD DAM OVERLOOK
73
Site 2
Site 1
SDD
APPROXIMATE NC 73 ACCESS AREA
COWANS FORD RD (SR 1543)
CASWELL RD (SR 1578)
MECKLENBURG COUNTY
LINCOLN COUNTY

FIGURE 4.4
ALTERNATIVE 1D
JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R–5721A, R–5721B, U–5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 2A

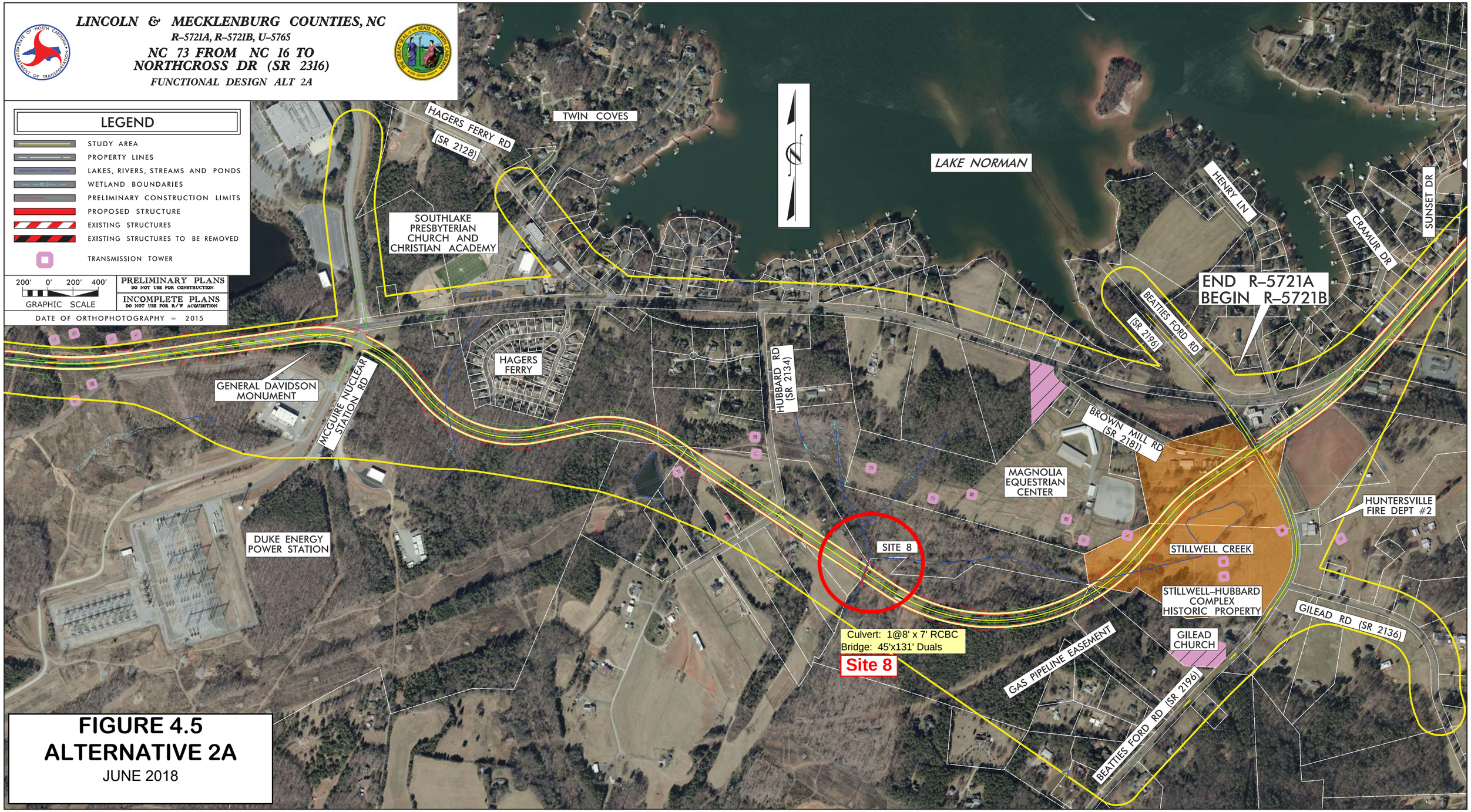


FIGURE 4.5
ALTERNATIVE 2A
JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R–5721A, R–5721B, U–5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 2B

LEGEND

- STUDY AREA
- PROPERTY LINES
- LAKES, RIVERS, STREAMS AND PONDS
- WETLAND BOUNDARIES
- PRELIMINARY CONSTRUCTION LIMITS
- PROPOSED STRUCTURE
- EXISTING STRUCTURES
- EXISTING STRUCTURES TO BE REMOVED
- TRANSMISSION TOWER

200′ 0′ 200′ 400′
GRAPHIC SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DATE OF ORTHOPHOTOGRAPHY = 2015

HAGERS FERRY RD (SR 2128)
TWIN COVES
LAKE NORMAN
HENRY LN
CRAMUR DR
SUNSET DR
SOUTHLAKE PRESBYTERIAN CHURCH AND CHRISTIAN ACADEMY
END R–5721A
BEGIN R–5721B
BEATTIES FORD RD (SR 2196)
GENERAL DAVIDSON MONUMENT
MCGUIRE NUCLEAR STATION RD
HAGERS FERRY
HUBBARD RD (SR 2134)
WB
SI
BROWN MILL RD (SR 2181)
MAGNOLIA EQUESTRIAN CENTER
HUNTERSVILLE FIRE DEPT #2
DUKE ENERGY POWER STATION
SITE 8
STILLWELL CREEK
STILLWELL–HUBBARD COMPLEX HISTORIC PROPERTY
GILEAD RD (SR 2136)
GILEAD CHURCH
GAS PIPELINE EASEMENT
BEATTIES FORD RD (SR 2196)

FIGURE 4.6
ALTERNATIVE 2B
JUNE 2018

LINCOLN & MECKLENBURG COUNTIES, NC

R–5721A, R–5721B, U–5765

NC 73 FROM NC 16 TO NORTHCROSS DR (SR 2316)

FUNCTIONAL DESIGN ALT 1

LEGEND

- STUDY AREA
- PROPERTY LINES
- LAKES, RIVERS, STREAMS AND PONDS
- WETLAND BOUNDARIES (W.L.B.)
- PRELIMINARY CONSTRUCTION LIMITS
- PROPOSED STRUCTURE
- EXISTING STRUCTURES
- TRANSMISSION TOWER

200′ 0′ 200′ 400′
GRAPHIC SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DATE OF ORTHOPHOTOGRAPHY = 2015

W CATAWBA AVE (SR 5544)
LAKE NORMAN BAPTIST CHURCH
CAMDEN SEDGEBROOK
BIRKDALE VILLAGE
REGAL CINEMAS
LINDHOLM DR
McDOWELL CREEK GREENWAY
NORTHCROSS DR (SR 2316)
SITE 3 –EXTEND EXISTING 72″ RCP
SBB
SITE 7 –EXTEND EXISTING 8′X5′ RCBC
Site 6
SITE 6 –EXTEND EXISTING 2@10′X8′ RCBC
Site 4
FUTURE TIP I-5715
NORMANS SHORE
GLENFURNESS DR
Site 3
BIRKDALE MEDICAL VILLAGE
END R–5721B
BEGIN U–5765
SHOPPES AT BIRKDALE
PEDESTRIAN CULVERT TO BE CONSIDERD
Site 5
Site 7
SCC
END U–5765
McDOWELL CREEK
CALDWELL STATION CREEK
FAIRWAYS AT BIRKDALE
SITE 4 –EXTEND EXISTING 3@8′X9′ RCBC
BIRKDALE COMMONS PRKY
SITE 5 –EXTEND EXISTING 2@10′X9′ RCBC
ARIUM LAKE NORMAN
BIRKDALE GOLF CLUB

FIGURE 4.7
ALTERNATIVE 1
APRIL 2018