

**Section 404/NEPA Merger Project Team Meeting
Concurrence Point 3
May 15, 2019**

NC 73 Widening
From SR 2693 (Davidson-Concord Road) to U.S. 29 (Concord Parkway)
Mecklenburg and Cabarrus Counties, North Carolina – NCDOT Division 10

STIP Project No. R-5706
WBS No. 46378.1.1



Meeting Agenda

1. Introductions and Sign-In
2. Purpose of Meeting
3. Project Description
4. Project Schedule and Cost
5. Merger History
 - a. Study Area Changes
6. Evaluation of Alternatives
 - a. Least Environmentally Damaging Practicable Alternative (LEDPA) Discussion
 - b. Review Concurrence Point 3 Signature Form
7. Next Steps

Purpose of the Meeting

The purpose of today's meeting is to discuss and select the least environmentally damaging practicable alternative (LEDPA) (CP3). Concurrence will be requested for CP3.

Project Description

STIP Project R-5706 proposes widening N.C. 73 (Davidson-Concord Road/Davidson Highway) from SR 2693 (Davidson-Concord Road) to U.S. 29 (Concord Parkway) to four-lanes. The project is comprised of two segments: R-5706A and R-5706B. R-5706A extends from SR 2693 (Davidson-Concord Road) to SR 1394 (Poplar Tent Road) near the Mecklenburg County – Cabarrus County line. R-5706B extends from SR 1394 (Poplar Tent Road) to U.S. 29 in Cabarrus County. The project will include bicycle and pedestrian accommodations. The Charlotte Regional Transportation Planning Organization (CRTPO) 2045 Metropolitan Transportation Plan (MTP) and in the Cabarrus-Rowan Metropolitan Planning Organization 2045 MTP include N.C. 73 widening from two to four lanes with a median, wide outside lanes, and sidewalks. The project area is shown on Figure 1 (Vicinity Map), Figure 2 (USGS Map) and Figure 3 (Environmental Features Maps).

R-5706 is state-funded. A State Environmental Assessment/Finding of No Significant Impact (EA/FONSI) document is being prepared.

Typical Sections

From Davidson-Concord Road to Poplar Tent Road, four 12-foot lanes are proposed with a 30-foot median, 10-foot multi-use path in both directions, and two-foot curb and gutter. From Poplar Tent Road to I-85, four 12-foot lanes are proposed with a 30-foot median, four-foot bike lanes in both directions, five-foot sidewalks in both directions, and two-foot curb and gutter. From I-85 to U.S. 29, four 11-foot lanes are proposed with 23-foot median, five-foot bike lanes in both directions, five-foot sidewalks in both directions, and 2-foot curb and gutter. Graphical representations of the typical sections are available in Appendix C.

Cultural Resources

There are four local historic landmarks within the project study area. These properties are identified as The Bradford Farm (MK1283), the Jesse and Mary K. Washam Farm (MK2455), the Cashion and Moore Family Cemetery (MK2916), and the Bradford Store (MK2811). Two of these properties, The Bradford Farm and the Jesse and Mary K. Washam Farm, are eligible for listing on the National Register of Historic Places (NRHP). The Determined Eligible sites are outside the permit areas. No archaeological sites are located in the project study area.

Project Schedule and Cost

The right-of-way acquisition and construction schedule for the project in the 2018-2027 STIP is shown in Table 1.

Table 1: Project Schedule

Next Steps	Date
Complete Environmental Studies	Ongoing
Evaluate Environmental Impacts and Select Preferred Alternative	FY 2019
Public Meeting to Inform Public of Preferred Alternative	FY 2020
Complete the Final Environmental Document	FY 2020
Begin Right-of-Way Acquisition	FY 2020
Begin Construction	FY 2022

The project is listed in 2018-2027 Final State Transportation Improvement Program (STIP; August 2017) as Project No. R-5706:

- Section A (Davidson-Concord Road to Poplar Tent Road) – Funded
- Section B (Poplar Tent Road to U.S. 29) – Funded

Table 2: Cost Estimates*

	Cost
Right-of-Way Acquisition	\$20.6 Million
Utilities	\$2.6 Million
Construction	\$117.8 Million
Prior Years Costs	\$0.75 Million
Total	\$141.75 Million

*Cost estimates are from NCDOT Current STIP (2018 – 2027)

The project is state-funded and a State Environmental Assessment/Finding of No Significant Impact is being prepared in compliance with North Carolina’s State Environmental Policy Act (SEPA).

The following STIP projects are located adjacent to R-5706:

- R-2632AB – proposed widening of N.C. 73 from N.C. 115 to SR 2693 (Davidson-Concord Road). Right-of-way and construction are scheduled for 2020 and 2022, respectively.
- U-6029 – proposed widening of SR 1394 (Poplar Tent Road) from Derita Road to N.C. 73. Right-of-way and construction are scheduled for 2023 and 2025, respectively.
- B-5136 – proposed replacement of Bridge No. 66 and Bridge No. 69 over the Norfolk Southern Railroad. Under construction.

The R-5706 study area encompasses various land uses. Don T. Howell Reservoir (also referred to as Coddle Creek Reservoir) is in the middle of the project corridor and is managed by the Water and Sewer Authority of Cabarrus County. West of Don T. Howell Reservoir, land use has historically been rural and agricultural. Recently, subdivisions and shopping centers have been developed or are planned to be developed in this area. Land use south of the reservoir is primarily undeveloped or low-density residential. This land use is expected to remain the same for the foreseeable future. Between Kannapolis Parkway and I-85 land use is primarily commercial with industrial sites and large-scale distribution facilities. The study area between I-85 and U.S. 29 is fully developed with subdivisions and multi-family housing. While commercial sites are scattered throughout this segment, commercial development is primarily concentrated east, near the intersection with U.S. 29.

Merger History

Concurrence Point 1 - Purpose and Need and Study Area

The Merger Team met and concurred on the project Purpose and Need and Study Area boundary on July 19, 2018.

The need for the project is as follows:

- The current year (2017) annual average daily traffic (AADT) along N.C. 73 ranges from 12,800 vehicles per day (vpd) to 24,800 vpd. In 2040, N.C. 73 is expected to carry between 22,400 vpd and 46,800 vpd. Population and employment growth will increase travel demand along N.C. 73, with most sections of the roadway forecasted to increase in traffic volumes by approximately 75-80 percent in 2040.
- N.C. 73 is currently congested during peak commuting hours with poor level of service (LOS). The corridor currently operates at LOS E during AM and PM peak hours. Without the proposed improvements, the corridor will continue to operate at LOS E in 2040 during peak hours. With the proposed improvements, the corridor is expected to operate at LOS C during AM peak hour and LOS D during PM peak hour.
- The existing N.C. 73 corridor currently experiences safety issues likely associated with intersection conflicts and high traffic volumes. The total and non-fatal injury crash rates along N.C. 73 exceeded the statewide and critical crash rates for the five-year period analyzed (October 2012 to September 2017). The most widely-occurring type of crash along the corridor, including at signalized intersections, was rear-end crashes, which are typically associated with congested conditions.
- West of I-85, N.C. 73 provides the only direct route between the Davidson, Cornelius, Huntersville and western Kannapolis areas and I-85 north of I-485 in the Charlotte region. Other east-west connections are provided through local routes, but these are often indirect and primarily serve local traffic.
- East of I-85, N.C. 73 is a critical route serving Concord's and Kannapolis' mobility between I-85 and U.S. 29.

The purpose of the project is as follows:

- The purpose of the project is to increase mobility between SR 2693 (Davidson-Concord Road) and I-85 and between U.S. 29 (Concord Parkway North) and I-85, reduce congestion at the intersections, improve traffic operations along N.C. 73 with an operational target of LOS D in the 2040 design year, and provide bicycle and pedestrian facilities.

The study area boundary is shown in Figure 2 and is described as follows:

- The study area extends along N.C. 73 from Davidson-Concord Road to U.S. 29, generally encompassing an area 250 feet on each side of the existing road centerline. To incorporate potential new location alignments south of Howell Reservoir, the study area expands southward (to a width of as much as one mile) between Village Commons Street Northwest and Biscayne Drive. The study area extends between approximately 1,000 and 2,800 feet along numerous y-lines and has varying widths along the y-lines.

Study Area Changes

The Study Area has been expanded since CP1 to incorporate the following additional areas:

- Expansion in northeast quadrant of NC 73 and Kannapolis Parkway and on Macedonia Church Road to incorporate potential future quadrant roadway.
- Slight expansion on Stanley McElrath Road to incorporate the slope stake plus forty feet limits
- Slight expansion on Odell School Road and Untz Road to incorporate the slope stake plus forty feet limits along the southern-most project limits south of Don T. Howell Reservoir.
- Expansion on Central Drive NW on the east side of the northern roundabout to incorporate the slope stake plus forty feet limits.
- Expansion in the southwest quadrant of NC 73 and Poplar Tent Road to incorporate slope stakes plus forty feet limits.

Concurrence Point 2 - Design Alternatives for Detailed Study

The merger team met and concurred on the project design alternatives for detailed study on October 10, 2018.

Due to the proximity of existing resources along the project corridor, a Best Fit alignment was designed and studied for the portion of the project on existing alignment. The alternatives differ in how they cross (or do not cross) the Don T. Howell Reservoir.

The alternatives, as agreed in Concurrence Point 2, are described below.

- **Alternative 1** proposes a Best Fit alignment from Davidson-Concord Road to U.S. 29 with an elevated structure to the south of the existing causeway over Howell Reservoir.
- **Alternative 2** proposes a Best Fit alignment from Davidson-Concord Road to U.S. 29 and widening the existing causeway over Howell Reservoir.
- **Alternative 3** proposes a Best Fit alignment beginning at Davidson-Concord Road with the alignment travelling south of the existing N.C. 73 centerline beginning approximately 1,700 feet west of the N.C. 73 and Odell School Road intersection before meeting Odell School Road approximately 1,900 feet south of the N.C. 73 and Odell School Road intersection. The alignment begins to follow the existing centerlines of Odell School Road, Untz Road and La Forest Lane until approximately 1,000 feet south of the existing N.C. 73 centerline before extending northeast through existing development and realigning with the existing N.C. 73 centerline approximately 1,300 feet east of the N.C. 73 and Riding School Lane intersection and resuming a Best Fit alignment ending at U.S. 29.
- **Alternative 4** proposes a Best Fit alignment beginning at Davidson-Concord Road with the alignment travelling south of the existing centerline beginning approximately 800 feet east of the N.C. 73 and Odell School Road intersection and extending between approximately 1,000-2,000 feet south of the existing N.C. 73 centerline before realigning with the existing N.C. 73 centerline at the intersection of N.C. 73 and La Forest Lane and resuming a Best Fit alignment ending at U.S. 29.

A No Build alternative would maintain existing facilities. Impacts to the natural environment and human environment would not occur; however, a no build alternative does not address the purpose and need for the project.

The I-85 interchange at NC 73 was previously converted to a Diverging Diamond Interchange as part of the I-85 widening and was completed in 2014. The R-5706 design would tie to this previously constructed project. Improvements to the I-85 northbound ramp will be conducted as part of R-5706. These improvements are being evaluated and additional impacts to jurisdictional resources are not anticipated at this time.

Concurrent Point 2A – Alignment Review and Bridging Decisions

The merger team met and concurred on bridging and alignment decisions on October 10, 2018. See Table 3 below

Table 3: Bridging Decisions

Site Number	Stream ID	Stream Name	Stream Class	FEMA Study Type	Drainage Area (mi ²)	Existing Structure	Proposed Structure
1	RR	Rocky River	C, 303d (Benthos)	Detailed	40.8	4 Span, 181' OAL	3 Span, 2@75', 1@50' (200' OAL)
2	SBA	UT to Rocky River	C	Limited	1.26	Double Barrel CMPs	2@ 8' x 8' RCBC
3	CC	Coddle Creek	C, 303d (Benthos)	Detailed	47.8	4 Span, 181 OAL	3 Span, 1@ 70', 1@90', 1@50' (210' OAL)
4	AR	Afton Run	C	Detailed	3.93	2@ 9' x 9' RCBC	1 Span, 70' OAL
5	IB	Irish Buffalo Creek	C, 303d (Benthos)	Detailed	26.6	3 Span, 160' OAL	3 Span, 1@55', 1@75', 1@55' (185' OAL)
6	SCF	UT to Irish Buffalo	C	None	0.50	1@ 9' x 8' RCBC	1@ 10' x 8' RCBC
7	SCH	Stricker Branch	C	Detailed	0.52	2@ 5' x 5' RCBC	2@ 8' x 5' RCBC

Public Involvement Prior to Concurrence Point 3

Two public information meetings were held for STIP Project No R-5706. The meetings for R-5706 were combined with STIP Project No. R-2632AB. The meetings were held on January 28 and January 29, 2019 at the following locations:

- January 28, 2019 at Lake Norman Church of Christ, 17634 Caldwell Station Road, Huntersville, NC 28078
- January 29, 2019 at Connect Christian Church, 3101 Davidson Highway, Concord, NC 28027

The meetings were an open-house format held from 4 p.m. to 7 p.m. The purpose of these meetings was to provide a forum for the public to review proposed improvements to N.C. 73 and receive feedback

from the public. Three hundred and sixty-two people signed in for the open-house public information meetings. Attendees received a handout with information about each project and could view the digital project maps across two identical sets of four smartboards on display for the public. Project staff were available at the displays to discuss the improvements and answer questions. The Draft Public Comment Summary Memorandum can be found in Appendix A.

Prior to the public meetings, an informational meeting was held for local officials. A presentation was given and an opportunity for questions from local officials followed. Forty-four local officials signed in for the local officials informational meetings.

One hundred and twenty comment forms, 18 letters, and 106 emails were collected during the comment period. Additionally, project staff corresponded with 13 citizens through email and 55 by phone. A petition was sent to NCDOT staff containing over 220 signatures opposing Alternatives 3 and 4.

Project staff received comments from three Elected Officials, one municipal staff member, and one agency:

- Proposal for N.C. 73 should not unnecessarily or irrevocably harm existing residents or property owners [*Richard Hudson – US Congressman*]
- Opposition to routes located through existing neighborhoods [*Paul R. Newton – NC State Senator*]
- Opposition to routes located through existing neighborhoods [*Steve Morris – Chairman Board of Commissioners, Cabarrus County*]
- DOT is encouraged to look at how bicycle travel is supposed to work at intersections [*Irene Sacks – Director of Economic & Community Development, City of Kannapolis*]
- With the proper planning and protections, Alternatives 1 and 2 are the most appropriate and that Alternatives 3 and 4 should be rejected. [*Water and Sewer Authority of Cabarrus County*]

The comment forms asked citizens to rank the four alternatives pertaining to R-5706. Table 4 summarizes public responses.

Major topics of concern expressed through public comments include:

- Preferences for alternatives
- Property impacts
- Community impacts
- Environmental impacts
- Residential/business access
- Proposed intersection designs
- Superstreet design
- Traffic noise/safety impacts

Table 4: Public Ranking of Alternatives

Rank	Alternative 1	Alternative 2	Alternative 3	Alternative 4
1 (Best)	83	23	5	5
2	12	57	4	1
3	<i>No responses recorded</i>	2	4	55
4 (Worst)	2	1	56	5

If an “x” was indicated next to an alternative on the comment sheet, that alternative was recorded as ranked 1. If “No” was indicated, it was recorded as ranked 4.

Coordination with Local Stakeholders

Local stakeholders have been engaged throughout the planning process. Stakeholders have provided information on local planning efforts and goals, which have informed the proposed typical section, alignment alternatives and intersection alternatives being analyzed.

The following meetings or presentations have taken place:

- Presentations to the N.C. 73 Council of Planning in September 2017, February 2018, October 2018, and January 2019 (by conference call).
- Meeting with officials from the City of Concord, City of Kannapolis and Cabarrus County in March 2018, October 2018, and December 2018.
- Meeting with officials from the Town of Huntersville and Town of Davidson in March 2018 and October 2018.
- Meeting with the Water and Sewer Authority of Cabarrus County in March 2018 to discuss Don T. Howell Reservoir.
- Local Officials Meetings on January 28 and 29, 2019 prior to the public meetings.
- Meeting with the Mecklenburg Historic Landmarks Commission in March 2019.

Coordination with North Carolina Department of Environmental Quality

Three meetings have been held with the NCDEQ to discuss the alternatives in the vicinity of the Don T. Howell Reservoir.

- A meeting was held in August 2018 between the Project Team and the NCDEQ Division of Energy, Mineral, and Land Resources (DEMLR) Mooresville Regional Office (MRO) for preliminary discussions regarding how the project will affect Don T. Howell Reservoir and the associated dam. Widening to the north of the existing mainline would impact the dam, which would require a Dam Safety Permit. DEMLR indicated they would like to review plans, even if impacts to the dam do not take place, to understand impact to the causeway and existing culverts.

- A meeting was held in March 2019 between the Project Team and the DEMLR MRO to review the four alternatives and potential impact to Don T. Howell Reservoir, including bridging options associated with Alternative 1 and the nature of widening the existing causeway with Alternative 2. DEMLR noted impacts to the causeway may be considered an impact to the dam based in feedback from the Dam Safety Office. DEMLR recommended having a further meeting with the Dam Safety Office.
- A meeting was held in March 2019 with NCDEQ Dam Safety in Raleigh to discuss impacts to the Don T. Howell Reservoir dam related to Alternatives 1 and 2. NCDEQ Dam Safety noted concerns about drainage, the relocation of water/sewer facilities on the causeway, and widening to the south that would create a new dam situation and raising water levels at the impounded areas south of NC 73. No major concerns were stated on Alternative 1 (bridge to the south of the causeway). NCDEQ Dam Safety will need to review the plans as they are developed.

Environmental Justice

Based on Census demographic data and input from local planners, Environmental Justice populations are present in the study area and are likely concentrated east of I-85 and surrounding the Poplar Tent intersection. Targeted outreach strategies will be developed to evaluate potential impacts to Environmental Justice populations. Potential residential and business relocation information for the entire R-5706 project is included in Table 6.

Concurrence Point 3 – Least Environmentally Damaging Practicable Alternative/Preferred Alternative Selection

Table 5: Potential Alternatives Impacts (slope stakes + 25')

Resource/Affected Environment	Alternative 1	Alternative 2	Alternative 3	Alternative 4
General Project Information				
Length of Project (miles)	11.1	11.1	11.9 (New location)	11.5 (New location)
Project Costs				
Construction Cost	\$118.4M	\$113.1M	\$109.1M	\$106.6M
Right-of-Way Cost	\$72.4M	\$73.0M	\$81.5M	\$74.7M
Utilities Cost	TBD	TBD	TBD	TBD
Cultural Resources				
Historic Properties	2 – Jesse and Mary K. Washam Farm, Bradford Farm (Determined Eligible for National Register of Historic Places)			
Local Historic Landmarks	4 – Jesse and Mary K. Washam Farm, Bradford Farm, Bradford Store, Cashion and Moore Cemetery			
Human Environment				
Churches*	3	3	3	3
Cemetery*	1	1	1	1

Table 5: Potential Alternatives Impacts (slope stakes + 25')

Resource/Affected Environment	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Human Environment				
Schools*	3	3	3	3
Public Parks	3 – White Community Park, West Branch Nature Preserve, Bradford Park			
Planned Greenways	3	3	3	3
High % Special Populations	Language Assistance (Spanish), Minority, Poverty			
Noise Receptors	1200	1200	1260	1180
Traffic Noise	<i>To be determined</i>			
Natural Environment				
Threatened or Endangered Species with a 'No Effect' Biological Conclusion	5 - Schweinitz's sunflower, Smooth coneflower, Michaux's sumac, Carolina heelsplitter, Rusty-patched bumblebee (Update of T&E plan surveys in expanded study area around several Y-lines is on-going. These expanded areas are identical for all alternatives)			
Threatened or Endangered Species with a 'Unresolved' Biological Conclusion	1 - Northern long-eared bat (consistent with 4(d) Rule)			
Stream impacts (linear feet)	2,538	2,538	2,657	3,054
Wetland impacts (acres)	0.415	0.415	0.575	0.436
Open Water impacts (acres)	0.07	3.46	0.07	0.08
Water Supply Watersheds, Critical Area	Coddle Creek			
Water Supply Watersheds, Critical Area impacts (acres)**	28.0	32.0	8.0	42.0
Riparian Buffer Rules	No State-mandated riparian buffers			
Physical Environment				
Haz Mat (# suspected/known sites)	24	24	25	24
Major Utilities	Water, sewer, electric, power transmission corridors and towers, phone			

* Does not indicate relocation – only potential impact.

** Includes existing pavement and built-upon areas

Table 6: Potential Relocations
(from EIS Relocation Report)

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Estimated Minority Displacements				
Residential Relocations (# Minority)	79 (10)	79 (10)	87 (10)	79 (10)
Business Relocations (# Minority)	13 (1)	13 (1)	12 (1)	13* (1)
Farm Relocations	N/A	N/A	N/A	N/A
Non-profit Relocations	1	1	N/A	1
Total	93	93	99	93
Income Level				
\$0 - \$15,000	0	0	0	0
\$15,000 - \$25,000	7	7	7	7
\$25,000 - \$35,000	12	12	12	12
\$35,000 - \$50,000	20	20	22	20
\$50,000 +	40	40	46	40
Total	79	79	87	79
Dwelling Value – Owners				
\$0 - \$20,000	0	0	0	0
\$20,000 - \$40,000	0	0	0	0
\$40,000 - \$70,000	7	7	7	7
\$70,000 - \$100,000	5	5	5	5
\$100,000 +	24	24	32	22
Total	36	36	44	34
Rental Amount				
\$0 - \$150	0	0	0	0
\$150 - \$250	0	0	0	0
\$250 - \$400	4	4	4	4
\$400 - \$600	10	10	10	10
\$600 +	29	29	29	31
Total	43	43	43	45

*14 identified in ROW cost estimate.

Table 7: Potential Jurisdictional Stream Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	Classification	Compensatory Mitigation Required	River Basin Buffer	Impacts (linear feet)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
Afton Run	3O, 3P	Perennial	Yes	NA	0	0	0	0
Coddle Creek	3I	Perennial	Yes	NA	0	0	0	0
Irish Buffalo	3S	Perennial	Yes	NA	0	0	0	0
Rocky River	3E	Perennial	Yes	NA	0	0	0	0
SA	3A	Intermittent	Yes	NA	0	0	0	0
SJ	3H, 3J	Intermittent/Perennial	Yes	NA	0	0	0	0
SK	3H, 3J, 3L	Perennial	Yes	NA	0	0	0	223
SM	3J, 3K, 3L	Intermittent	Yes	NA	0	0	0	0
SN	3J, 3K, 3L	Intermittent	Yes	NA	0	0	0	0
SO	3H, 3J	Perennial	Yes	NA	0	0	0	12
SP	3N, 3O	Intermittent	Yes	NA	0	0	0	0
SQ	3N, 3O	Intermittent	Yes	NA	164	164	164	164
SR/SR2	3D, 3E	Intermittent/Perennial	Yes	NA	360	360	360	360
SS	3D, 3E	Perennial	Yes	NA	129	129	129	129
ST	3D, 3E	Perennial	Yes	NA	309	309	309	309
SBA	3E, 3F	Perennial	Yes	NA	176	176	176	176
SBC	3F	Intermittent	Yes	NA	0	0	0	0
SBD	3K	Intermittent	Yes	NA	0	0	0	0
SBE	3K	Intermittent	Yes	NA	0	0	0	0
SBF	3K	Intermittent	Yes	NA	0	0	0	0
SBG	3F, 3G, 3K	Perennial	Yes	NA	0	0	0	0
SBG2	3F, 3G, 3K	Intermittent	Yes	NA	0	0	0	0
SBH	3F	Intermittent	Yes	NA	0	0	0	0
SBI	3F, 3G, 3K	Intermittent	Yes	NA	0	0	0	0
SBJ	3G, 3H, 3I, 3J	Perennial	Yes	NA	0	0	0	281
SBK	3I, 3J	Intermittent	Yes	NA	0	0	0	0
SBL	3I, 3M	Intermittent	Yes	NA	0	0	0	0
SBM	3I, 3M, 3N	Intermittent	Yes	NA	0	0	121	0
SBM2	3I, 3M, 3N	Perennial	Yes	NA	0	0	0	0
SBN	3M, 3N	Perennial	Yes	NA	0	0	0	0
SBP	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0

Table 7: Potential Jurisdictional Stream Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	Classification	Compensatory Mitigation Required	River Basin Buffer	Impacts (linear feet)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
SBQ	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0
SBR	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0
SBS	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0
SBT	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0
SBU	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0
SBV	3P	Intermittent	Yes	NA	0	0	0	0
SBW	Delineated but not shown on maps	Intermittent	Yes	NA	0	0	0	0
SBY	3Q, 3R	Intermittent	Yes	NA	28	28	28	28
SBZ	3R, 3S	Intermittent	Yes	NA	40	40	40	40
SCA	3O, 3P	Intermittent	Yes	NA	65	65	65	65
SCB	3O, 3P	Perennial	Yes	NA	0	0	0	0
SCC	3O, 3P	Perennial	Yes	NA	0	0	0	0
SCD	3R	Intermittent	Yes	NA	0	0	0	0
SCD2	3S, 3T	Intermittent	Yes	NA	0	0	0	0
SCE	3S	Intermittent	Yes	NA	0	0	0	0
SCF	3T	Perennial	Yes	NA	184	184	184	184
SCH	3U	Perennial	Yes	NA	0	0	0	0
SCH3	3U	Perennial	Yes	NA	203	203	203	203
SDA	3T, 3U	Intermittent/Perennial	Yes	NA	483	483	483	483
SDA2	3T, 3U	Intermittent/Perennial	Yes	NA	0	0	0	0
SDB	3T, 3U	Intermittent	Yes	NA	0	0	0	0
SDC	3U	Perennial	Yes	NA	11	11	11	11
SDD	3E, 3F	Intermittent	Yes	NA	0	0	0	0
SDD2	3E, 3F	Intermittent	Yes	NA	0	0	0	0

Table 7: Potential Jurisdictional Stream Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	Classification	Compensatory Mitigation Required	River Basin Buffer	Impacts (linear feet)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
SHW	3U	Intermittent	Yes	NA	136	136	136	136
Approximate Stream near International Drive NW	3Q, 3R	Unknown	Unknown	Unknown	250	250	250	250
Total					2,538	2,538	2,657	3,054

Table 8: Potential Jurisdictional Wetland Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	NC WAM Classification	Hydrologic Classification	NC WAM Ratings ¹	Impacts (acres)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
WG	3C, 3D	Headwater Forest	Riparian	L-MLL	0.02	0.02	0.02	0.02
WI	3D, 3E	Bottomland Hardwood Forest	Riparian	M-MMM	0.08	0.08	0.08	0.08
WK	3E, 3F	Headwater Forest	Riparian	M-MML	0	0	0	0
WM	3D, 3E	Riverine Swamp Forest	Riparian	WM-1, H-HHM	0.2	0.2	0.2	0.2
				WM-2, L-LML				
WO	3C, 3D	Headwater Forest	Riparian	H-HHL	0.01	0.01	0.01	0.01
WAB	3F, 3G, 3K	Headwater Forest	Riparian	M-MML	0	0	0	0
WAC	3F, 3G, 3K	Headwater Forest	Riparian	L-LLL	0	0	0	0
WAD	3F, 3G	Riverine Swamp Forest	Riparian	M-MMM	0	0	0.15	0
WAE	3H	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WAF	3H	Riverine Swamp Forest	Riparian	H-HHH	0	0	0	0
WAG	3H	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WAH	3H	Headwater Forest	Riparian	H-HHH	0	0	0	0
WAI	3G, 3H	Headwater Forest	Riparian	H-HHH	0	0	0	0
WAJ	3G, 3H	Headwater Forest	Riparian	H-HHH	0	0	0	0
WAK	3K	Headwater Forest	Riparian	L-LLM	0	0	0	0
WAL	3K, 3L	Headwater Forest	Riparian	M-MMH	0	0	0	0
WAM	3K, 3L	Headwater Forest	Riparian	M-MMH	0	0	0	0
WAN	3K, 3L	Headwater Forest	Riparian	L-LLM	0	0	0	0
WAO	3G, 3J	Headwater Forest	Riparian	H-HHH	0	0	0	0
WAP	3J	Headwater Forest	Riparian	H-HHH	0	0	0	0
WAQ	3G, 3J, 3K, 3L	Riverine Swamp Forest	Riparian	L-MLL	0	0	0	0
WAR	3J	Headwater Forest	Riparian	H-HHM	0	0	0	0.01

Table 8: Potential Jurisdictional Wetland Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	NC WAM Classification	Hydrologic Classification	NC WAM Ratings ¹	Impacts (acres)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
WAS	3J, 3L	Headwater Forest	Riparian	H-HHM	0	0	0	0
WAT	3J, 3K, 3L	Headwater Forest	Riparian	L-MLL	0	0	0	0
WAU	3H	Riverine Swamp Forest	Riparian	H-HHL	0.03	0.03	0.03	0.03
WAV	3O	Headwater Forest	Riparian	L-LML	0.02	0.02	0.02	0.02
WAV-2	3O	Headwater Forest	Riparian	L-MLL	0	0	0	0
WAW	3O	Headwater Forest	Riparian	L-MLL	0	0	0	0
WAW-2	3O	Headwater Forest	Riparian	L-MLL	0	0	0	0
WAX	3N, 3O	Headwater Forest	Riparian	L-MLL	0	0	0	0
WAY	3N, 3O	Headwater Forest	Riparian	L-LLL	0	0	0	0
WAZ	3O	Headwater Forest	Riparian	L-LLL	0	0	0	0
WBB	3K	Headwater Forest	Riparian	H-HHH	0	0	0	0
WBC	3K	Headwater Forest	Riparian	H-HHH	0	0	0	0
WBD	Delineated but not shown on maps	Basin Wetland	Non-riparian	M-HMM	0	0	0	0
WBE	3F	Headwater Forest	Riparian	H-HHH	0	0	0	0
WBE-2	3H, 3I	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WBF	3H, 3I	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WBG	3H, 3I	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0.01
WBH	3H, 3I	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WBI	3H, 3I, 3J	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0.001
WBJ	3H, 3I, 3J	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WBK	3I, 3J	Seep	Non-riparian	M-HML	0	0	0	0
WBL	3I, 3J, 3M	Headwater Forest	Riparian	M-MML	0	0	0	0

Table 8: Potential Jurisdictional Wetland Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	NC WAM Classification	Hydrologic Classification	NC WAM Ratings ¹	Impacts (acres)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
WBM	3I, 3J	Riverine Swamp Forest	Riparian	L-MLL	0	0	0	0
WBN	3I, 3J	Headwater Forest	Riparian	L-LLL	0	0	0	0
WBO	3I, 3J, 3M	Headwater Forest	Riparian	M-MML	0	0	0	0
WBP	3I, 3J, 3L, 3M	Riverine Swamp Forest	Riparian	LMLL	0	0	0	0
WBQ	3H, 3I	Riverine Swamp Forest	Riparian	H-HHL	0	0	0	0
WBR	3I, 3M	Headwater Forest	Riparian	M-HMM	0	0	0	0
WBS	3I, 3M, 3N	Headwater Forest	Riparian	M-HML	0	0	0.01	0
WBT	3M, 3N	Headwater Forest	Riparian	L-LLL	0	0	0	0
WBU	Delineated but not shown on maps	Headwater Forest	Riparian	H-HHH	0	0	0	0
WBV	Delineated but not shown on maps	Headwater Forest	Riparian	L-HLL	0	0	0	0
WBV-2	Delineated but not shown on maps	Headwater Forest	Riparian	L-HLL	0	0	0	0
WBW	Delineated but not shown on maps	Headwater Forest	Riparian	H-HHH	0	0	0	0
WBX	Delineated but not shown on maps	Headwater Forest	Riparian	H-HHH	0	0	0	0
WBY	3P	Riverine Swamp Forest	Riparian	L-LLL	0	0	0	0
WBZ	3P	Headwater Forest	Riparian	L-LML	0	0	0	0
WCA	3O	Headwater Forest	Riparian	L-MLL	0.03	0.03	0.03	0.03
WCB	3O, 3P	Riverine Swamp Forest	Riparian	M-MLM	0	0	0	0

Table 8: Potential Jurisdictional Wetland Impacts (slope stakes + 25')

Map ID	Figure 3 Sheet	NC WAM Classification	Hydrologic Classification	NC WAM Ratings ¹	Impacts (acres)			
					Alt. 1	Alt. 2	Alt. 3	Alt. 4
WCE	3U	Bottomland Hardwood Forest	Riparian	M-MLM	0	0	0	0
WDA	3P	Bottomland Hardwood Forest	Riparian	L-LML	0	0	0	0
WDB	3P	Bottomland Hardwood Forest	Riparian	M-MMM	0	0	0	0
WDD	Not Shown	Headwater Forest	Riparian	H-HMH	0	0	0	0
WDD-2	3R, 3S	Headwater Forest	Riparian	M-MLH	0.005	0.005	0.005	0.005
WDE	3R, 3S	Basin Wetland	Non-riparian	M-HMM	0	0	0	0
WDF	3S	Basin Wetland	Non-riparian	M-HMM	0.01	0.01	0.01	0.01
WDO	Delineated but not shown on maps	Headwater Forest	Riparian	M-MLH	0	0	0	0
WZA	Delineated but not shown on maps	Non-tidal Freshwater Marsh	Riparian	WZA-1, H-HHH	0	0	0	0
		Riverine Swamp Forest		WZA-2, H-HHH				
		Bottomland Hardwood Forest		WZA-3, H-HHH				
WZB	3N, 3O	Headwater Forest	Riparian	H-HHL	0	0	0	0
WZC	3N, 3O	Headwater Forest	Riparian	H-HHL	0.01	0.01	0.01	0.01
WZD	Delineated but not shown on maps	Bottomland Hardwood Forest	Riparian	H-HHM	0	0	0	0
WZE	3O, 3P	Bottomland Hardwood Forest	Riparian	H-MHH	0	0	0	0
WZF	3O, 3P	Bottomland Hardwood Forest	Riparian	L-MLL	0	0	0	0
Total					0.415	0.415	0.575	0.436

¹NC WAM ratings (Low [L], Medium [M], and High [H]) are provided in the order of overall wetland rating, hydrology rating, water quality rating, and habitat rating (example: M-HML).

Table 9: Potential Jurisdictional Open Water Impacts (slope stakes + 25')

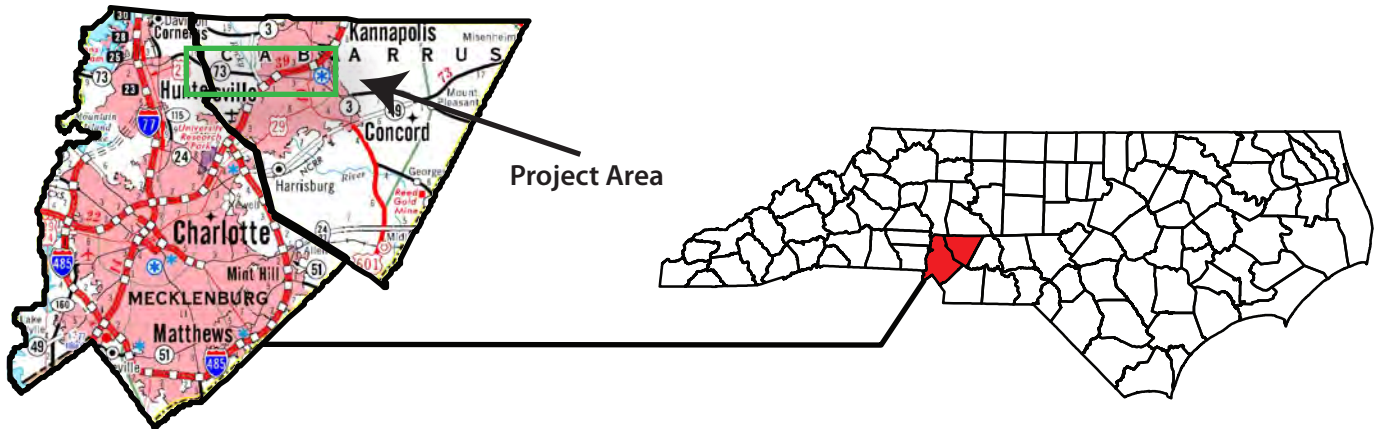
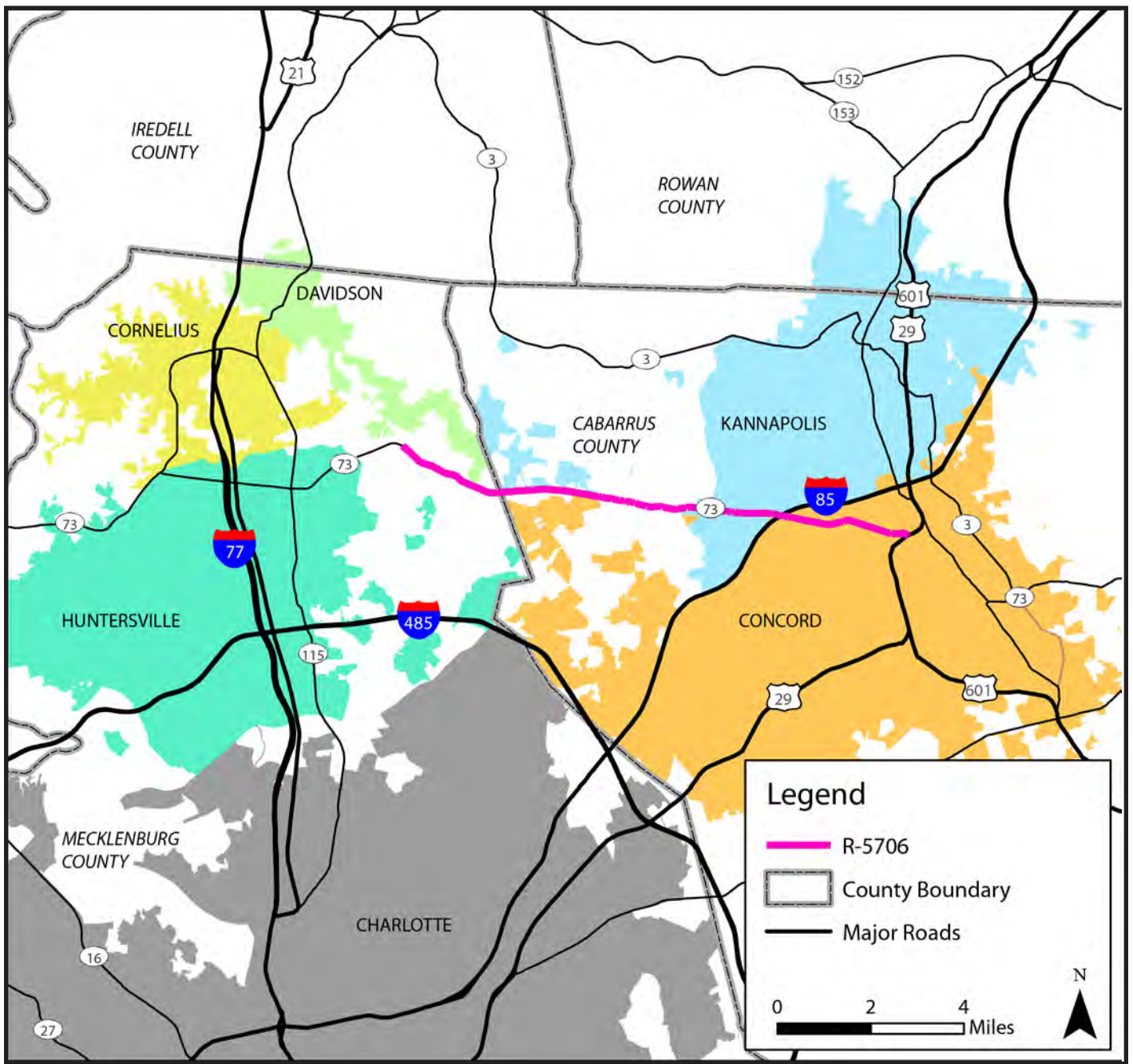
Map ID	Figure 3 Sheet	Impacts (linear feet)			
		Alt. 1	Alt. 2	Alt. 3	Alt. 4
Howell Reservoir	3H, 3I, 3J, 3N	0	3.39	0	0.01
OWA	3B	0	0	0	0
OWB	3E, 3F	0.07	0.07	0.07	0.07
OWC	Not Shown	0	0	0	0
OWD	3G, 3H, 3J	0	0	0	0
OWE	3G, 3J, 3K, 3L	0	0	0	0
OWF	3H, 3J	0	0	0	0
OWG	3I, 3J, 3L, 3M	0	0	0	0
OWH	3I, 3J, 3M	0	0	0	0
OWI	3L, 3M	0	0	0	0
OWJ	3P	0	0	0	0
OWK	3S	0	0	0	0
	Total	0.07	3.46	0.07	0.08

List of Figures

1. Project Vicinity Map
2. Project Study Area Map
3. Jurisdictional Features Impacts Map

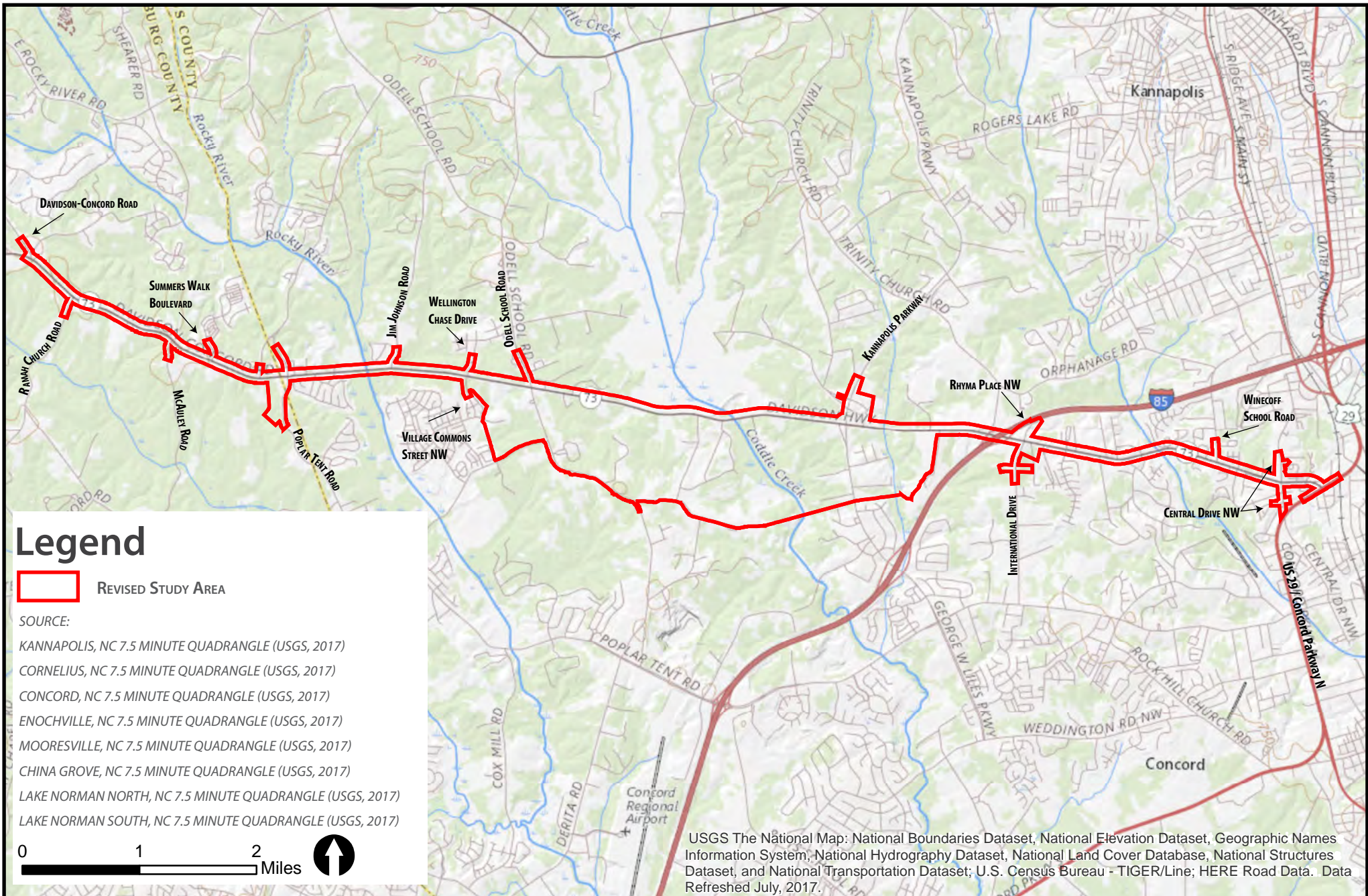
Appendices

- A. Public Involvement Summary Memo
- B. Jurisdictional Features
- C. Typical Sections



Project Vicinity Map
 Widening of NC 73 from Davidson - Concord Road to US 29,
 Mecklenburg and Cabarrus Counties
 STIP PROJECT R-5706

Figure 1

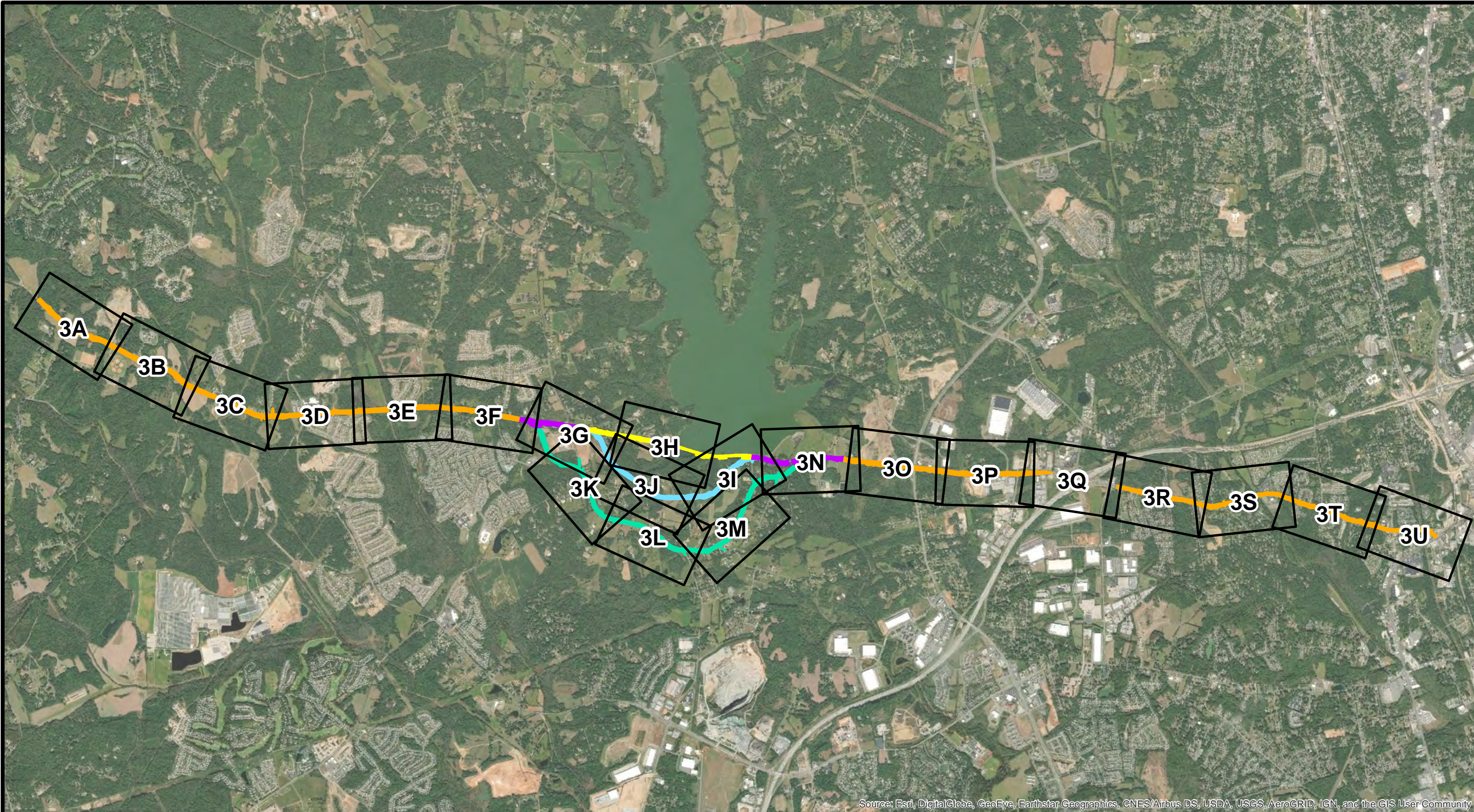


Study Area Map

Widening of NC 73 from Davidson-Concord Road to US 29

TIP No: R-5706 | WBS #: 46378.1.1
 Mecklenburg and Cabarrus Counties
 April 2019

FIGURE 2



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Page Number

Alternatives 1, 2, 3 & 4

Alternatives 1, 2 & 4

Alternatives 1 & 2

Alternative 3

Alternative 4

0 2,500 5,000 Feet

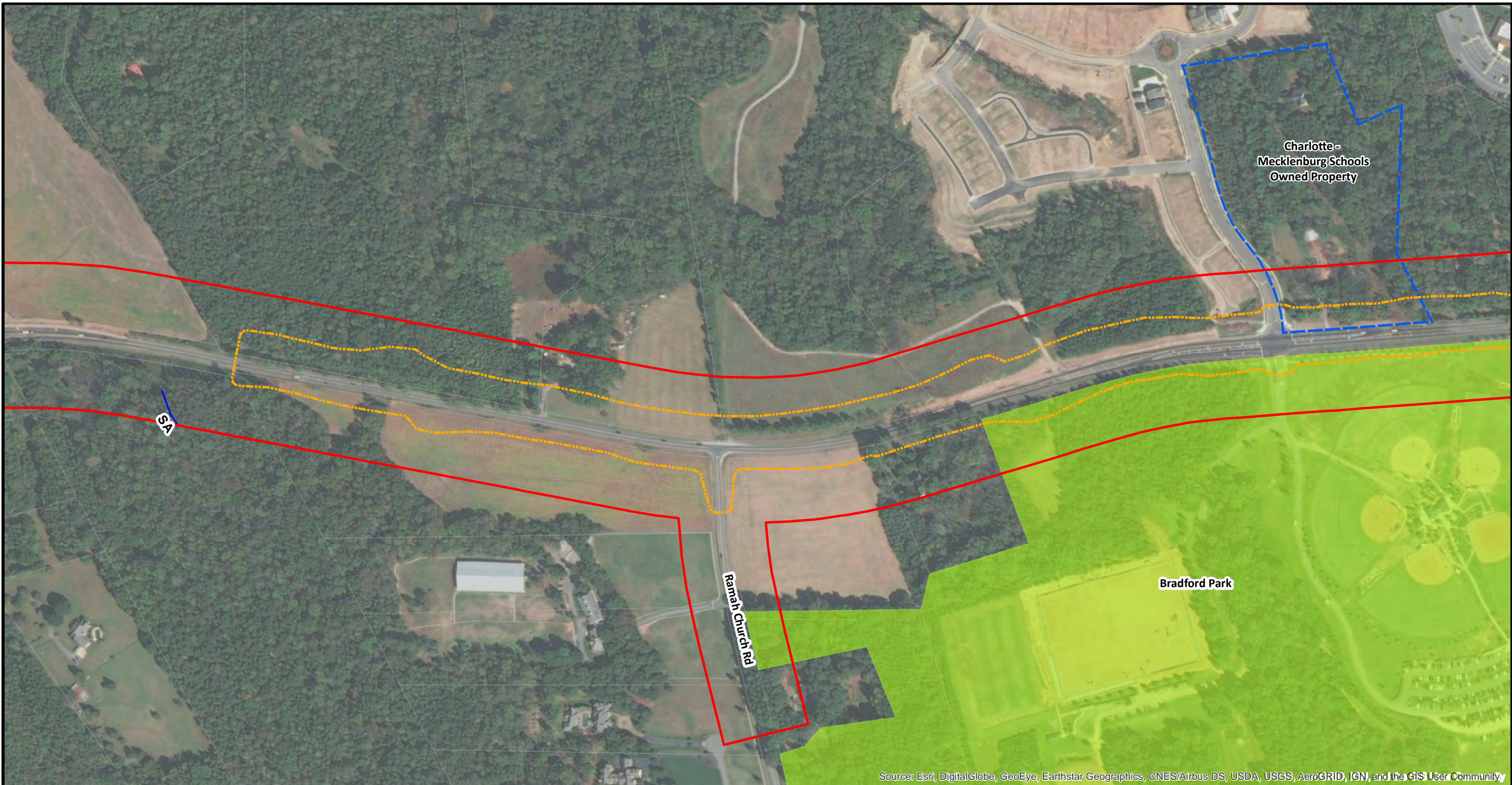


Figure 3

Jurisdictional Features Impacts Map

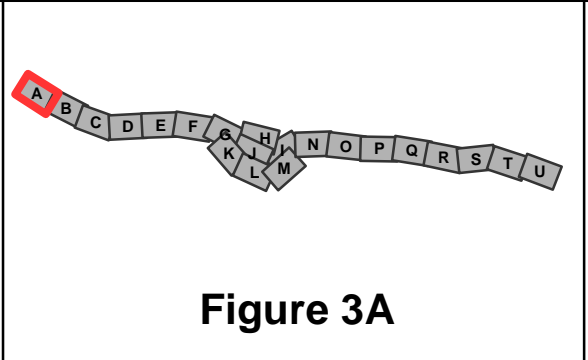
R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
Mecklenburg and Cabarrus Counties

April 2019



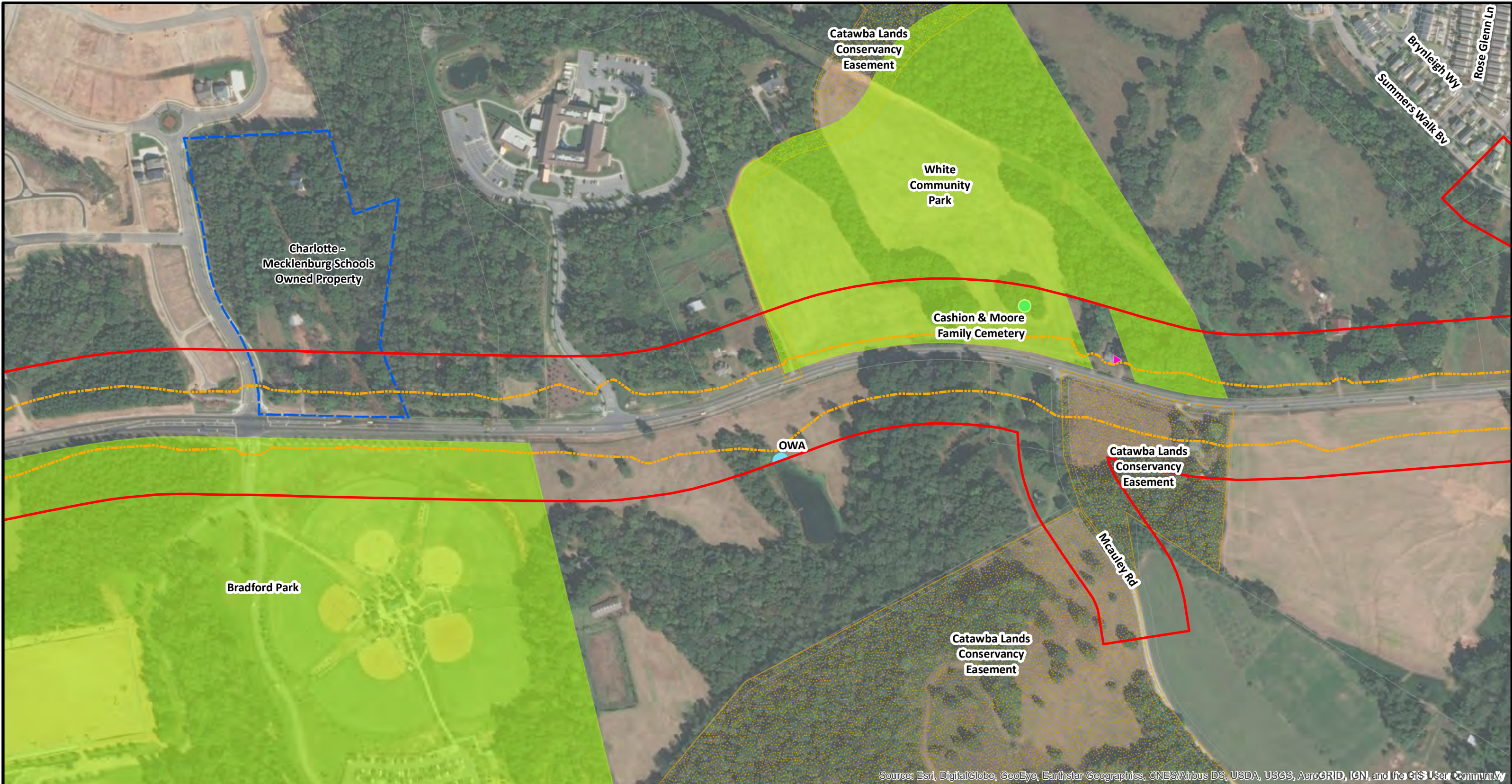
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Alternatives 1, 2, 3 & 4	HazMat	Eligible Historic Properties	Delineated Wetlands
Alternatives 1, 2 & 4	Schools	Park & Recreational Space	Floodway
Alternatives 1 & 2	Cemeteries	VAD Parcels	Water Supply Watershed
Alternative 3	Places of Worship	Conservation Easements	Impacted Wetlands
Alternative 4	Local Landmarks	Delineated Streams	Impacted Streams
Study Area	Planned Greenways	Delineated Open Waters	Impacted Open Waters



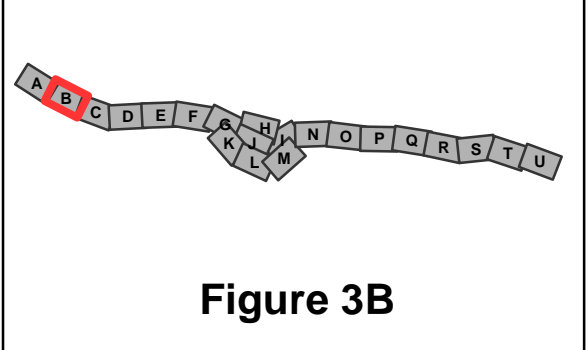
Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

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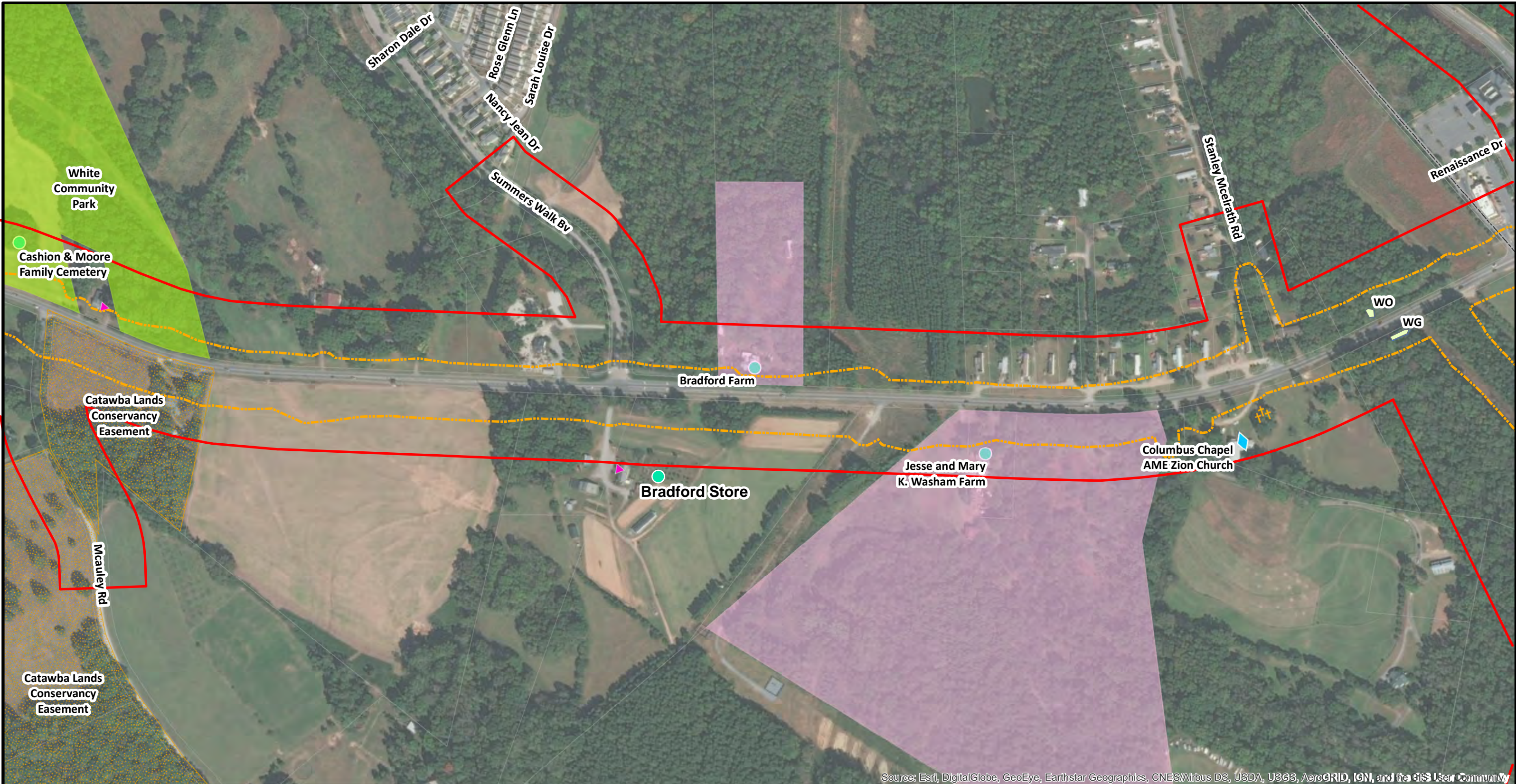
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Alternatives 1, 2, 3 & 4	HazMat	Eligible Historic Properties	Delineated Wetlands
Alternatives 1, 2 & 4	Schools2	Park & Recreational Space	Floodway
Alternatives 1 & 2	Cemeteries	VAD Parcels	Water Supply Watershed
Alternative 3	Places of Worship	Conservation Easements	Impacted Wetlands
Alternative 4	Local Landmarks	Delineated Streams	Impacted Streams
Study Area	Planned Greenways	Delineated Open Waters	Impacted Open Waters



Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 490 980 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Alternatives 1, 2, 3 & 4		HazMat		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		Schools2		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Cemeteries		VAD Parcels		Water Supply Watershed
	Alternative 3		Places of Worship		Conservation Easements		Impacted Wetlands
	Alternative 4		Local Landmarks		Delineated Streams		Impacted Streams
	Study Area		Planned Greenways		Delineated Open Waters		Impacted Open Waters

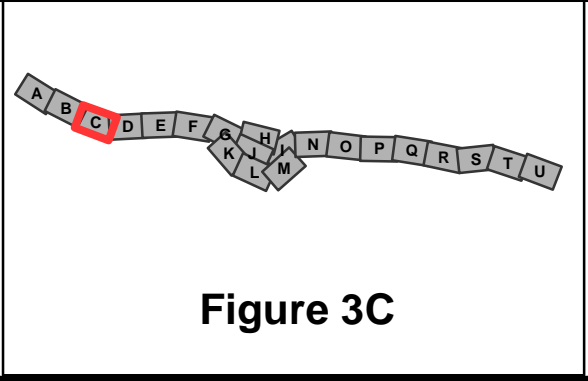
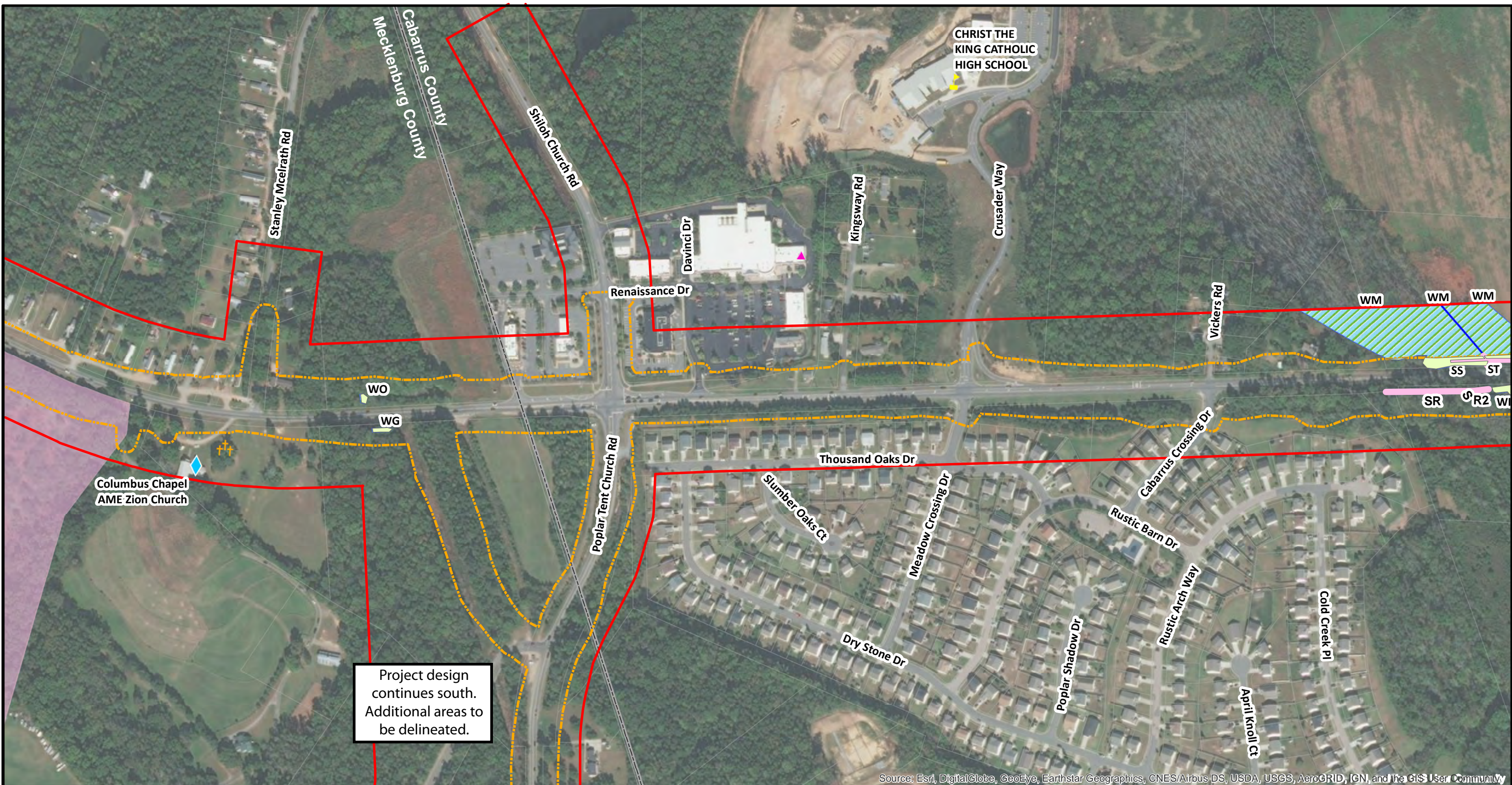


Figure 3C

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



Project design continues south. Additional areas to be delineated.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Alternatives 1, 2, 3 & 4		HazMat		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		Schools		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Cemeteries		VAD Parcels		Water Supply Watershed
	Alternative 3		Places of Worship		Conservation Easements		Impacted Wetlands
	Alternative 4		Local Landmarks		Delineated Streams		Impacted Streams
	Study Area		Planned Greenways		Delineated Open Waters		Impacted Open Waters

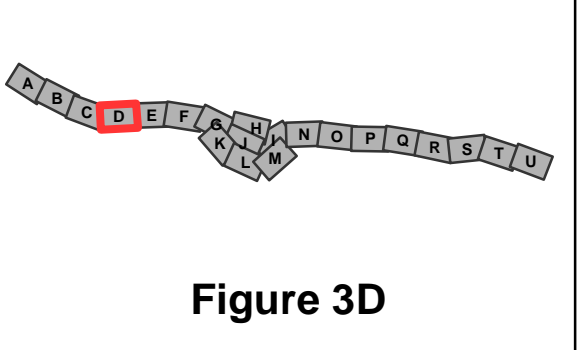
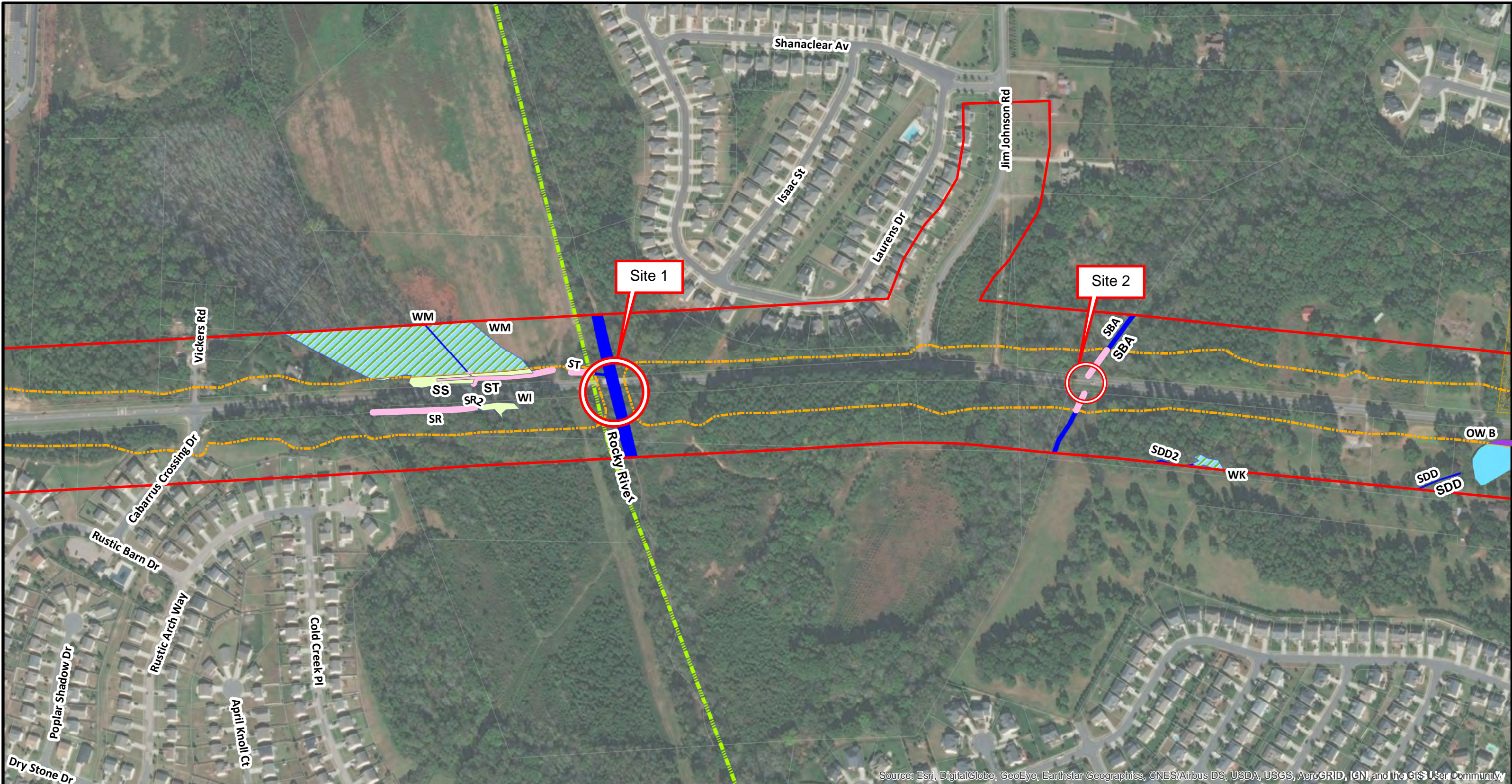


Figure 3D

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- | | | | |
|--------------------------|--------------------------------------|------------------------------|------------------------|
| Alternatives 1, 2, 3 & 4 | Preliminary Major Hydraulic Crossing | Eligible Historic Properties | Delineated Wetlands |
| Alternatives 1, 2 & 4 | HazMat | Park & Recreational Space | Floodway |
| Alternatives 1 & 2 | Schools | VAD Parcels | Water Supply Watershed |
| Alternative 3 | Cemeteries | Conservation Easements | Impacted Wetlands |
| Alternative 4 | Places of Worship | Delineated Streams | Impacted Streams |
| Study Area | Local Landmarks | Delineated Open Waters | Impacted Open Waters |
| | Planned Greenways | | |

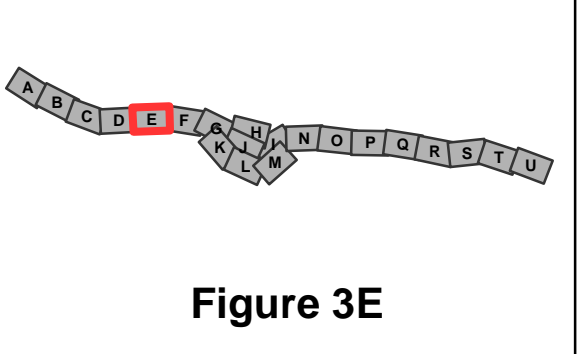


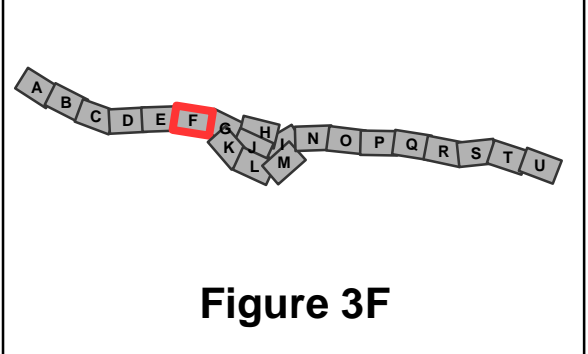
Figure 3E

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet

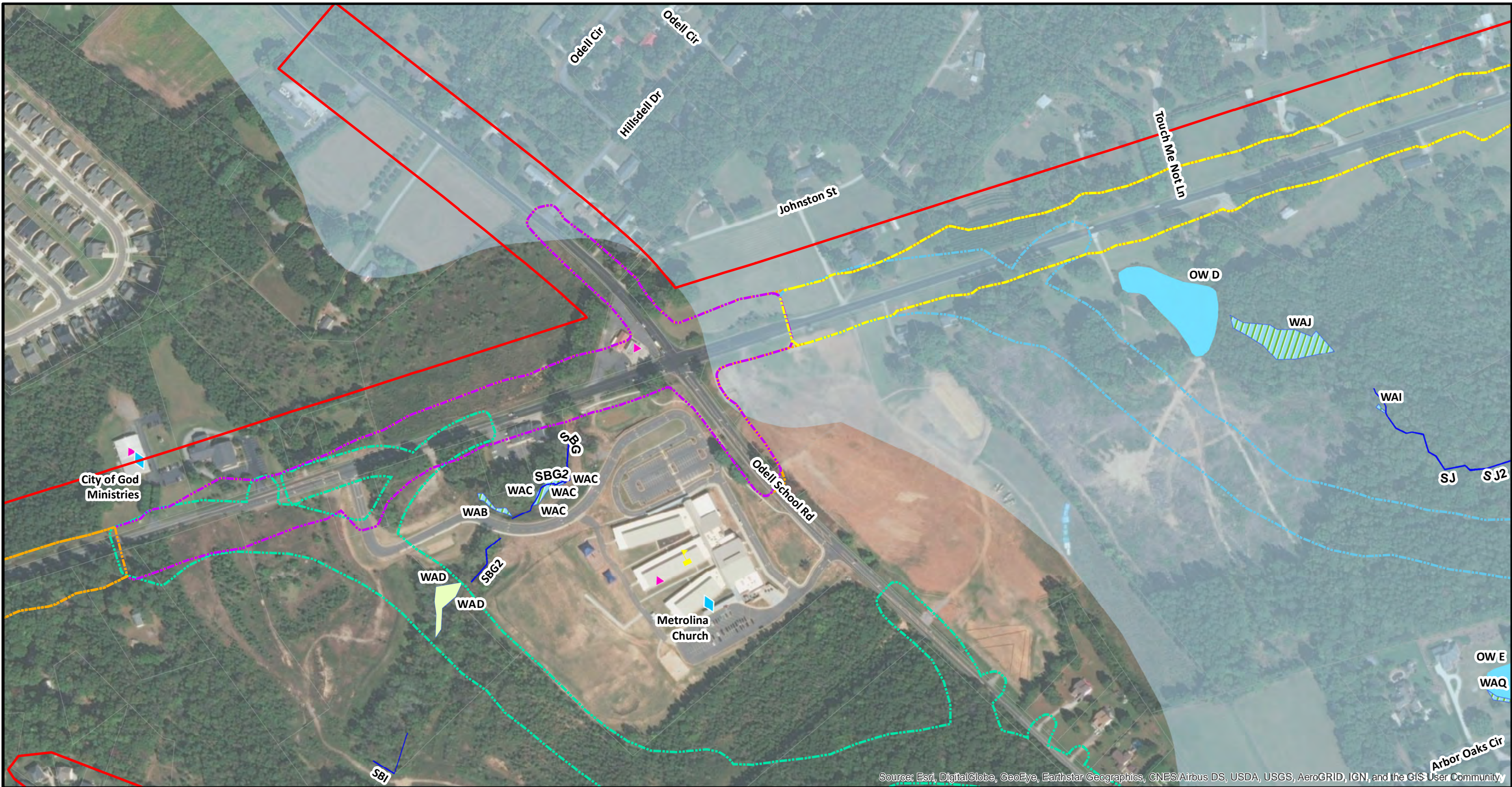


	Alternatives 1, 2, 3 & 4		Preliminary Major Hydraulic Crossing		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		HazMat		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Schools		VAD Parcels		Water Supply Watershed
	Alternative 3		Cemeteries		Conservation Easements		Impacted Wetlands
	Alternative 4		Places of Worship		Delineated Streams		Impacted Streams
	Study Area		Local Landmarks		Delineated Open Waters		Impacted Open Waters
	Planned Greenways						



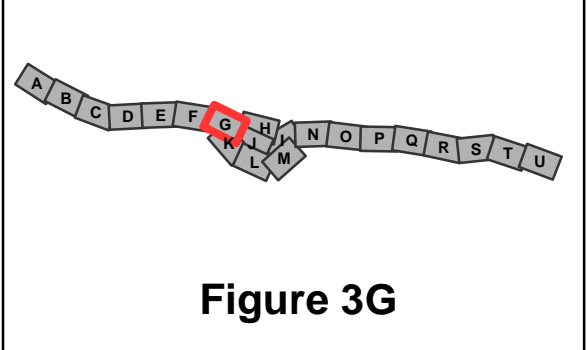
Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



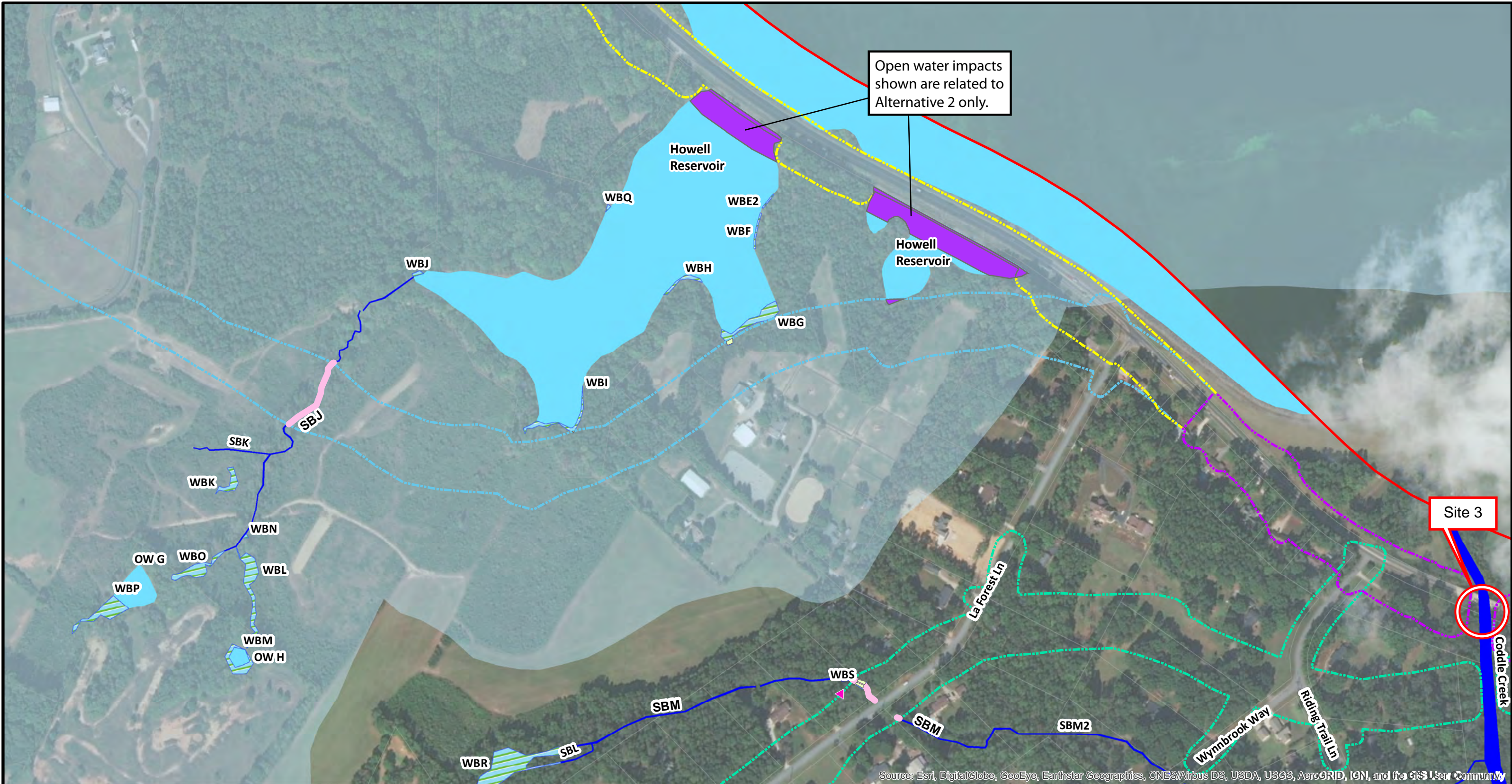
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Alternatives 1, 2, 3 & 4	HazMat	Eligible Historic Properties	Delineated Wetlands
Alternatives 1, 2 & 4	Schools	Park & Recreational Space	Floodway
Alternatives 1 & 2	Cemeteries	VAD Parcels	Water Supply Watershed
Alternative 3	Places of Worship	Conservation Easements	Impacted Wetlands
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Study Area	Planned Greenways	Delineated Open Waters	Impacted Open Waters



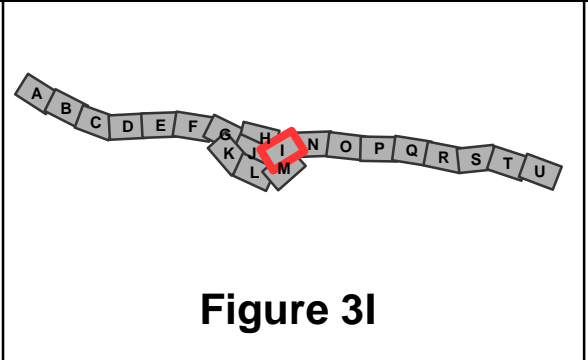
Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 490 980 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- | | | | |
|--------------------------|--------------------------------------|------------------------------|------------------------|
| Alternatives 1, 2, 3 & 4 | Preliminary Major Hydraulic Crossing | Eligible Historic Properties | Delineated Wetlands |
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Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Alternatives 1, 2, 3 & 4	HazMat	Eligible Historic Properties	Delineated Wetlands
Alternatives 1, 2 & 4	Schools	Park & Recreational Space	Floodway
Alternatives 1 & 2	Cemeteries	VAD Parcels	Water Supply Watershed
Alternative 3	Places of Worship	Conservation Easements	Impacted Wetlands
Alternative 4	Local Landmarks	Delineated Streams	Impacted Streams
Study Area	Planned Greenways	Delineated Open Waters	Impacted Open Waters

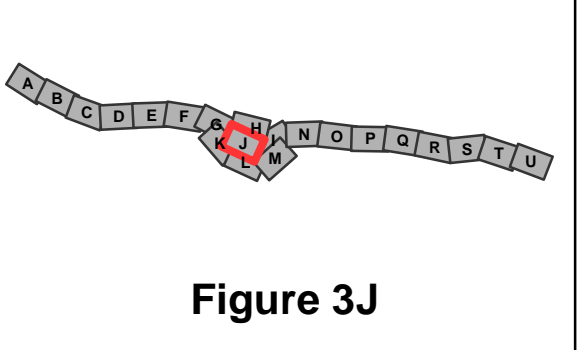
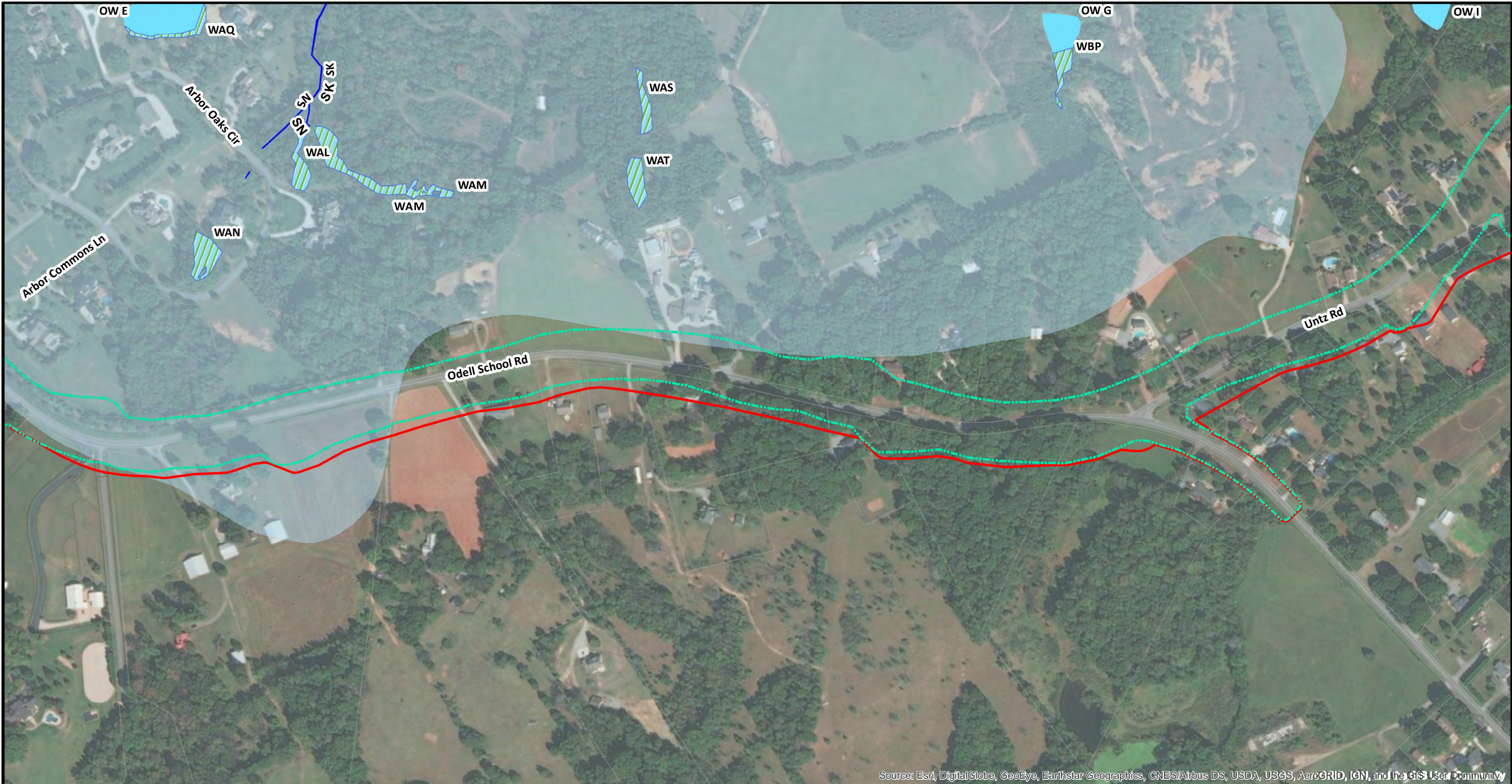


Figure 3J

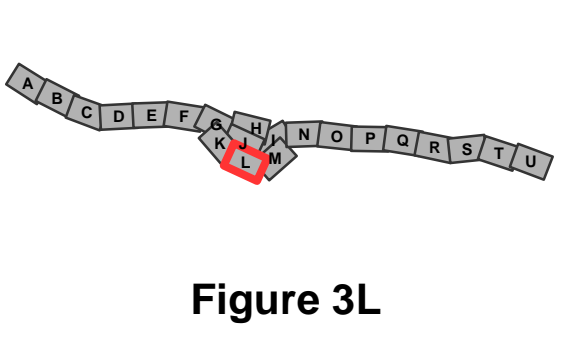
Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

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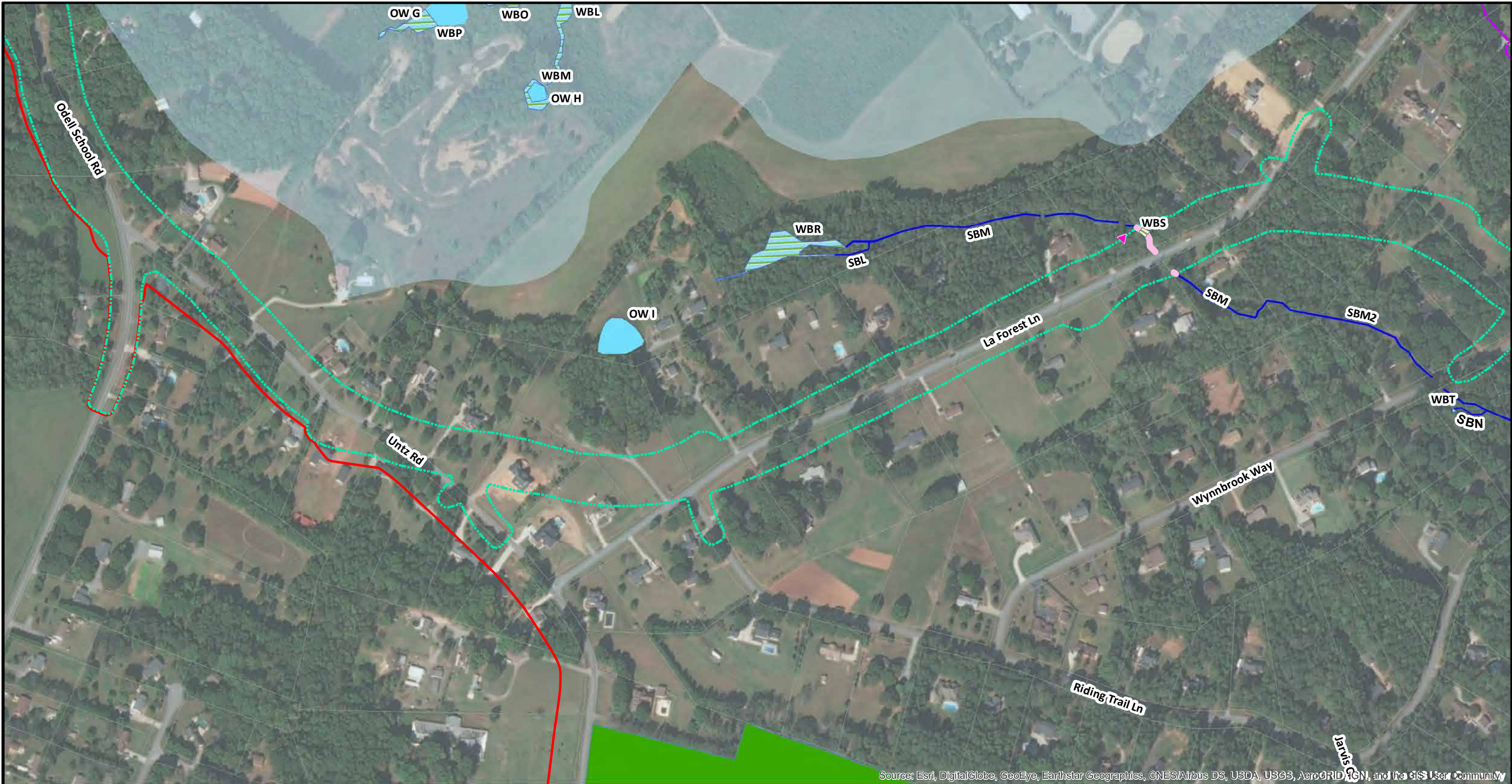
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Alternatives 1, 2, 3 & 4	HazMat	Eligible Historic Properties	Delineated Wetlands
Alternatives 1, 2 & 4	Schools	Park & Recreational Space	Floodway
Alternatives 1 & 2	Cemeteries	VAD Parcels	Water Supply Watershed
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Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 490 980 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Alternatives 1, 2, 3 & 4	HazMat	Eligible Historic Properties	Delineated Wetlands
Alternatives 1, 2 & 4	Schools	Park & Recreational Space	Floodway
Alternatives 1 & 2	Cemeteries	VAD Parcels	Water Supply Watershed
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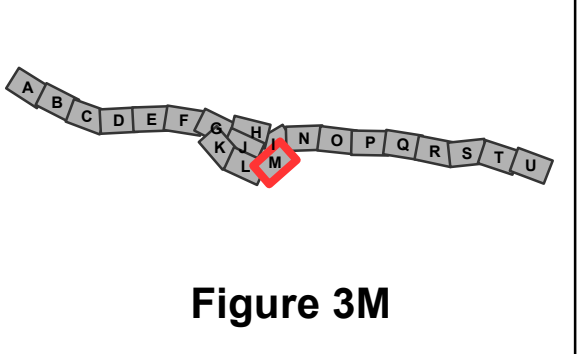
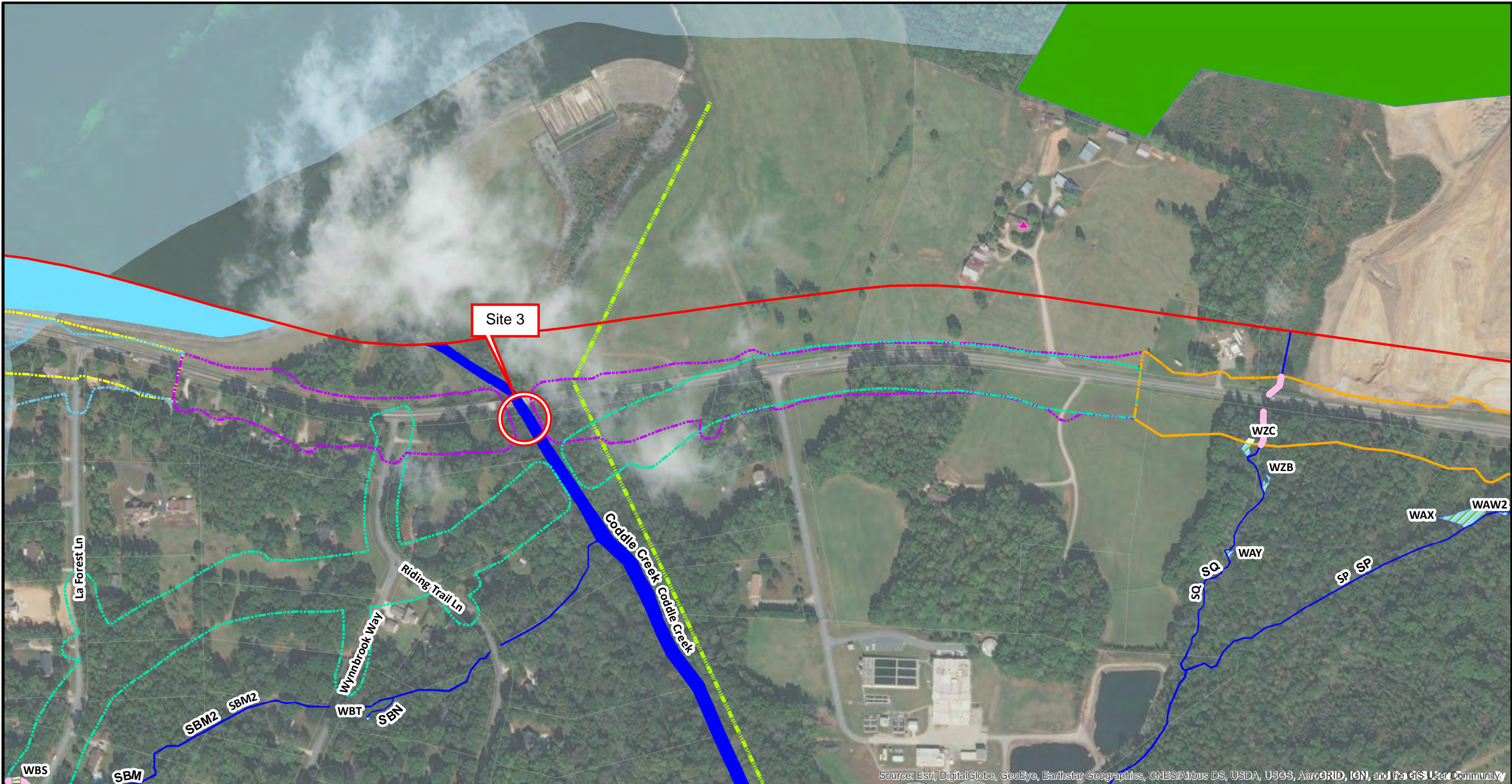


Figure 3M

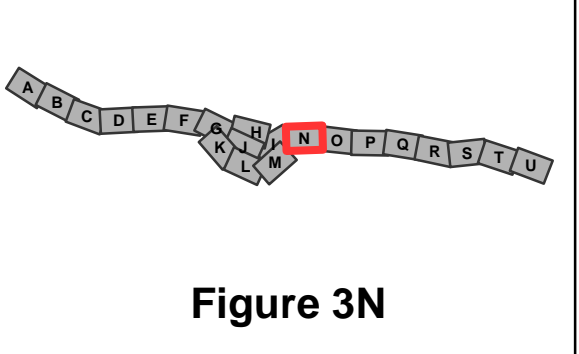
Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



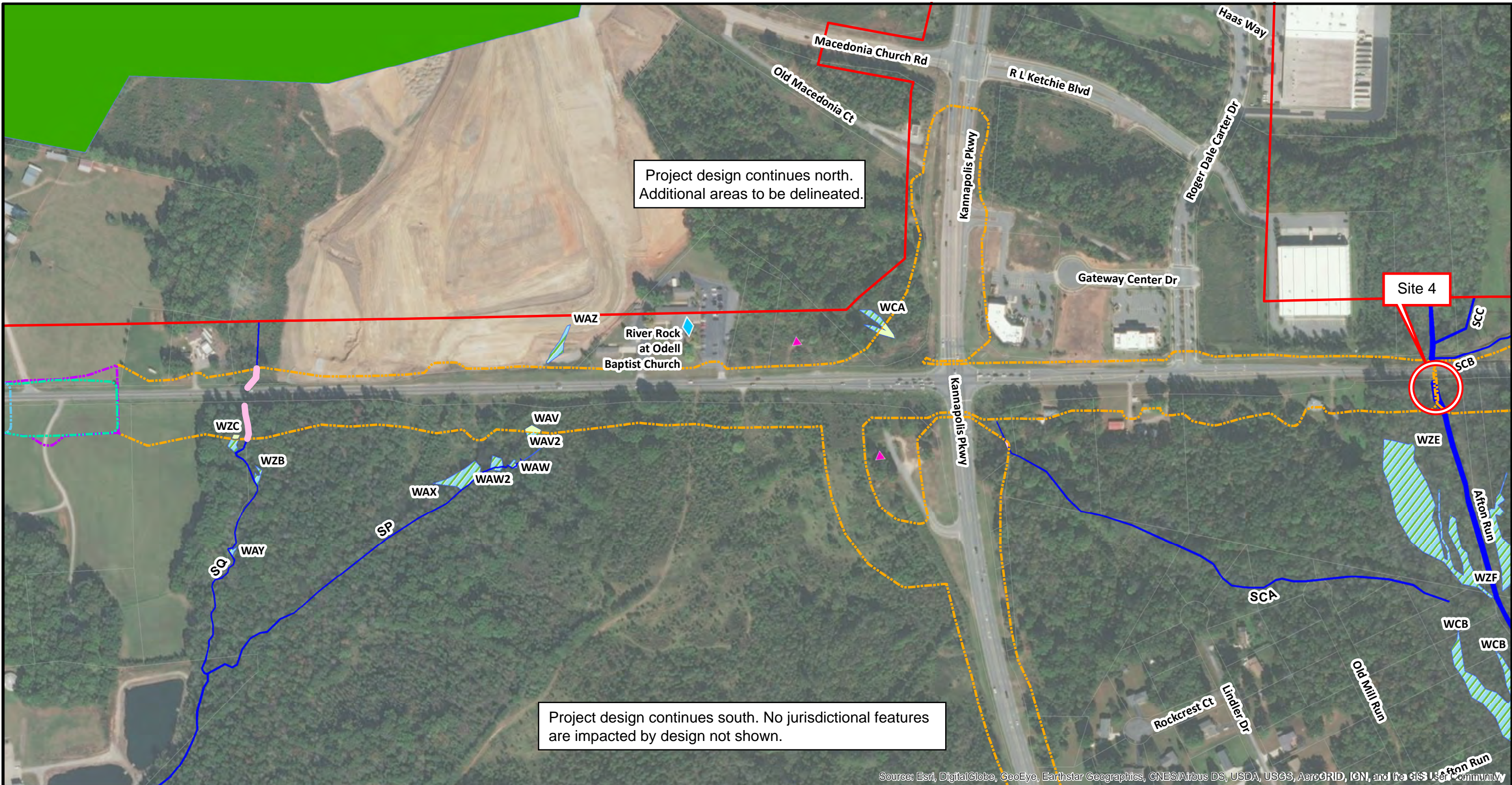
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Alternatives 1, 2, 3 & 4		Preliminary Major Hydraulic Crossing		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		HazMat		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Schools		VAD Parcels		Water Supply Watershed
	Alternative 3		Cemeteries		Conservation Easements		Impacted Wetlands
	Alternative 4		Places of Worship		Delineated Streams		Impacted Streams
	Study Area		Local Landmarks		Delineated Open Waters		Impacted Open Waters
			Planned Greenways				



Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Alternatives 1, 2, 3 & 4		Preliminary Major Hydraulic Crossing		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		HazMat		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Schools		VAD Parcels		Water Supply Watershed
	Alternative 3		Cemeteries		Conservation Easements		Impacted Wetlands
	Alternative 4		Places of Worship		Delineated Streams		Impacted Streams
	Study Area		Local Landmarks		Delineated Open Waters		Impacted Open Waters
			Planned Greenways				

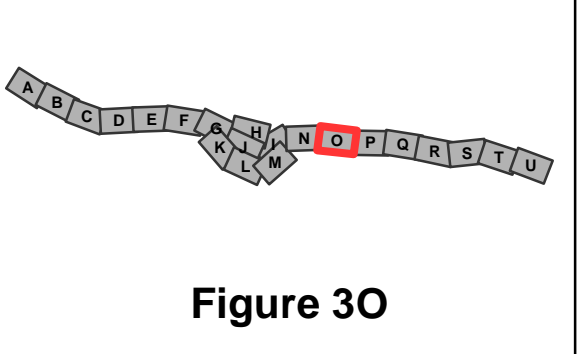
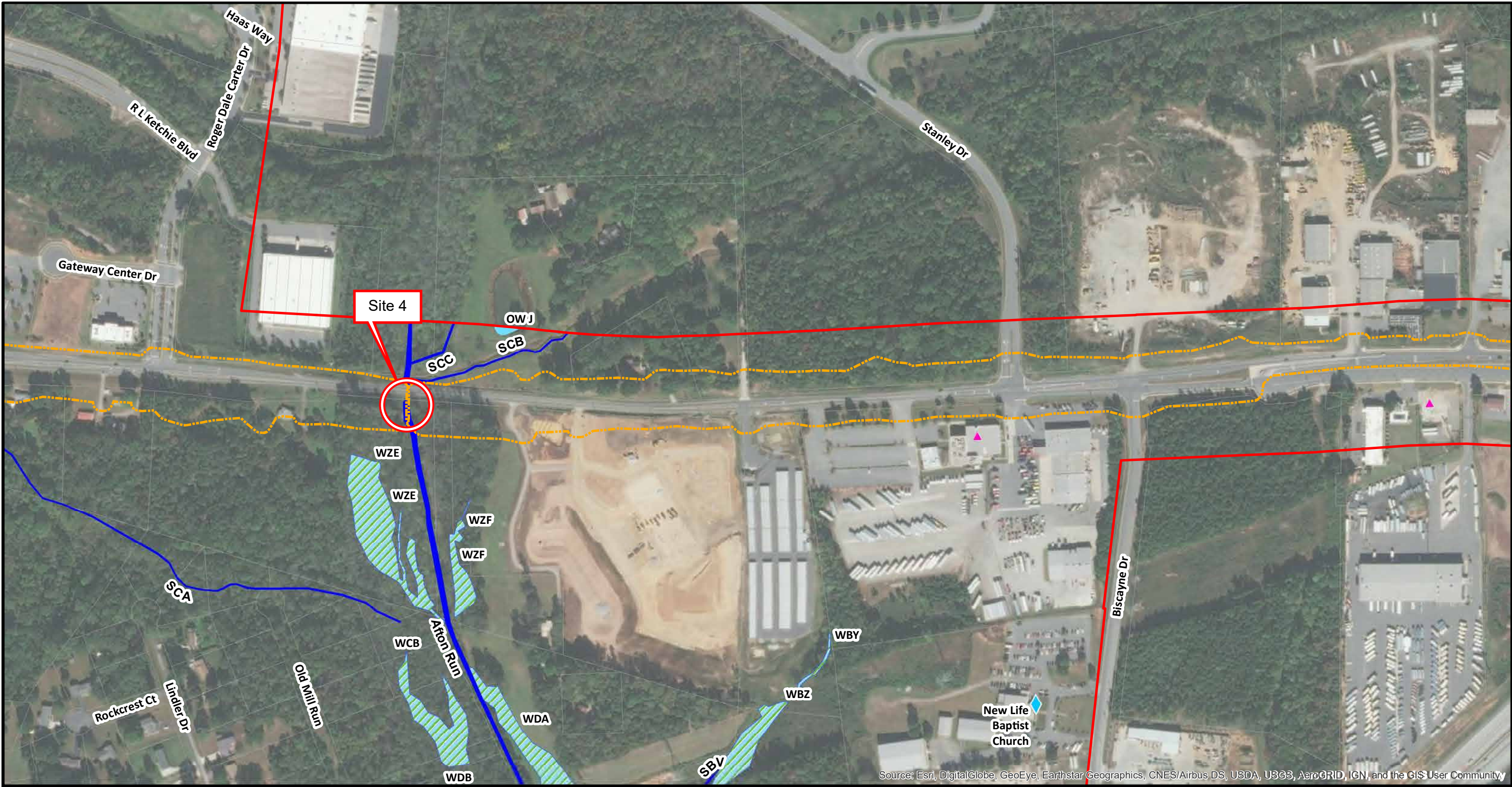


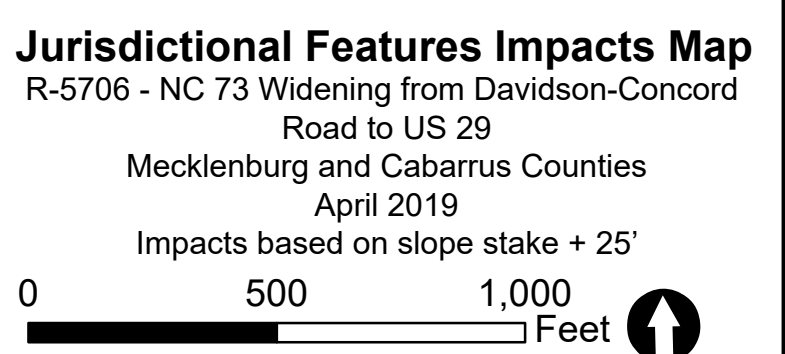
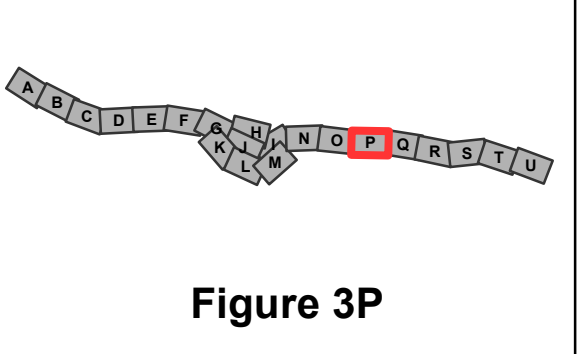
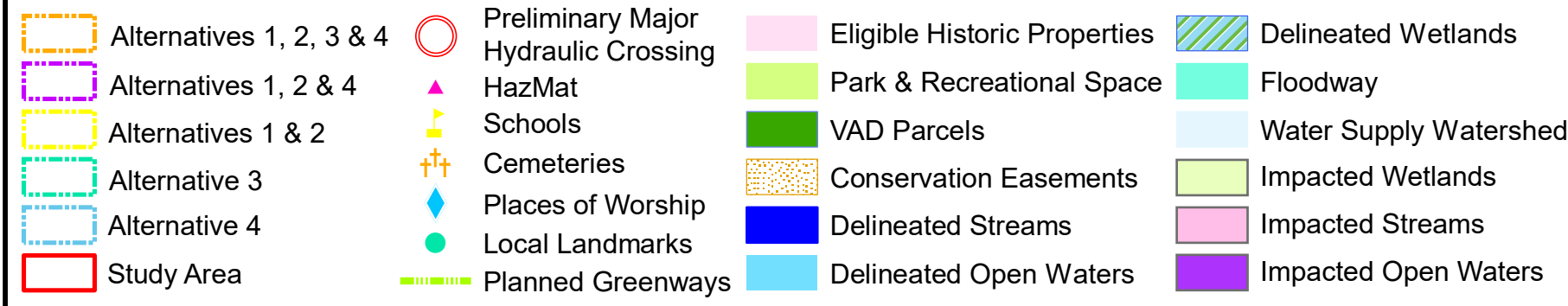
Figure 30

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Concepts 1, 2, 3 and 4		HazMat		Eligible Historic Properties		Delineated Wetlands
	Concepts 1, 2 and 4		Schools		Park & Recreational Space		Floodway
	Concepts 1 and 2		Cemeteries		VAD Parcels		Water Supply Watershed
	Concept 3		Places of Worship		Conservation Easements		Impacted Wetlands
	Concept 4		Local Landmarks		Delineated Streams		Impacted Streams
	Study Area		Planned Greenways		Delineated Open Waters		Impacted Open Waters

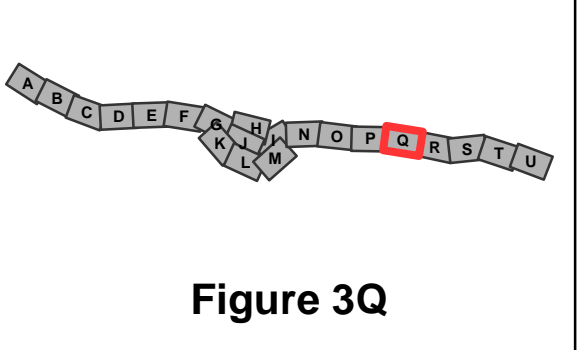
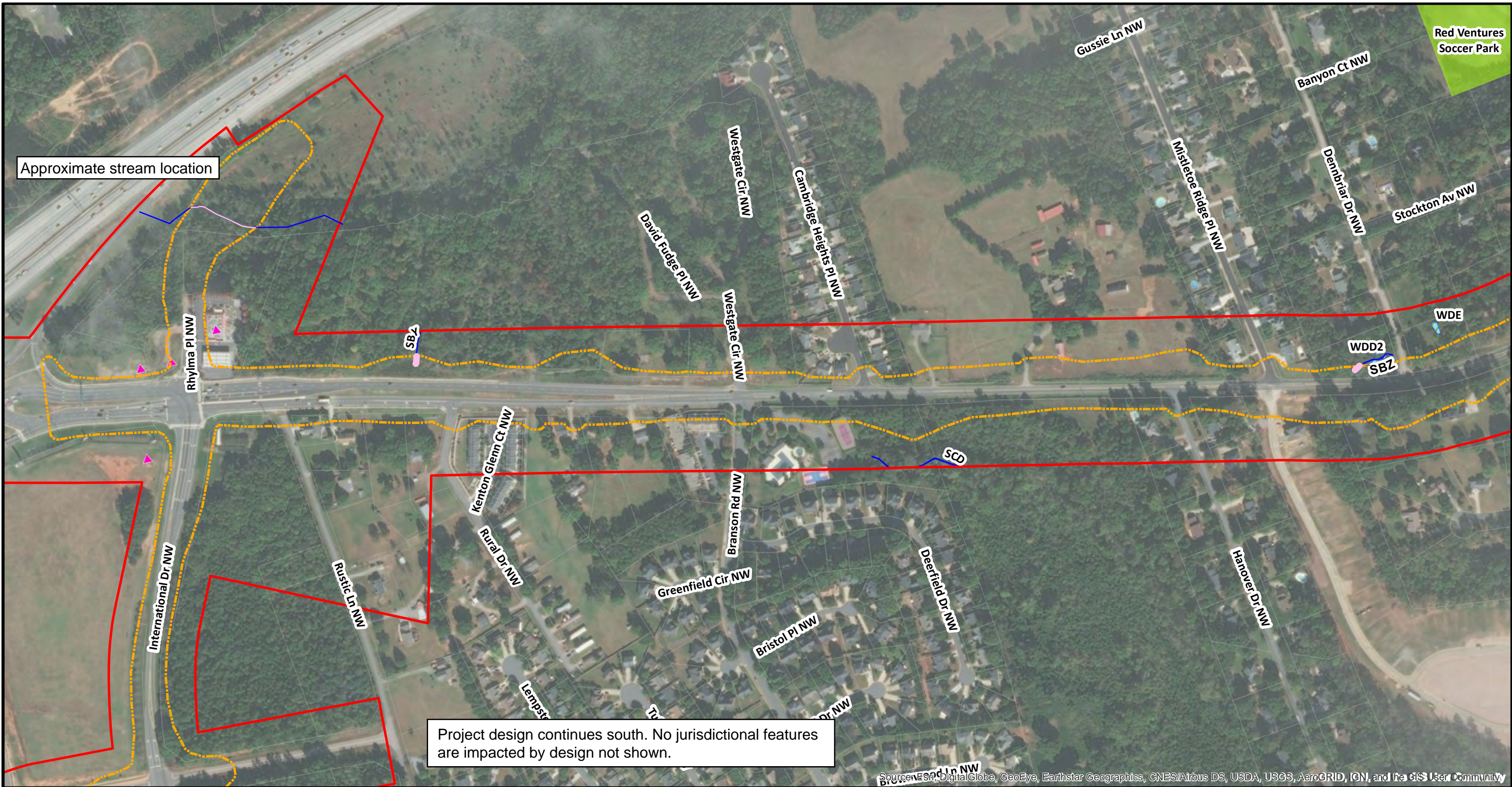


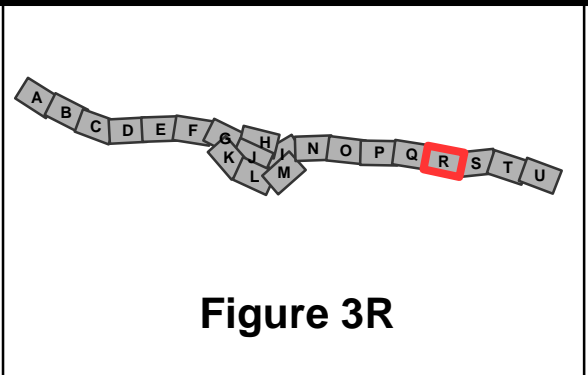
Figure 3Q

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet

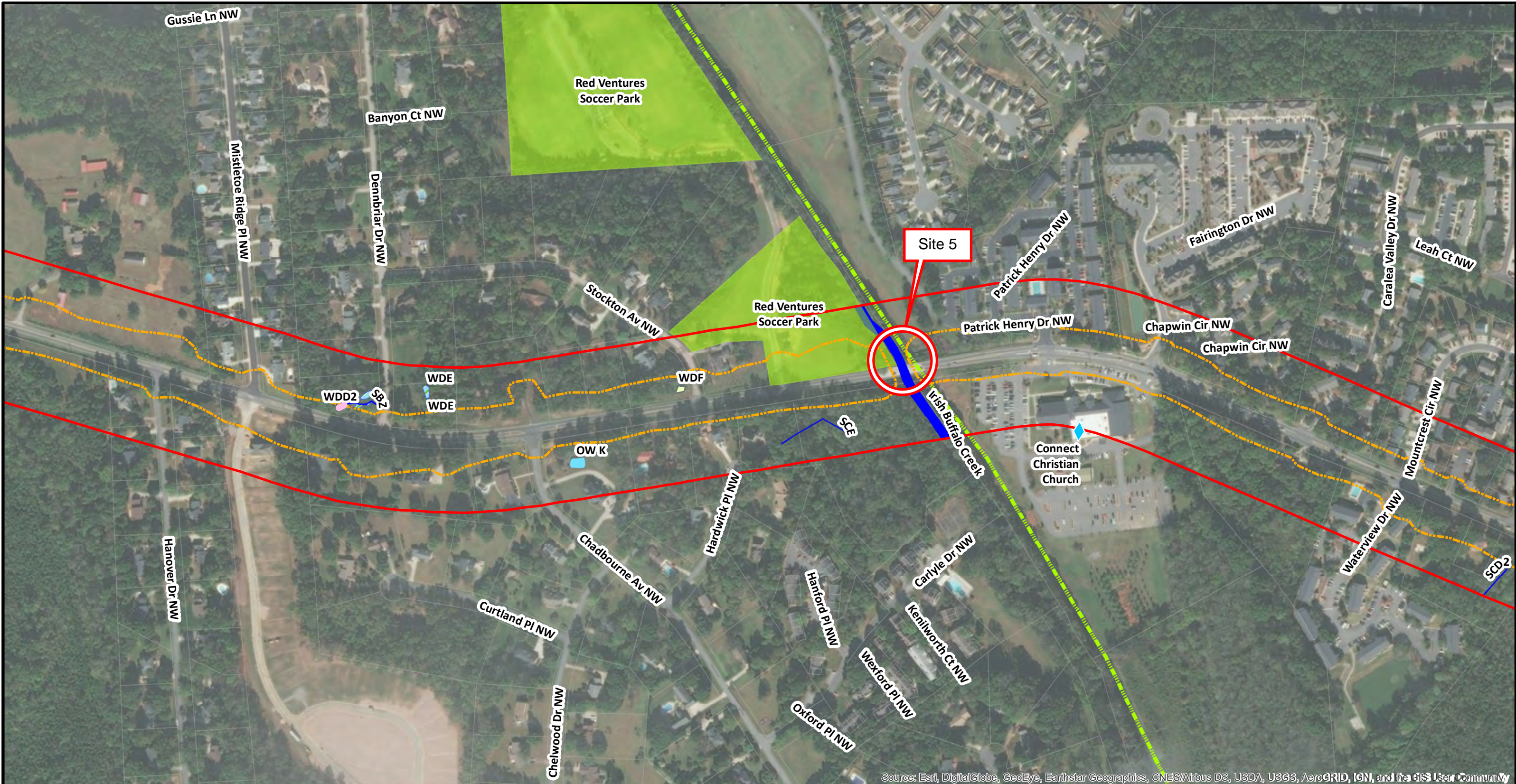


	Alternatives 1, 2, 3 & 4		HazMat		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		Schools2		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Cemeteries		VAD Parcels		Water Supply Watershed
	Alternative 3		Places of Worship		Conservation Easements		Impacted Wetlands
	Alternative 4		Local Landmarks		Delineated Streams		Impacted Streams
	Study Area		Planned Greenways		Delineated Open Waters		Impacted Open Waters



Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 490 980 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Alternatives 1, 2, 3 & 4		HazMat		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		Schools2		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Cemeteries		VAD Parcels		Water Supply Watershed
	Alternative 3		Places of Worship		Conservation Easements		Impacted Wetlands
	Alternative 4		Local Landmarks		Delineated Streams		Impacted Streams
	Study Area		Planned Greenways		Delineated Open Waters		Impacted Open Waters

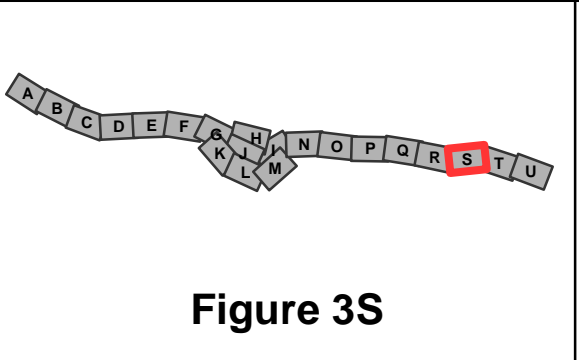
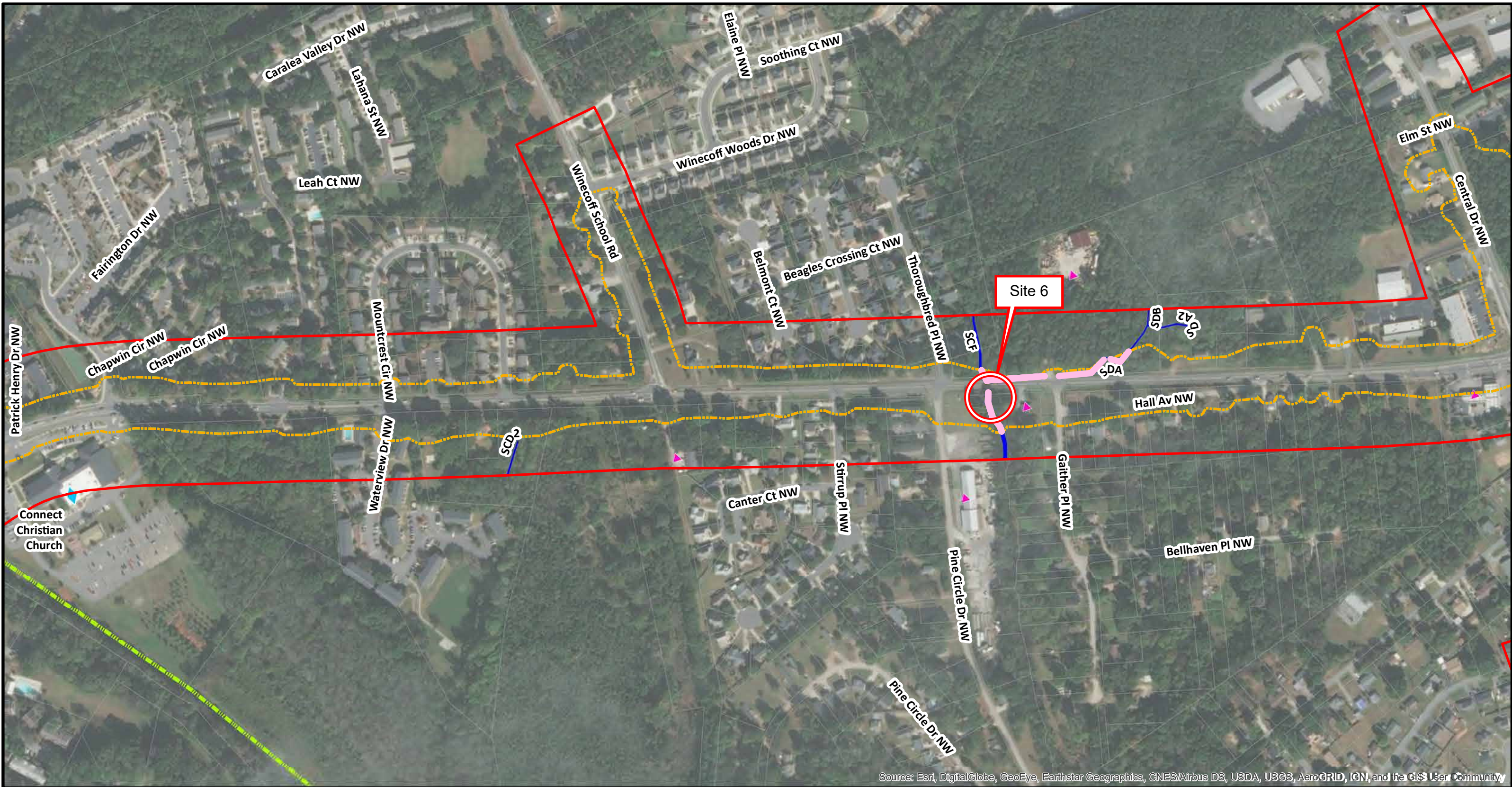


Figure 3S

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 500 1,000 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

	Alternatives 1, 2, 3 & 4		Preliminary Major Hydraulic Crossing		Eligible Historic Properties		Delineated Wetlands
	Alternatives 1, 2 & 4		HazMat		Park & Recreational Space		Floodway
	Alternatives 1 & 2		Schools		VAD Parcels		Water Supply Watershed
	Alternative 3		Cemeteries		Conservation Easements		Impacted Wetlands
	Alternative 4		Places of Worship		Delineated Streams		Impacted Streams
	Study Area		Local Landmarks		Delineated Open Waters		Impacted Open Waters
	Planned Greenways						

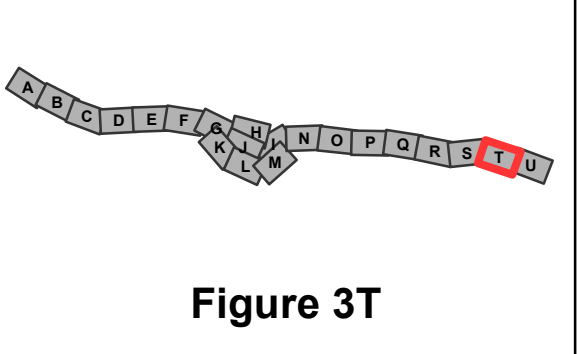
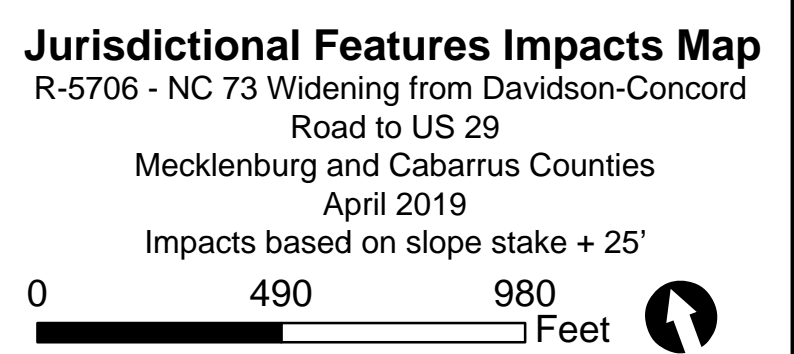
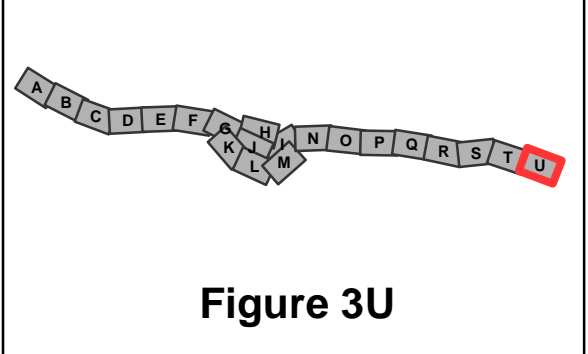
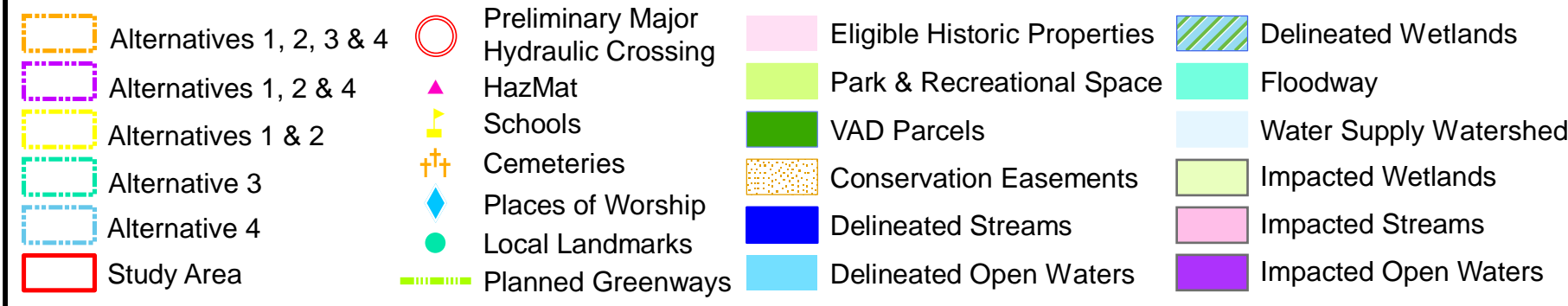


Figure 3T

Jurisdictional Features Impacts Map
 R-5706 - NC 73 Widening from Davidson-Concord Road to US 29
 Mecklenburg and Cabarrus Counties
 April 2019
 Impacts based on slope stake + 25'

0 490 980 Feet



Appendix A – Public Involvement Summary Memo



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

Memorandum

To: Project Team

From: Theresa Ellerby, NCDOT

Date: April 22, 2019

Subject: Public Comment Summary for N.C. 73 Widening from Davidson-Concord Road to U.S. 29 in Mecklenburg and Cabarrus Counties (R-5706)

Two public information meetings were held for State Transportation Improvement Program (STIP) Project Nos. R-2632AB and R-5706. The meetings were held on January 28 and January 29, 2019 at the following locations:

- January 28, 2019
Lake Norman Church of Christ
17634 Caldwell Station Road
Huntersville, N.C. 28078
- January 29, 2019
Connect Christian Church
3101 Davidson Highway
Concord, N.C. 28027



The meetings were an open-house format held from 4 p.m. to 7 p.m. The purpose of these meetings was to provide a forum for the public to review proposed improvements to N.C. 73 and receive feedback from the public. Prior to the public meetings, an informational meeting was held for local officials. A presentation was given and an opportunity for questions from local officials followed. Forty-four local officials signed in for the local officials informational meetings. Three hundred and sixty-two people signed in for the open-house public information

meetings. Attendees received a handout with information about each project and could view the digital project maps across two identical sets of four smartboards on display for the public. Project staff were available at the displays to discuss the improvements and answer questions. All materials from the meeting are available on NCDOT's website, <https://www.ncdot.gov/projects/nc-73-mecklenburg-cabarrus/Pages/default.aspx>. The comment period was open until February 13, 2019. Comments could be submitted at the public meetings, via mail or email.

Comments related to STIP Project R-5706 are summarized in this memorandum. Comments for STIP Project R-2632AB will be summarized in a separate memorandum.

Public Comments

One hundred and twenty comment forms, 18 letters, and 106 emails were collected during the comment period. Additionally, project staff corresponded with 13 citizens through email and 55 by phone. The public was given the opportunity to provide general comments. The following are comments received during the public comment period by comment form, mail, and email, grouped by topic for the R-5706 project. The number in parentheses corresponds with the number of people who made the comment. There are several sections with public comments based on overall category in the following sections.

The following section includes comments that were not about a specific segment of the project.

- **Environmental Impacts**
 - (4) Increased air pollution from increased vehicle traffic
 - (1) The bridge over Rocky River currently floods
- **Community Impacts**
 - (4) Increased noise pollution in residential areas
 - (1) Increase in traffic and noise will diminish quality of life
 - (1) Widening is needed but should not disrupt families
 - (1) Encourage NCDOT to take a look at bike travel at the intersections. Superstreets may be difficult for cyclists to cross multiple lanes to U-Turn.
 - (1) N.C. 73 has no pedestrian/bicycle need
- **Safety Impacts**
 - (1) Accidents never seen on N.C. 73, but many accidents around curves on Odell School Road and LaForest/Untz road curves
 - (1) EMS may have delays serving Biscayne Drive
- **Business & Property Impacts**
 - (14) Impacts to businesses along Biscayne Drive
 - (8) My property will be impacted
 - (1) No left or thru movements will affect my business
 - (1) Concerns about impacts and design related to a development along Poplar Tent Road and N.C. 73
 - (1) Will be harder to sell homes in the future
 - (1) Storm water impacts to properties

- **Traffic Impacts**
 - (1) Never had any traffic problems
 - (1) My commute time will increase by 10-15 minutes
 - (1) Traffic from Amazon would increase between the two warehouses
 - (1) Current Odell School Road traffic will back up onto Poplar Tent Road and Derita Rd
- **Roadway Design**
 - (1) Downhill grade from Chadbourne Avenue to entrance of Red Ventures Soccer Park has been cause of several accidents and this needs to be addressed
 - (1) Sight lines at the intersection of Dennbriar Drive/N.C. 73 are not good, and the design will make them worse
 - (1) Please make a turn lane at Cardinal Logistic Management
 - (1) Rebuilding N.C. 73 as a superstreet is good
 - (1) Multi-use paths/sidewalks are better than bike lanes
 - (1) Consider a traffic signal at Biscayne Drive
- **U-Turns**
 - (1) U-Turns are a bad idea
 - (1) Plan to eliminate left turns is a good idea
 - (1) U-Turns will make traffic flow complex
 - (1) U-Turn is very close to entrance of Red Ventures Soccer Park, large number of cars coming into park, in addition to crossing over oncoming traffic once road is widened
- **Traffic Signals**
 - (1) Request for traffic light at Jim Johnson Road and N.C. 73
- **Access Impacts**
 - (1) Getting out of Terres Bend can become very difficult due to congestion
 - (1) Major roads should have fewer and carefully managed access. Driveways every 200 feet does not meet this stipulation.
 - (1) Church located on Biscayne Drive will have difficult access
- **Miscellaneous**
 - (4) Maps presented were incorrect/outdated
 - (3) Not contacted by NCDOT about meeting
 - (2) Request to see/questions about preliminary plans
 - (1) Interest in 2016 Landowners Letter
 - (1) Request to see handouts from Public Meeting
 - (1) This project is 10 years too late
 - (1) Question about project schedule
 - (1) Request for attached letter to be included to the public comments and reviewed
 - (1) Encouraged NCDOT to choose Alternatives 1 or 2
 - (1) Traffic studies occurred during construction on I-85, may have yielded inaccurate numbers

The comment forms asked citizens to rank the four alternatives pertaining to R-5706. The below table summarizes public responses.

Rank	Alternative 1	Alternative 2	Alternative 3	Alternative 4
1 (Best)	83	23	5	5
2	12	57	4	1
3	<i>No responses recorded</i>	2	4	55
4 (Worst)	2	1	56	5

If an “x” or check mark was indicated next to an alternative on the comment sheet, that alternative was recorded as ranked 1. If “No” was indicated, it was recorded as ranked 4.

The following section contains public comments by the alternative.

Alternative 1

- **Environmental Impacts**
 - (7) Reservoir is man-made and would not have a significant natural impact
 - (3) Less impact to the environment
 - (3) Bridge would be the least impactful on the reservoir
- **Community Impacts**
 - (10) Least impactful alternative to the community
 - (3) Less traffic, noise, and pollution in residential neighborhoods
 - (1) Keeps commercial growth along corridor, not expanding into neighborhoods
 - (1) Creates a scenic enhancement around the reservoir
- **Business & Property Impacts**
 - (1) No homes or property will be destroyed or disrupted
 - (1) My home would be impacted
 - (1) Mostly agricultural and county/city owned land around the reservoir – little residential land would be affected
- **Traffic Impacts**
 - (4) The intersection at Odell School Road/N.C. 73 would be improved, decreasing traffic currently cutting through Rollingwood Forest neighborhood.
 - (3) Keeps traffic in the current flow and would be most efficient
- **Financial Impacts**
 - (13) This alternative is cost efficient and effective compared to Alternatives 3 and 4
 - (7) Less need for right-of-way to purchase
 - (1) Property values will not fall

- **Schedule**
 - (1) Less opportunity for project delays due to unanticipated obstacles such as buried utilities/drainage systems
 - (1) Quicker construction time

Alternative 2

- **Environmental Impacts**
 - (4) Reservoir is man-made, environmental impacts would not be worse
 - (1) Negative water quality impact to lakes, ponds, and reservoir
- **Community Impacts**
 - (9) Least impactful alternative
 - (2) Less traffic and noise pollution in residential neighborhoods
 - (1) Keeps commercial growth along corridor, not expanding into neighborhoods
- **Business & Property Impacts**
 - (1) My home would be impacted
 - (1) Mostly agricultural and county/city owned land around the reservoir – little residential land would be affected
- **Traffic Impacts**
 - (3) The intersection at Odell School Road/N.C. 73 would be improved, decreasing traffic currently cutting through Rollingwood Forest neighborhood.
- **Financial Impacts**
 - (11) This alternative is cost efficient and effective compared to Alternatives 3 and 4
 - (2) Less need for right-of-way to purchase
 - (1) Property values will not fall
- **Schedule**
 - (1) Quicker construction time

Alternative 3 *Note: Most comments related to this alternative addressed Alternatives 3 and 4 together.*

In addition to ranking the preferred Alternatives, 62 comment forms indicated high opposition to Alternative 3 in the comment section, and 38 indicated high opposition to Alternative 4 in the comment section. NCDOT received one letter containing 266 signatures from citizens in opposition to Alternatives 3 and 4. Concerns about these Alternatives include the following:

- **Environmental Impacts**
 - (21) Negative water quality impact to lakes, ponds, watershed, and reservoir
 - (1) Emissions and other direct/indirect environmental impacts from construction equipment over many months
- **Community Impacts**

- (70) Putting a highway through a neighborhood would affect many new and older homes, families, and would have negative impacts to community
- (8) Family members and/or friends live in the neighborhood and would be displaced
- (8) Increased noise and air pollution
- (2) Disruptive traffic and noise pollution will diminish quality of life
- (2) Surrounding neighborhood roads will see traffic increases to avoid traffic
- (1) Never seen anyone riding their bike, only a handful walking through the neighborhood
- **Safety Impacts**
 - (38) A highway through a neighborhood would be unsafe for the community
 - (10) Increased speed limit and traffic will be unsafe for children and seniors
 - (2) Lanes will be too close to homes
 - (1) It would be dangerous to pull out from residences onto a highway
 - (1) Bike lanes along a 4-lane highway are not considered safe
 - (1) Increasing speed limit would lead even higher rates of speeding and potential for traffic accidents
 - (1) Emergency services may experience delays
- **Business and Property Impacts**
 - (34) My property would be impacted or displaced
 - (3) Impact numbers presented appeared inaccurate
 - (2) My business would be impacted
 - (1) Significantly greater amount of properties impacted
 - (1) Property owners along this alignment would not have expected the relocation of N.C. 73 to occur there
 - (1) My business will be impacted
- **Traffic Impacts**
 - (2) More curves, meaning more opportunity for crashes
 - (1) Drivers will not go around the current road to end up back on the current road
- **Access Impacts**
 - (1) Many neighbors have RVs, it would be difficult to get in and out due to access issues
 - (1) Driveway relocations due to close access
- **Financial Impacts**
 - (38) Property values will fall
 - (8) Higher cost to acquire right-of-way
 - (4) Property values will fall for properties both directly and indirectly affected
 - (3) Financial strain on relocated families
 - (2) Costs presented did not include right-of-way costs
 - (1) Increased utility costs for recent power line upgrades and fiber optic cable
- **Miscellaneous**
 - (1) Novant Health fiber optic cable located near Untz Road and La Forest Lane

Alternative 4 Note: Most comments related to this alternative addressed Alternatives 3 and 4 together.

- **Environmental Impact**
 - (24) Negative water quality impact to lakes, ponds, watershed, ground water supplies, and reservoir
 - (1) Substantial impact on wildlife
- **Community Impacts**
 - (63) Putting a highway through a neighborhood would affect many new and older homes, families, and would have negative impacts to community
 - (10) Family members and/or friends live in the neighborhood and would be displaced
 - (6) Increased noise and air pollution
 - (2) Disruptive traffic and noise pollution will diminish quality of life
 - (2) Surrounding neighborhood roads will see traffic increases to avoid traffic
 - (2) Increase in crime
 - (1) Never seen anyone riding their bike, only a handful walking through the neighborhood
- **Safety Impacts**
 - (37) A highway through a neighborhood would be unsafe for the community
 - (5) Increased speed limit and traffic will be unsafe for children and seniors
 - (2) More curves, meaning more opportunity for crashes
 - (1) Lanes will be too close to homes
- **Property Impact**
 - (10) My property would be impacted or displaced
 - (1) Less impact than Alternative 3
- **Access Impacts**
 - (1) Driveway relocations due to close access
- **Financial Impacts**
 - (36) Property values will fall
 - (6) Higher cost to acquire right-of-way
 - (4) Property values will fall for properties both directly and indirectly affected
 - (2) Costs presented did not include right-of-way costs
 - (2) Financial strain on relocated families

Comments from Elected Officials, Municipal Staff, and Agencies

Project staff received comments from three Elected Officials, one municipal staff member, and one agency

- Proposal for N.C. 73 should not unnecessarily or irrevocably harm existing residents or property owners [*Richard Hudson – US Congressman*]
- Opposition to routes located through existing neighborhoods [*Paul R. Newton – N.C. State Senator*]

- Opposition to routes located through existing neighborhoods [*Steve Morris – Chairman Board of Commissioners, Cabarrus County*]
- NCDOT is encouraged to look at how bicycle travel is supposed to work at intersections [*Irene Sacks – Director of Economic & Community Development, City of Kannapolis*]
- With the proper planning and protections, Alternatives 1 and 2 are the most appropriate and that Alternatives 3 and 4 should be rejected. [*Water and Sewer Authority of Cabarrus County*]

Public comments and responses for this project can be found below and are grouped by submission method (public comment form, email correspondence, telephone, and letter).

Appendix B – Jurisdictional Features

Table 1 - Water Resources in the Study Area

Stream Name	Map ID	NCDWR Index Number	Best Usage Classification
Afton Run	Afton Run	13-17-6-6	C
Coddle Creek	Coddle Creek	13-17-6-(5.5)	WSII; HQW, CA
Irish Buffalo Creek	Irish Buffalo Creek	13-17-9-(2)	C
Rocky River	Rocky River	13-17	C
UT to Ramah Creek	SA	13-17-4-4	C
UT to Coddle Creek Reservoir (Lake Howell)	SJ	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek Reservoir (Lake Howell)	SK	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek Reservoir (Lake Howell)	SM	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek Reservoir (Lake Howell)	SN	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek Reservoir (Lake Howell)	SO	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek	SP	13-17-6-(5.5)	C
UT to Coddle Creek	SQ	13-17-6-(5.5)	C
UT to Rocky River	SR	13-17	C
UT to Rocky River	SS	13-17	C
UT to Rocky River	ST	13-17	C
UT to Rocky River	SBA	13-17	C
UT to Rocky River	SBC	13-17	C
UT to Rocky River	SBD	13-17	C
UT to Rocky River	SBE	13-17	C
UT to Rocky River	SBF	13-17	C
UT to Rocky River	SBG	13-17	C
UT to Rocky River	SBH	13-17	C
UT to Rocky River	SBI	13-17	C
UT to Coddle Creek Reservoir	SBJ	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek Reservoir	SBK	13-17-6-(1.5)	WSII; HQW, CA
UT to Coddle Creek	SBL	13-17-6-(5.5)	C
UT to Coddle Creek	SBM	13-17-6-(5.5)	C
UT to Coddle Creek	SBN	13-17-6-(5.5)	C
UT to Coddle Creek	SBP	13-17-6-(5.5)	C
UT to Coddle Creek	SBQ	13-17-6-(5.5)	C
UT to Coddle Creek	SBR	13-17-6-(5.5)	C
UT to Coddle Creek	SBS	13-17-6-(5.5)	C
UT to Coddle Creek	SBT	13-17-6-(5.5)	C
UT to Coddle Creek	SBU	13-17-6-(5.5)	C
UT to Afton Run	SBV	13-17-6-6	C
UT to Afton Run	SBW	13-17-6-6	C
UT to Irish Buffalo Creek	SBY	13-17-9-(2)	C
UT to Irish Buffalo Creek	SBZ	13-17-9-(2)	C
UT to Afton Run	SCA	13-17-6-6	C
UT to Afton Run	SCB	13-17-6-6	C

UT to Afton Run	SCC	13-17-6-6	C
UT to Irish Buffalo Creek	SCD	13-17-9-(2)	C
UT to Irish Buffalo Creek	SCD2	13-17-9-(2)	C
UT to Irish Buffalo Creek	SCE	13-17-9-(2)	C
UT to Irish Buffalo Creek	SCF	13-17-9-(2)	C
UT to Irish Buffalo Creek	SCH	13-17-9-(2)	C
UT to Irish Buffalo Creek	SDA	13-17-9-(2)	C
UT to Irish Buffalo Creek	SDB	13-17-9-(2)	C
UT to Irish Buffalo Creek	SDC	13-17-9-(2)	C
UT to Rocky River	SDD	13-17-9-(2)	C
UT to Irish Buffalo Creek	SHW	13-17-9-(2)	C
UT to Coddle Creek	PSA	13-17-9-(2)	C
UT to Coddle Creek	PSB	13-17-9-(2)	C
UT to Coddle Creek	PSC	13-17	C
UT to Coddle Creek	PSD	13-17-9-(2)	C

Table 2 - Physical Characteristics of Water Resources in the Study Area

Map ID	Bank Height (ft)	Bankfull Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Afton Run	2-10	6	6-18	Sand, gravel	Fast	Turbid
Coddle Creek	2-6	40	24	Sand, gravel, cobble	Slow	Turbid
Irish Buffalo	2-15	15	10	Sand, gravel, cobble	Moderate	Turbid
Rocky River	1-2	35	6-24	Sand, gravel, cobble	Moderate	Turbid
SA	1	2-3	5-10	Sand	Slow	Clear
SJ	4	3	2-3	Sand	Moderate	Clear
SK	5-10	4	12	Sand	Slow	Turbid
SM	6	2	7	Sand	Slow	Clear
SN	1-3	2	7	Sand	Slow	Clear
SO	3-12	4	7	Cobble, bedrock	Slow	Clear
SP	1-4	3	7	Sand	Slow	Clear
SQ	12-15	5-6	6	Sand, gravel	Moderate	Clear
SR	3-6	3	0-6	Sand	Slow	Clear
SS	1	6	1-6	Sand	Slow	Clear
ST	2	4-8	6-12	Sand, cobble	Slow/Moderate	Clear
SBA	6	10-12	1-18	Sand	Moderate	Turbid
SBC	2	3-4	2-4	Sand, gravel	Slow	Clear
SBD	1	3-4	0-2	Sand, gravel, cobble	Slow	Clear/Turbid
SBE	1	2-3	0-2	Sand	Slow	Turbid

SBF	1	2-3	0-2	Sand	Slow	Turbid
SBG	2-4	2-4	0-4	Sand	Slow	Turbid
SBH	2-3	1-2	0-2	Sand	Slow	Turbid
SBI	1	1-2	0-2	Sand	Slow	Turbid
SBJ	2-10	2-6	2-6	Sand, gravel, cobble	Slow	Turbid
SBK	2-10	2-6	1-4	Sand, gravel, cobble	Slow	Turbid
SBL	2-6	2-4	1-4	Sand, gravel, cobble	Slow	Turbid
SBM	2-15	2-8	1-4	Sand, cobble	Slow	Clear
SBN	1-2	2-3	1-2	Sand, gravel, cobble	Slow	Clear
SBP	1	2	0-2	Sand	Slow	Clear
SBQ	4	3	0-2	Sand	Slow	Clear
SBR	5-10	2-4	0-4	Sand	Slow	Clear
SBS	6	2	0-1	Sand	Slow	Clear
SBT	1-3	2	0-2	Sand	Slow	Clear
SBU	3-12	2	0-2	Sand	Slow	Clear
SBV	1-4	2-3	0-4	Sand	Slow	Clear
SBW	12-15	2-3	0-4	Sand	Slow	Clear
SBY	3-6	2-3	0-2	Sand	Slow	Clear
SBZ	1	2-4	0-4	Sand, gravel	Slow	Clear
SCA	2	2	0-6	Gravel, cobble	Slow	Turbid
SCB	6	10	2-4	Sand, gravel	Moderate	Turbid
SCC	2	5	10	Sand	Moderate	Turbid
SCD	1	2	12	Sand, gravel	Moderate	Turbid
SCD2	1	2	0-2	Sand	Slow	Turbid
SCE	1	2	8	Gravel, cobble	Fast	Clear
SCF	5	8-10	1-3	Sand, gravel	Fast	Turbid
SCH	3	5-7	6-18	Sand, gravel, cobble	Moderate	Turbid
SDA	1	2-3	1-3	Sand, gravel	Slow	Clear
SDB	3-4	2	0-4	Sand, gravel	Slow	Turbid
SDC	3-5	4-6	2-4	Sand, cobble	Moderate	Turbid
SDD	1-3	1-3	0-4	Sand, gravel	None	Turbid
SHW	1	3-4	1-4	Sand, gravel	Moderate	Clear

Table 3 - Jurisdictional Characteristics of Water Resources in the Study Area

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
Afton Run	3283	Perennial	Yes	NA
Coddle Creek	5846	Perennial	Yes	NA
Irish Buffalo	556	Perennial	Yes	NA
Rocky River	509	Perennial	Yes	NA
SA	132	Intermittent	Yes	NA
SJ	561(I)/654(P)	Intermittent/Perennial	Yes	NA
SK	1400	Perennial	Yes	NA
SM	4	Intermittent	Yes	NA
SN	85	Intermittent	Yes	NA

SO	885	Perennial	Yes	NA
SP	1378	Intermittent	Yes	NA
SQ	2562	Intermittent	Yes	NA
SR	304(I)/70(P)	Intermittent/Perennial	Yes	NA
SS	122	Perennial	Yes	NA
ST	624	Perennial	Yes	NA
SBA	494	Perennial	Yes	NA
SBC	39	Intermittent	Yes	NA
SBD	1641	Intermittent	Yes	NA
SBE	117	Intermittent	Yes	NA
SBF	28	Intermittent	Yes	NA
SBG	1495(I)/143(P)	Intermittent/Perennial	Yes	NA
SBH	163	Intermittent	Yes	NA
SBI	85	Intermittent	Yes	NA
SBJ	1340	Perennial	Yes	NA
SBK	272	Intermittent	Yes	NA
SBL	143	Intermittent	Yes	NA
SBM	1371(I)/1895(P)	Intermittent/Perennial	Yes	NA
SBN	123	Perennial	Yes	NA
SBP	216	Intermittent	Yes	NA
SBQ	928	Intermittent	Yes	NA
SBR	1921	Intermittent	Yes	NA
SBS	398	Intermittent	Yes	NA
SBT	60	Intermittent	Yes	NA
SBU	45	Intermittent	Yes	NA
SBV	421	Intermittent	Yes	NA
SBW	419	Intermittent	Yes	NA
SBY	116	Intermittent	Yes	NA
SBZ	146	Intermittent	Yes	NA
SCA	1814	Intermittent	Yes	NA
SCB	593	Perennial	Yes	NA
SCC	226	Perennial	Yes	NA
SCD	243	Intermittent	Yes	NA
SCD2	124	Intermittent	Yes	NA
SCE	255	Intermittent	Yes	NA
SCF	477	Perennial	Yes	NA
SCH	742	Perennial	Yes	NA
SDA	146(I)/594(P)	Intermittent/Perennial	Yes	NA
SDB	55	Intermittent	Yes	NA
SDC	68	Perennial	Yes	NA
SDD	254	Intermittent	Yes	NA
SHW	146	Intermittent	Yes	NA
Total	38,731			

Table 4 - North Carolina Stream Assessment Method Classification

Map ID	Functional Ratings
Afton Run	M-LHM
Coddle Creek	L-LLL
Irish Buffalo	M-LHM
Rocky River	M-LHM
SA	L-LHL
SJ-1	M-LHM
SJ-2	L-LHL
SK	M-LHM
SM	M-LMH
SN	M-LHM
SO	M-LHM
SP-1	M-HMM
SP-2	L-LLM
SP-3	H-LHH
SQ-1	H-HHM
SQ-2	H-HMH
SQ-3	L-LHL
SQ-4	L-LML
SQ-5	L-LHL
SR-1	L-LML
SR-2	L-LML
SS	L-LML
ST-1	L-LML
ST-2	L-LLL
SBA-1	L-LML
SBA-2	L-LLL
SBC	L-LLM
SBD-1	L-LHL
SBD-2	L-LHL
SBE	L-LML
SBF	L-LML
SBG-1	M-LMH
SBG-2	L-HLL
SBG-3	L-MLL
SBG-4	L-LLL
SBG-5	M-MML
SBG-6	M-LMH
SBH	L-LML
SBI	L-LLL
SBJ-1	M-LMM
SBJ-2	L-LLL
SBK	H-MHH

SBL	M-LHM
SBM-1	M-LMM
SBM-2	M-HML
SBM-3	L-MLL
SBM-4	L-LML
SBM-5	L-LHL
SBN	M-HMM
SBP	H-HHH
SBQ-1	M-MML
SBQ-2	L-LHL
SBR-1	L-LML
SBR-2	L-LML
SBS	M-HML
SBT	M-HML
SBU	L-LML
SBV	H-HHM
SBW	M-LMM
SBY	L-LLM
SBZ	H-HMH
SCA-1	L-LLH
SCA-2	M-MLM
SCA-3	H-HHM
SCA-4	M-MMM
SCB	L-LML
SCC	M-MML
SCD	M-LMM
SCD2	M-HLM
SCE	H-HHH
SCF-1	L-LML
SCF-2	L-LLL
SCF-3	L-LML
SCF-4	M-MMM
SCB	L-LML
SCC	M-MML
SCD	M-LMM
SCD2	M-HLM
SCE	H-HHH
SCF-1	L-LML
SCF-2	L-LLL
SCH-1	L-LML
SCH-2	L-LLL
SCH-3	M-LMH
SDA-1	M-MMH
SDA-2	H-HHL
SDA-3	L-LML
SDB	M-MMH

SDC	L-LLL
SDD-1	L-LLL
SDD-2	L-LLL
SHW	M-MLM

Table 13 - Jurisdictional Characteristics of Wetlands in the Study Area

Map ID	NCWAM Classification	Hydrologic Classification	NCWAM Wetland Ratings	Area (ac.)
WG	Headwater Forest	Riparian	L-MLL	<0.1
WI	Bottomland Hardwood Forest	Riparian	M-MMM	<0.1
WK	Headwater Forest	Riparian	M-MML	<0.1
WM	Riverine Swamp Forest	Riparian	WM-1, H-HHM WM-2, L-LML	2.7
WO	Headwater Forest	Riparian	H-HHL	<0.1
WAB	Headwater Forest	Riparian	M-MML	<0.1
WAC	Headwater Forest	Riparian	L-LLL	<0.1
WAD	Riverine Swamp Forest	Riparian	M-MMM	0.2
WAE	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WAF	Riverine Swamp Forest	Riparian	H-HHH	0.1
WAG	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WAH	Headwater Forest	Riparian	H-HHH	0.8
WAI	Headwater Forest	Riparian	H-HHH	<0.1
WAJ	Headwater Forest	Riparian	H-HHH	0.6
WAK	Headwater Forest	Riparian	L-LLM	<0.1
WAL	Headwater Forest	Riparian	M-MMH	0.2
WAM	Headwater Forest	Riparian	M-MMH	0.5
WAN	Headwater Forest	Riparian	L-LLM	0.2
WAO	Headwater Forest	Riparian	H-HHH	<0.1
WAP	Headwater Forest	Riparian	H-HHH	<0.1
WAQ	Riverine Swamp Forest	Riparian	L-MLL	0.1
WAR	Headwater Forest	Riparian	H-HHM	<0.1
WAS	Headwater Forest	Riparian	H-HHM	0.1
WAT	Headwater Forest	Riparian	L-MLL	0.2
WAU	Riverine Swamp Forest	Riparian	H-HHL	0.1
WAV	Headwater Forest	Riparian	L-LML	<0.1
WAV-2	Headwater Forest	Riparian	L-MLL	<0.1
WAW	Headwater Forest	Riparian	L-MLL	<0.1
WAW-2	Headwater Forest	Riparian	L-MLL	<0.1
WAX	Headwater Forest	Riparian	L-MLL	0.1
WAY	Headwater Forest	Riparian	L-LLL	<0.1
WAZ	Headwater Forest	Riparian	L-LLL	0.1
WBB	Headwater Forest	Riparian	H-HHH	<0.1
WBC	Headwater Forest	Riparian	H-HHH	<0.1

WBD	Basin Wetland	Non-riparian	M-HMM	0.1
WBE	Headwater Forest	Riparian	H-HHH	<0.1
WBE-2	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WBF	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WBG	Riverine Swamp Forest	Riparian	H-HHL	0.1
WBH	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WBI	Riverine Swamp Forest	Riparian	H-HHL	0.1
WBJ	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WBK	Seep	Non-riparian	M-HML	0.1
WBL	Headwater Forest	Riparian	M-MML	0.2
WBM	Riverine Swamp Forest	Riparian	L-MLL	0.1
WBN	Headwater Forest	Riparian	L-LLL	<0.1
WBO	Headwater Forest	Riparian	M-MML	0.1
WBP	Riverine Swamp Forest	Riparian	LMLL	0.1
WBQ	Riverine Swamp Forest	Riparian	H-HHL	<0.1
WBR	Headwater Forest	Riparian	M-HMM	0.4
WBS	Headwater Forest	Riparian	M-HML	<0.1
WBT	Headwater Forest	Riparian	L-LLL	<0.1
WBU	Headwater Forest	Riparian	H-HHH	<0.1
WBV	Headwater Forest	Riparian	L-HLL	<0.1
WBV-2	Headwater Forest	Riparian	L-HLL	<0.1
WBW	Headwater Forest	Riparian	H-HHH	<0.1
WBX	Headwater Forest	Riparian	H-HHH	<0.1
WBY	Riverine Swamp Forest	Riparian	L-LLL	0.1
WBZ	Headwater Forest	Riparian	L-LML	0.6
WCA	Headwater Forest	Riparian	L-MLL	0.1
WCB	Riverine Swamp Forest	Riparian	M-MLM	0.7
WCE	Bottomland Hardwood Forest	Riparian	M-MLM	<0.1
WDA	Bottomland Hardwood Forest	Riparian	L-LML	1.4
WDB	Bottomland Hardwood Forest	Riparian	M-MMM	<0.1
WDD	Headwater Forest	Riparian	H-HMH	<0.1
WDD-2	Headwater Forest	Riparian	M-MLH	<0.1
WDE	Basin Wetland	Non-riparian	M-HMM	<0.1
WDF	Basin Wetland	Non-riparian	M-HMM	<0.1
WDO	Headwater Forest	Riparian	M-MLH	<0.1
WZA	Non-tidal Freshwater Marsh	Riparian	WZA-1, H-HHH	5.6
	Riverine Swamp Forest		WZA-2, H-HHH	
	Bottomland Hardwood Forest		WZA-3, H-HHH	
WZB	Headwater Forest	Riparian	H-HHL	<0.1
WZC	Headwater Forest	Riparian	H-HHL	<0.1
WZD	Bottomland Hardwood Forest	Riparian	H-HHM	0.3

WZE	Bottomland Hardwood Forest	Riparian	H-MHH	1.3
WZF	Bottomland Hardwood Forest	Riparian	L-MLL	0.3
			Total	18.5

Table 14 - Jurisdictional Features of Open Waters in the Study Area

Map ID	NWI Classification	Area (ac.)
OWD	PUBHh	1.2
OWE	PUBHh	0.8
OWF	PUBHh	0.4
OWG	PUBHh	0.3
OWH	PUBHh	0.1
OWI	PUBHh	0.3
Total		3.1

Appendix C – Typical Sections

