

PROJECT ENVIRONMENTAL CONSULTATION FORM

T.I.P. No. I-3819

Iredell County

I. General Information

Consultation Phase: Construction Consultation

Project Description: Proposed I-40/1-77 Interchange Area Improvements Iredell County, WBS No. 34192.1.2

Document Type: EA November 2006
FONSI August 2008
Construction Consultation Section A January 2011
Construction Consultation Section B September 2018

Conclusions

The above environmental documents have been reevaluated as required by 23 CFR 771. It was determined that the current proposed action is essentially the same as the original proposed action. Proposed changes, if any, are noted below in Section III. It has been determined that anticipated social, economic, and environmental impacts were accurately described in the above referenced documents unless noted otherwise herein. Therefore, the original Administrative Action remains valid.

II. Changes in Proposed Action and Environmental Consequences

Design Change

The Design-Build Team proposes a change in design from the Recommended Alternative assessed in the 2006 Environmental Assessment (EA) and the Selected Alternative assessed in the 2008 Finding of No Significant Impact (FONSI) for I-3819. A Four-level Offset Interchange was selected as the Recommended Alternative in the EA and the Selected Alternative in the FONSI. The Design-Build Team proposes a Turbine design. The Turbine design includes reduced shoulder widths on the existing I-40 bridge and reduces the number of bridges needed to be constructed along interchange ramps that eliminates 3rd level bridge construction. The design modification will reduce construction costs, minimize wetland impacts, further minimize mitigation site buffer impacts, and reduce the amount of time scheduled for construction.

While I-3819 was treated as one project for the NEPA review, the project was broken into two projects, I-3819A and I-3819B, due to funding constraints. I-3819A construction was completed in 2017 and included the widening of I-40, ramp improvements to the I-40/I-77 interchange, and the conversion of the I-40/US 21 interchange to a diverging diamond.

Figures showing the difference between the NCDOT preliminary design and the current design are shown in Appendix B.

Traffic

Traffic analysis for the current design concluded traffic would operate at a similar level of service as the preliminary design. The current design does not introduce any additional weaves to the project. An Interstate Access Report (IAR) will be prepared for the current design.

Water Resources

Water resources in the study area are part of the Yadkin-Pee Dee basin [U.S. Geological Survey (USGS) Hydrologic Unit 03040102].

The 2016 Final 303(d) list of impaired waters identifies a portion of Fourth Creek within the project study area (upstream of the confluence with Morrison Creek) as impaired for fish community (Nar, AL, FW). This portion of Fourth Creek remains on the 2018 Draft 303(d) List. No other 303(d) streams have been identified within or within 1.0 mile downstream of the study area. There are no designated High-Quality Waters (HQW), Outstanding Resource Waters (ORW), or water supply watersheds (WS-I or WS-II) within or within 1.0 mile downstream of the study area.

Jurisdictional Resources

The current design modifications would reduce the number of overall wetland and stream impacts compared to the overall impacts presented in the 2006 EA and 2008 FONSI. See Table 1 below. Tables summarizing the wetland and stream impact comparisons between the EA, FONSI, and the current I-3819B design are presented in Appendix A.

Table 1 - Impacts to Jurisdictional Resources in I-3819B

| | Wetlands ¹ (acres) | Streams ² (LF) |
|---|-------------------------------|---------------------------|
| 2006 EA | 3.00 | 2,621 |
| 2008 FONSI | 3.73 | 2,169 |
| Current I-3819B Design | 1.32 | 1,117** |
| Previously Permitted I-3819A Impacts ³ | 1.27 | 157** |

¹EA wetland impacts calculated using slope stakes plus 10 feet; FONSI wetland impacts calculated using slope stakes plus 25 feet; and Current Design wetland impacts calculated using slope stakes plus 10 feet. I-3819A impacts based on Clean Water Act Section 404 permit.

²EA, FONSI, and Current Design stream impacts calculated using slope stake limits only.

³Does not include all impacts permitted under I-3819A; only includes impacts abutting I-3819B.

** Excludes streambank stabilization.

The change to a Turbine Interchange most significantly altered the amount of jurisdictional resource impacts in the southwest quadrant and the northeast quadrant of the interchange.

In the southwest quadrant, wetland fill impacts have been reduced by 1.61 acres as compared to the EA and 1.83 acres as compared to the FONSI. In addition, the Turbine Interchange also reduces wetland shading effects by approximately one acre as compared to the previous design. Stream

impacts decreased in the southwest quadrant by 650 LF as compared to the EA and decreased by 38 LF as compared to the FONSI. The design changes in the southwest quadrant maintain the Project Commitment that fill slopes in the southwest quadrant will not encroach into the jurisdictional wetland boundaries any more than practicable as shown in the preliminary design.

In the northeast quadrant, wetland impacts have been reduced by 0.07 acres as compared to the EA and 0.45 acres as compared to the FONSI. Stream impacts have increased in the northeast quadrant by 100 LF as compared to the EA and decreased by 485 LF as compared to the FONSI.

Comparing the DOT preliminary design slope stakes with the current design slope stakes, overall impacts to jurisdictional features are similar. The current design also avoids any impacts to restored wetlands and streams in the adjacent mitigation site in the northeast quadrant. Furthermore, the current design significantly reduces the amount of mitigation site buffer impacts as compared with the NCDOT preliminary design.

Federally Protected Species

As of March 20, 2019, the United States Fish and Wildlife Service (USFWS) lists three federally protected species, under the Endangered Species Act (ESA) for Iredell County (Table 1). For the dwarf-flowered heartleaf only, a discussion of the presence or absence of habitat is included below along with the Biological Conclusion rendered based on survey results in the study area.

Table 2 – Federally Protected Species

| Scientific Name | Common Name | Federal Status | Habitat Present | Biological Conclusion |
|-------------------------------|--------------------------|----------------|-----------------|-----------------------|
| <i>Glyptemys muhlenbergii</i> | Bog turtle | T (S/A) | N/A | N/A |
| <i>Myotis septentrionalis</i> | Northern long-eared bat | T | Yes | * |
| <i>Hexastylis naniflora</i> | Dwarf-flowered heartleaf | T | Yes | No Effect |

T – Threatened

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

* May Effect – Consistent with 4(d) rule

Suitable habitat for dwarf-flowered heartleaf occurs throughout the study area. Systematic surveys of suitable habitat within the study area were conducted by Axiom biologists on April 9, 2018. No individuals of this species were identified. In addition, a review of N.C. Natural Heritage Program (NCNHP) records on February 26, 2018 indicated no known occurrences of this species within 1.0 mile of the study area. Therefore, this project will have **No Effect** on dwarf-flowered heartleaf.

Community Resources

Statesville Greenway/Museum Greenway traverses the project boundary and parallels Fourth Creek. The current design will maintain wide-enough bridges to allow for greenway crossings as in the preliminary design and outlined in the environmental documents' Project Commitments.

As established in the Project Commitments for the project, retaining walls will be built along the shoulders of I-77 to minimize impacts to Pressly Elementary School. Retaining walls were built along I-40 to minimize impacts to Northview Elementary School as part of the I-3819A project.

Traffic Noise

A Design Noise Report (DNR) was prepared in February 2010 for the entire I-3819 project. The DNR determined that five noise walls preliminarily met feasibility and reasonableness criteria (minus public preference balloting), as defined in the 2004 NCDOT Traffic Noise Abatement Policy in effect at that time. Three of the five noise walls were constructed under the I-3819A project. The other two noise walls were within the future I-3819B portion of the project.

The I-3819B project is currently in the final design phase as part of the design-build project delivery. An updated DNR will be prepared based on final designs and will include the entire project limits of I-3819B, including the existing noise walls constructed under the I-3819A project. The final design noise study will be based on the 2016 NCDOT Traffic Noise Manual. The Design-Build Team will construct any feasible and reasonable noise abatements identified in the updated I-3819B DNR.

It should be noted that the I-3819B project has been let with the U-6039 (access management improvements to East Broad Street) project. Noise abatement is not considered feasible and reasonable due to site access constraints for U-6039.

Agency Coordination

A 404/NEPA Merger Concurrence Point 4B meeting was held on March 20, 2019 to review the design changes and the hydraulic design. Representatives from the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and the N.C. Division of Water Resources were present. The N.C. Wildlife Resources Commission provided comments and questions prior to the meeting. Draft minutes from the meeting can be found in Appendix C.

During the meeting, a robust discussion took place regarding changes in impacts in the northeast and southwest quadrants of the I-77/I-40 interchange. Changes to the ramp design in the northeast quadrant results in a reduction in impacts to the existing NCDOT mitigation site buffer and associated wetlands. A realignment of stream SL in the northeast quadrant eliminates the need for a culvert in this location. Changes in ramp alignment and configuration in the southwest quadrant of the interchange and slight shift of I-77 to the east in this area were positively received by the agencies as these changes reduce the amount of wetland shading and permanent fill impacts to medium quality wetlands.

III. List of Environmental Commitments

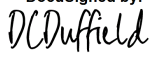
See the attached Project Commitments, Green Sheet, for the environmental commitments developed during the planning and design process of this project.

IV. Coordination

Design-Build Unit personnel have discussed current project proposals with others as follows:

- John Jamison, Environmental Policy Unit
- Erin Cheely, Environmental Analysis Unit

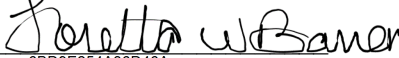
V. NCDOT Concurrence

DocuSigned by:

C58A0BA3BCBE4E1...
Dan Duffield
Design-Build Unit

5/17/2019

Date

VI. FHWA Concurrence

DocuSigned by:

8BD9E254A36D46A
Federal Highway Administration
Division Administrator

5/20/2019

Date

A. Project Commitments

Iredell County
Proposed I-40-I-77 Interchange Area Improvements
Federal Project No. IMS-40-2
WBS No. 34192.1.2
TIP No. I-3819B

In addition to the Section 404 Conditions, Regional Conditions, State Consistency, North Carolina Department of Transportation's (NCDOT) Guidance for Best Management Practices for the Protection of Surface Waters, General Certification Conditions, and Section 401 Conditions for Certification, State Stormwater Permit, NCDOT has agreed to the following special commitments:

ROADWAY DESIGN UNIT

Wetlands. Additional area of wetlands in the southwest quadrant of the I-40/I-77 interchange will be bridged to minimize impacts. Fill slopes will not encroach into the jurisdictional wetland boundaries any more than practicable as shown in the preliminary design.

Structures over Fourth Creek will accommodate the existing Museum Greenway path. The new and widened structures at SR 1934 (Hillside Lane) extension, I-40, and I-77, and their associated ramps shall be designed to span the existing greenway that follows Fourth Creek.

Retaining walls at Pressly Elementary School and Northview Elementary School. In order to minimize the impact to the grounds of these schools, a retaining wall along the proposed shoulder of I-40 and I-77 shall be constructed in accordance with NCDOT construction standards.

The retaining wall for Northview Elementary School was constructed as part of the I-3819A project.

Noise Mitigation. A final design noise report will be performed based on the results of the planning noise study. Noise mitigation will be provided as required in accordance with the NCDOT Noise Abatement Policy.

Appendix A

Wetland Impact Comparison for I-3819B

| 2006 NRTR ID | 2018 NRTR ID | EA Impacts ¹ (acres) | FONSI Impacts ² (acres) | Current I-3819B Design Impacts ³ (acres) | Previously Permitted I-3819A Impacts ⁴ (acres) |
|--|--|------------------------------------|---------------------------------------|---|---|
| W6 | WL | 0.00 | 0.02 | 0.00 | 0.00 |
| W7 | WK | 0.51 | 0.87 | 0.44 | 0.00 |
| W8 | WP | 0.10 | 0.00 | 0.00 | 0.02 |
| W9 | WQ | 0.00 | <0.01 | 0.00 | 0.00 |
| W12 | WJ | 0.00 | 0.17 | 0.00 | 0.16 |
| W14 | WH | 0.00 | <0.01 | <0.01 | 0.00 |
| W15 | WC/WD/WE | 1.81 | 2.41 | 0.58 | 1.09 |
| W16 | WG | 0.17 | 0.00 | 0.00 | 0.00 |
| W17 | WI | 0.04 | 0.05 | 0.09 | 0.00 |
| W24 | <i>Not delineated as jurisdictional in 2018 NRTR</i> | 0.14 | 0.18 | n/a | 0.00 |
| W25 | <i>Not delineated as jurisdictional in 2018 NRTR</i> | 0.02 | 0.03 | n/a | 0.00 |
| WSL | WF | 0.21 | 0.00 | 0.01 | 0.00 |
| <i>Not delineated as jurisdictional in 2006 NRTR</i> | WAN | n/a | n/a | 0.20 | 0.00 |
| <i>Total</i> | | 3.00 | 3.73 | 1.32 | 1.27 |

¹Impacts calculated using slope stake plus 10'.

²Impacts calculated using slope stake plus 25'.

³Impacts calculated using slope stake plus 10'.

⁴Does not include all impacts permitted under I-3819A; only includes impacts abutting I-3819B.

Jurisdictional Stream Impact Comparison for I-3819B

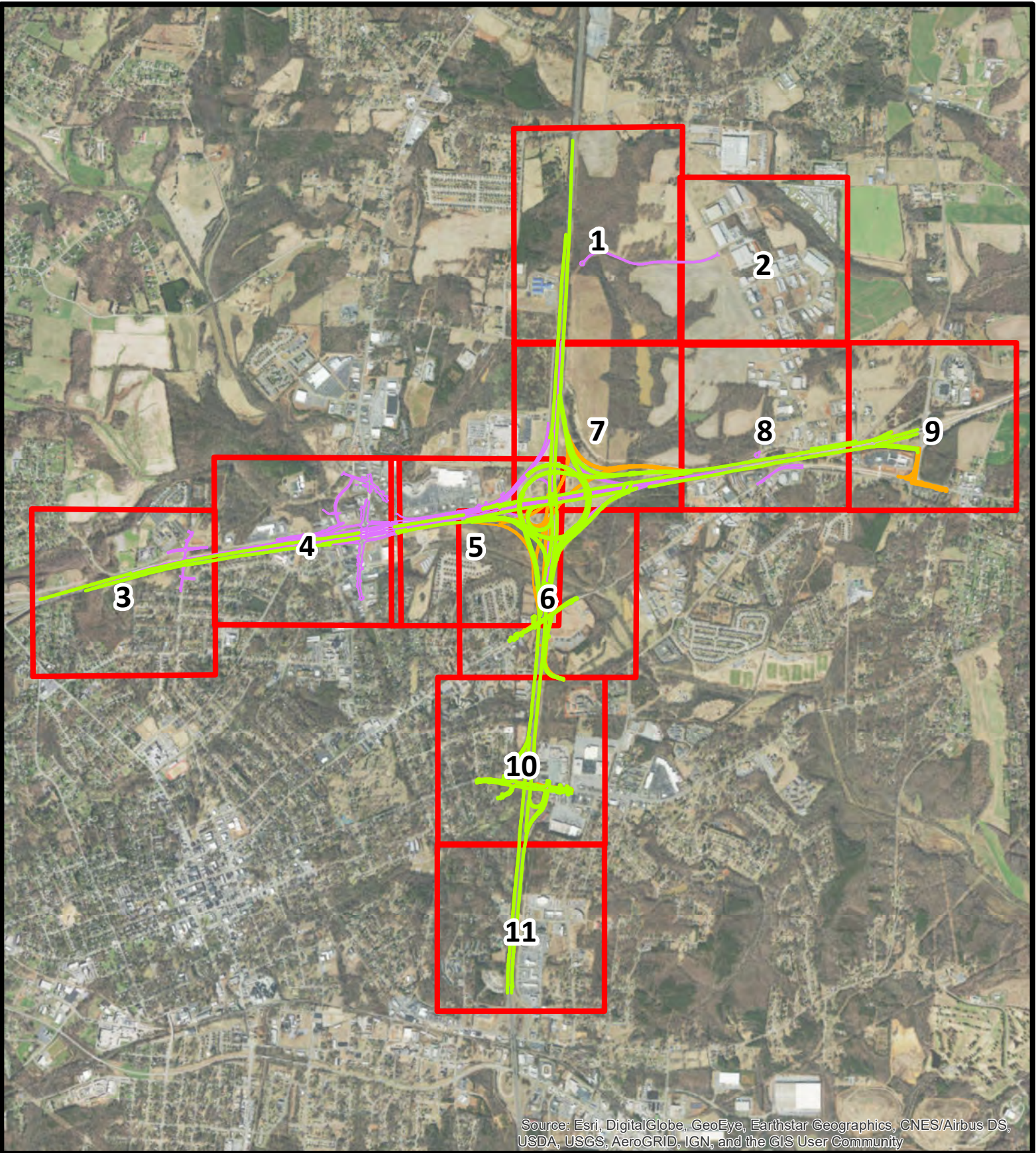
| 2006 NRTR ID | 2018 NRTR ID | EA Impacts ¹ (LF) | FONSI Impacts (LF) | Current I-3819B Design Impacts (LF)** | Previously Permitted I-3819 Impacts ² (LF)** |
|--------------|--|---------------------------------|-----------------------|---|---|
| S1 | Fourth Creek | 0 | 0 | 0 | 0 |
| S2 | Stream SK | 0 | 0 | 0 | 0 |
| S3 | Stream ST | 145 | 199 | 66 | 0 |
| S6 | Stream SL | 500 | 1,085 | 600 | 10 |
| S11 | Stream SJ | 269 | 247 | 0 | 0 |
| S12 | Stream SI | 590 | 0 | 209 | 70 |
| S13 | Stream SH | 0 | 0 | 0 | 0 |
| S14 | Stream SE | 0 | 0 | 0 | 0 |
| S15 | Stream SG | 0 | 0 | 0 | 0 |
| S18/S21 | Stream SU | 89 | 149 | 50 | 0 |
| S19 | Stream SW | 80 | 109 | 79 | 0 |
| S20 | Stream SX | 685 | 44 | 19 | 0 |
| S22 | <i>Not delineated as jurisdictional in 2018 NRTR</i> | 237 | 235 | n/a | 0 |
| S23 | Stream SBA | 26 | 71 | 41 | 0 |
| S28/JS | Stream SA | 0 | 30 | 3 | 77 |
| S10 | Stream SR | 0 | 0 | 50 | 0 |
| <i>Total</i> | | 2,621 | 2,169 | 1,117 | 157 |

¹ EA, FONSI, and current design impacts calculated using slope stake limits only. I-3819A impacts based on Clean Water Act Section 404 permit.

² Does not include all impacts permitted under I-3819A; only includes impacts abutting I-3819B

** Excludes streambank stabilization.

Appendix B – Figures



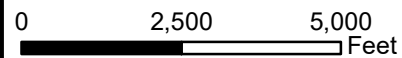
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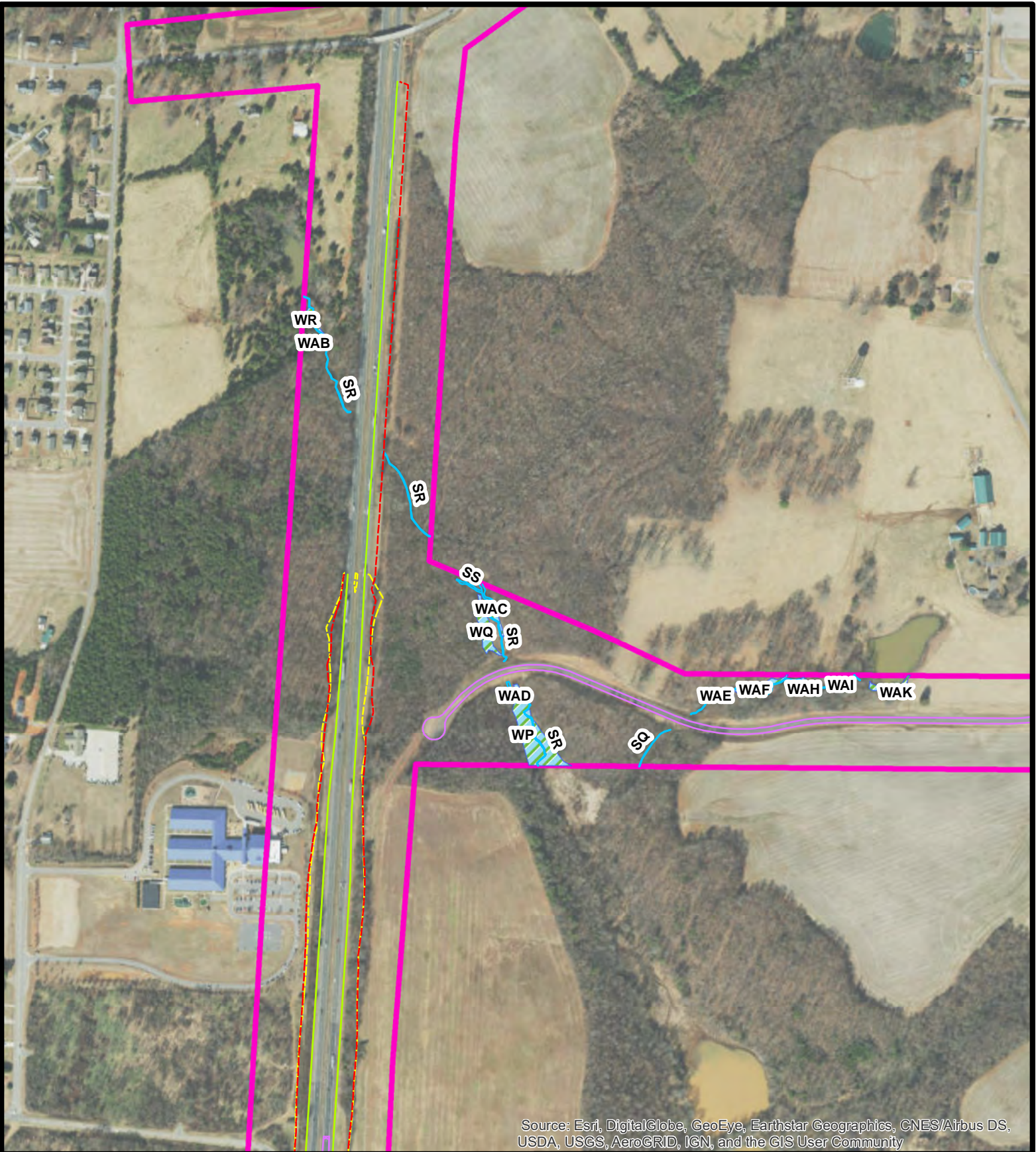


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Sheet Key

- Current Design EOT
- Preliminary I-3819B EOT
- I-3819A EOT (constructed)
- Sheet Number



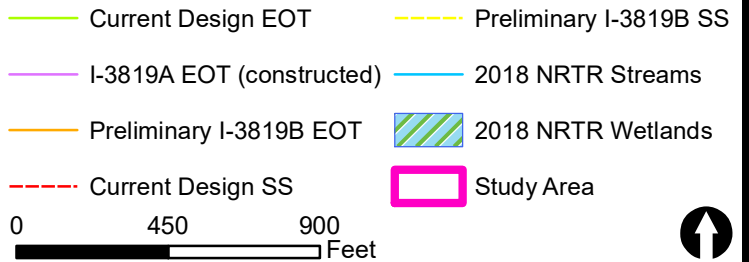


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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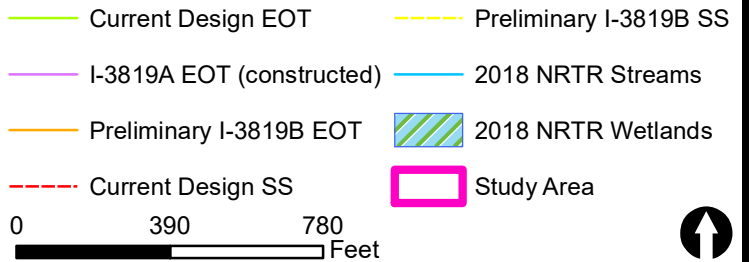


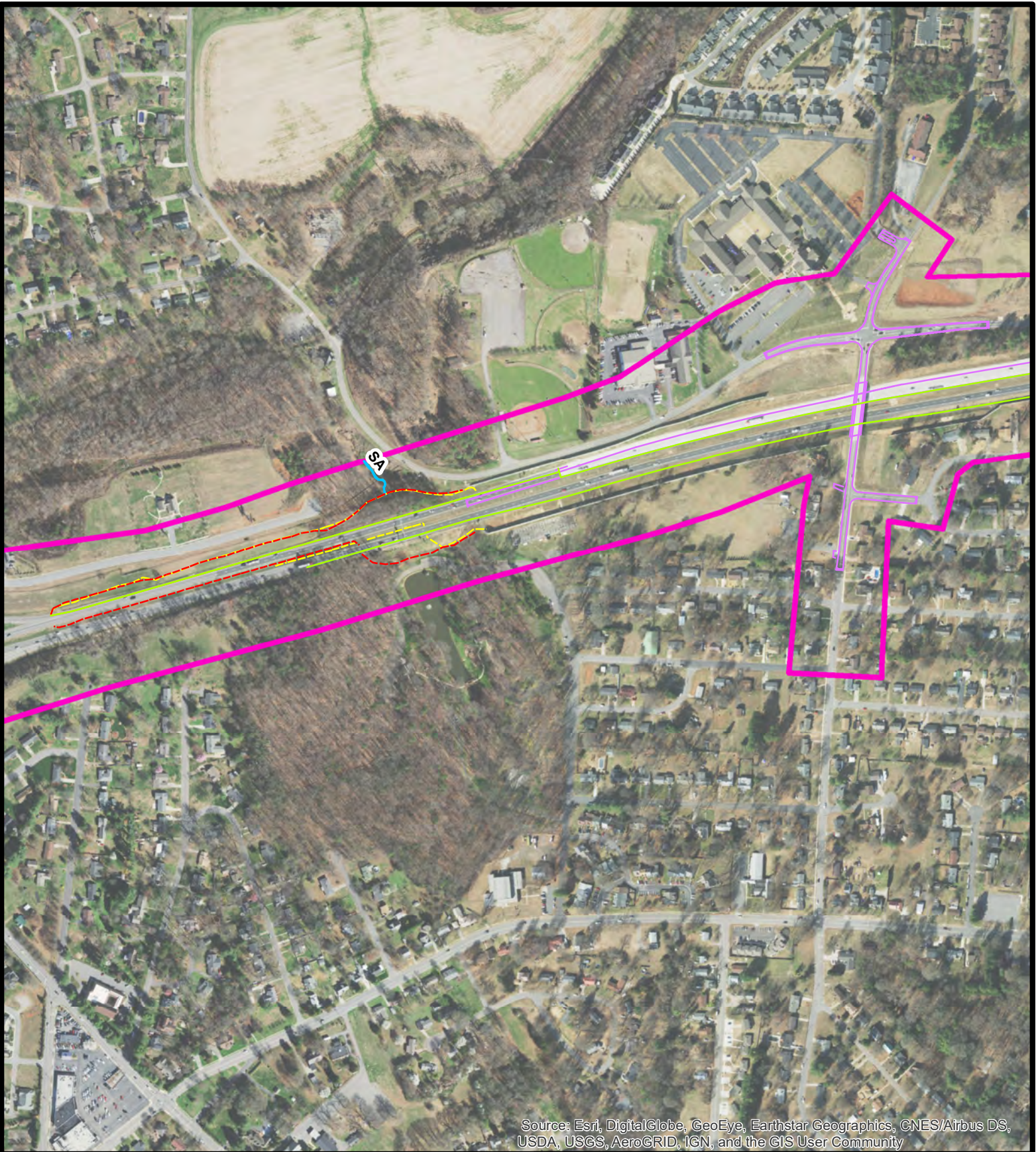
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

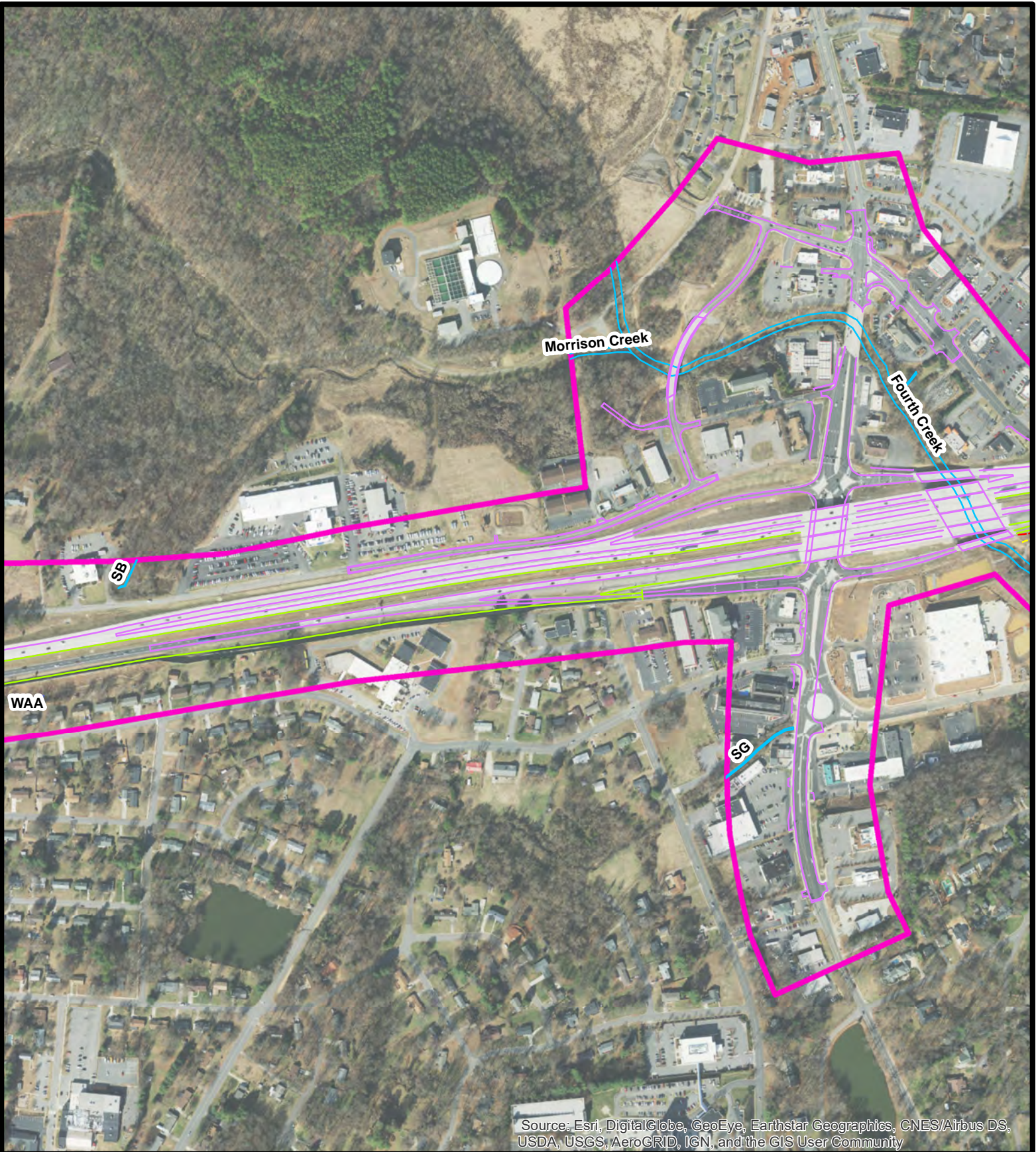


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| | | | |
|--|---------------------------|--|------------------------|
| | Current Design EOT | | Preliminary I-3819B SS |
| | I-3819A EOT (constructed) | | 2018 NRTR Streams |
| | Preliminary I-3819B EOT | | 2018 NRTR Wetlands |
| | Current Design SS | | Study Area |

0 425 850
 Feet

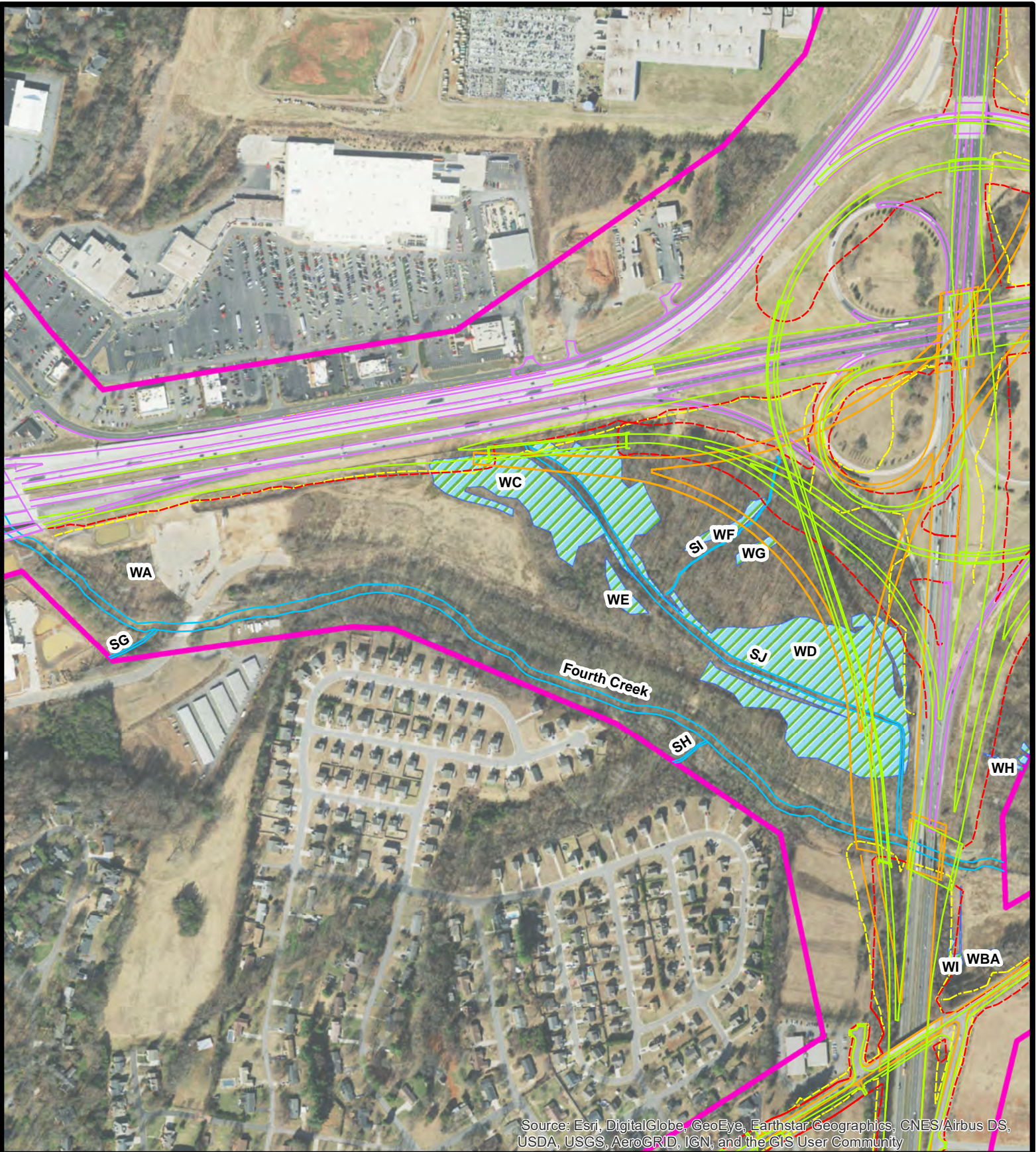


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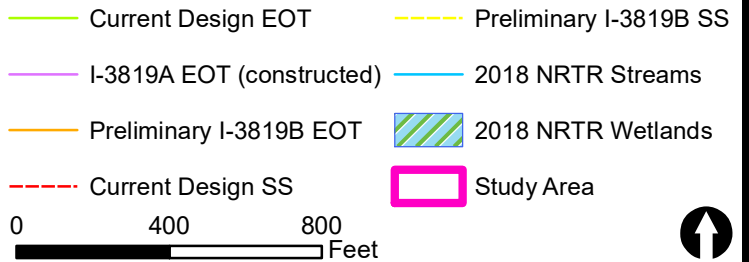
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|---------------------------|------------------------|
| Current Design EOT | Preliminary I-3819B SS |
| I-3819A EOT (constructed) | 2018 NRTR Streams |
| Preliminary I-3819B EOT | 2018 NRTR Wetlands |
| Current Design SS | Study Area |

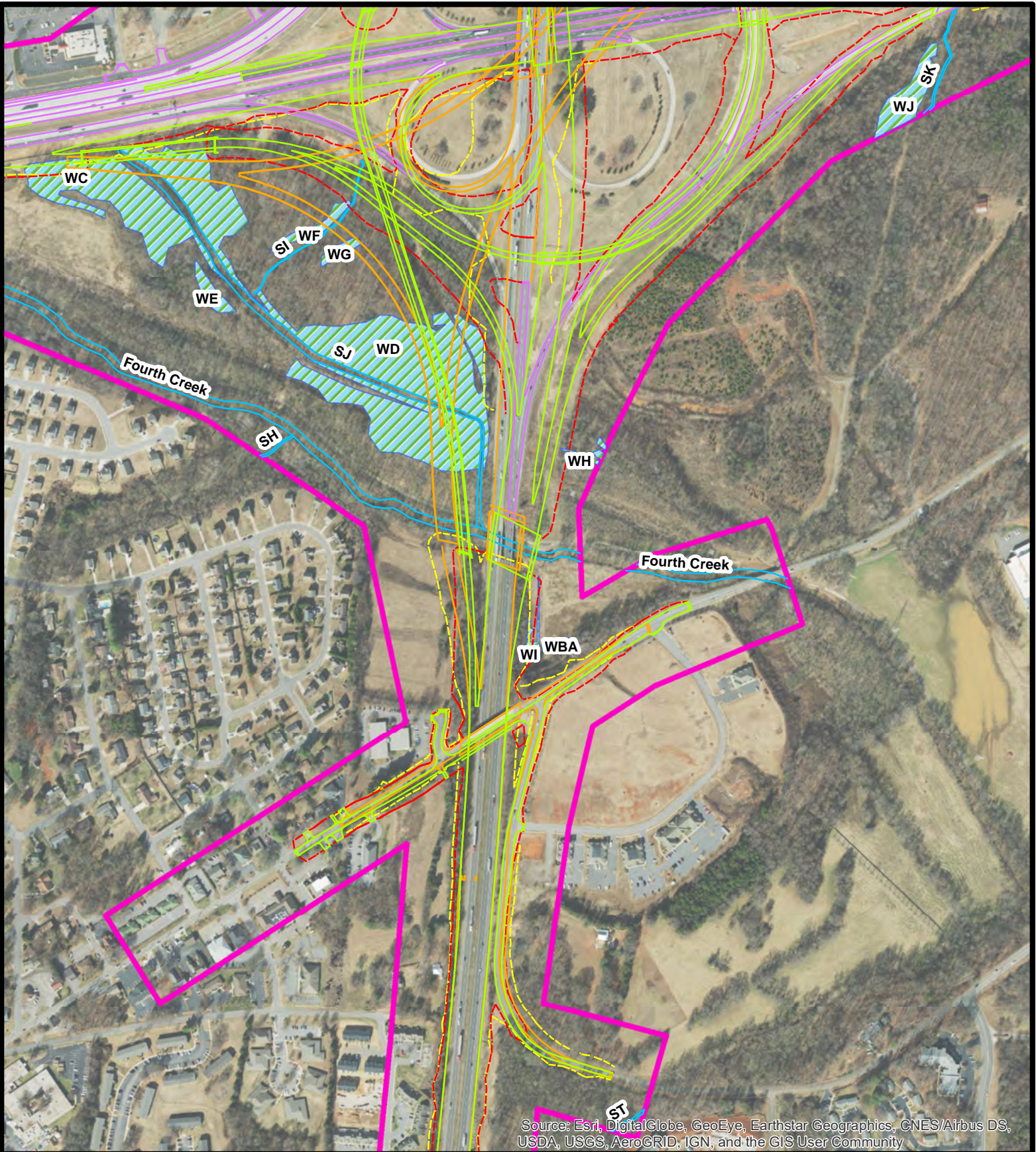
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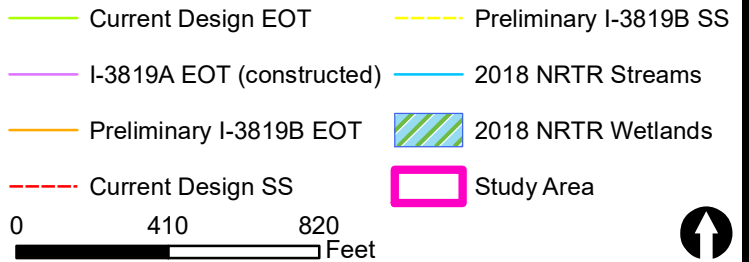


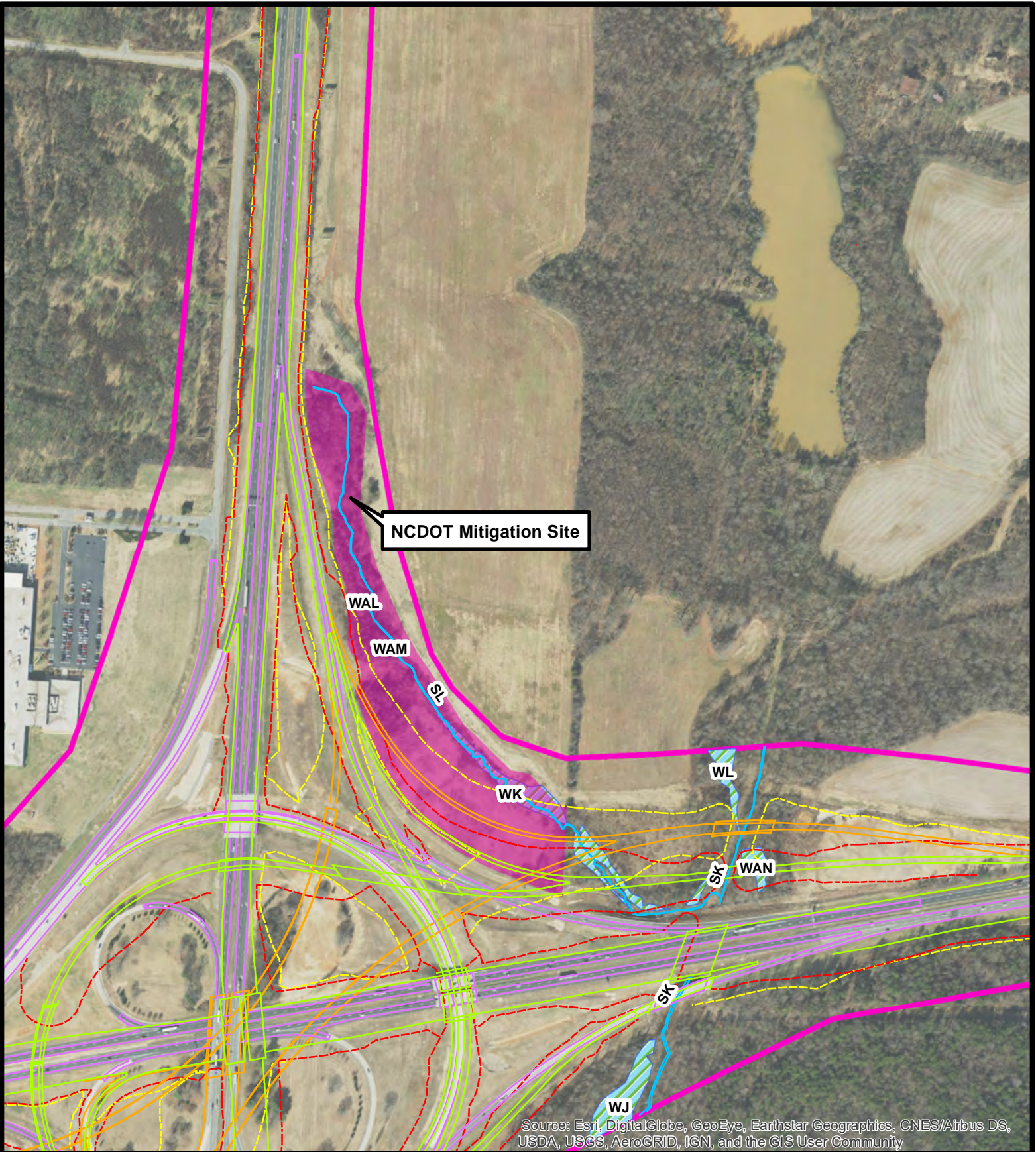
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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NCDOT Mitigation Site

WAL

WAM

SL

WK

WL

SK

WAN

SK

WJ

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

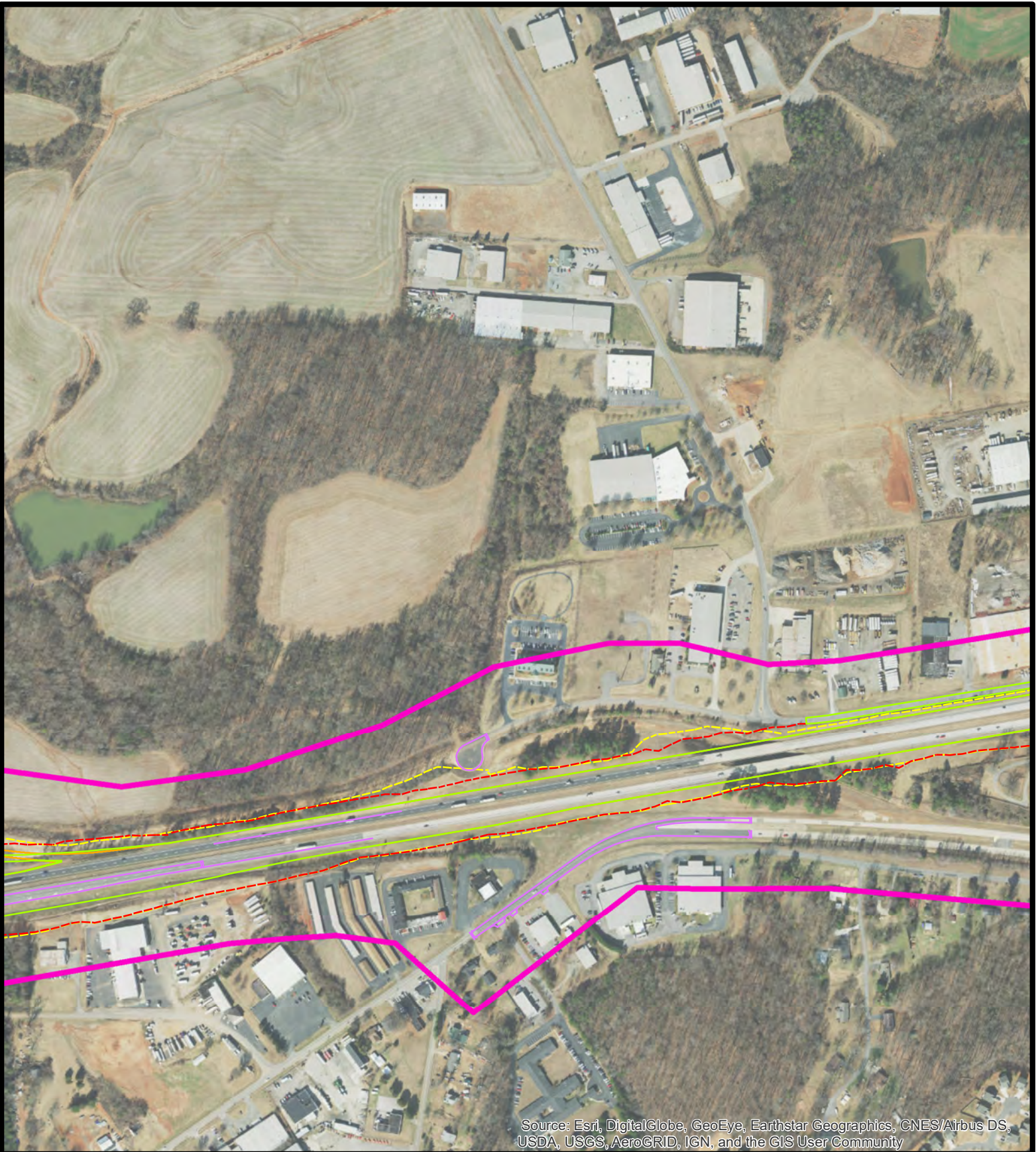


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| | |
|---------------------------|------------------------|
| Current Design EOT | Preliminary I-3819B SS |
| I-3819A EOT (constructed) | 2018 NRTR Streams |
| Preliminary I-3819B EOT | 2018 NRTR Wetlands |
| Current Design SS | Study Area |

0 390 780 Feet

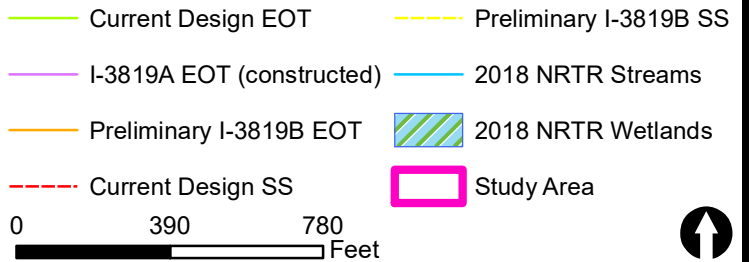


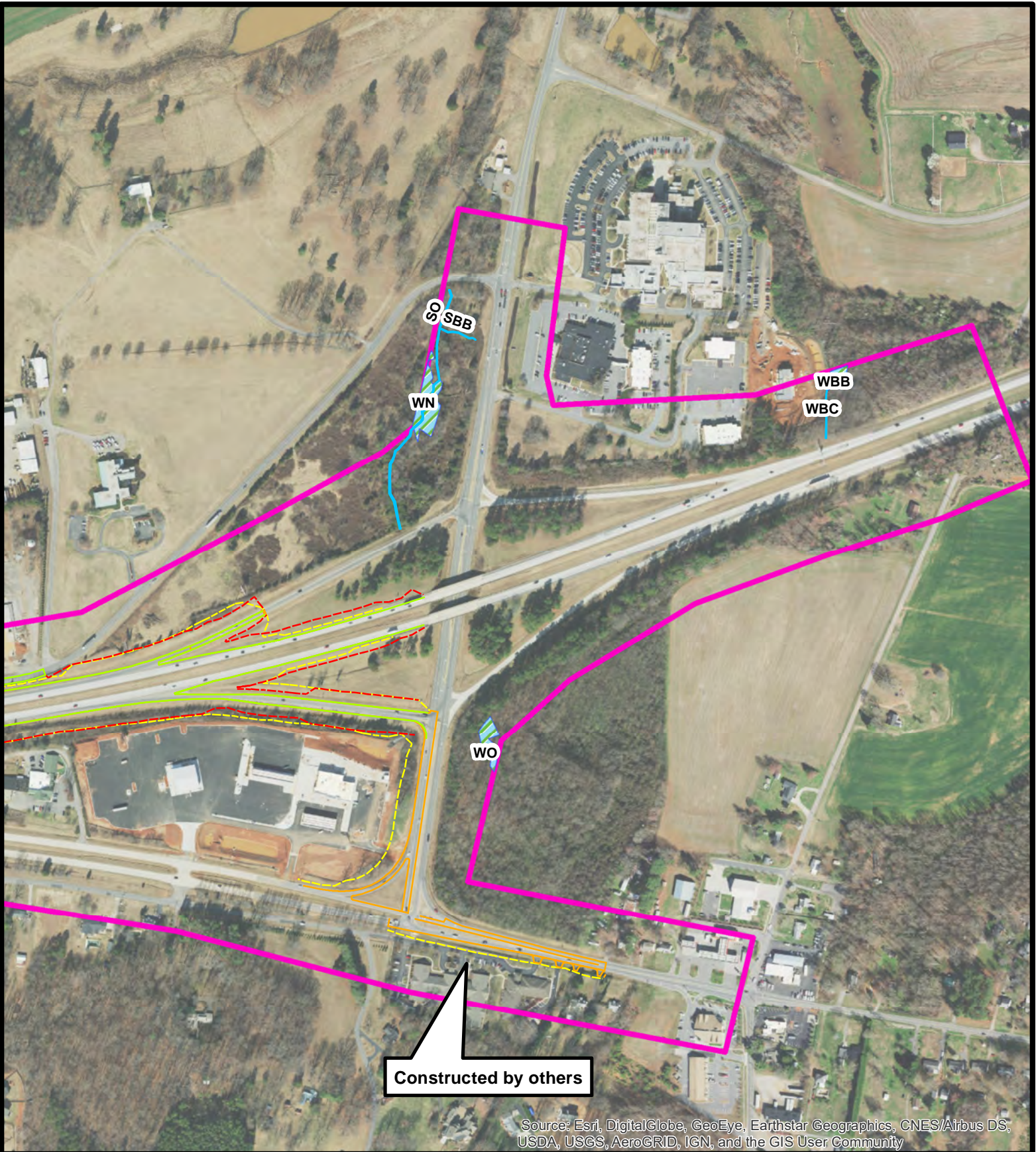
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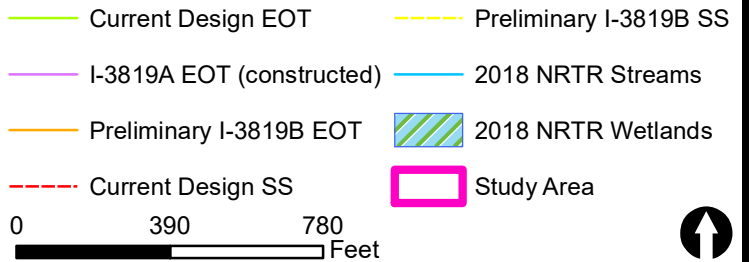


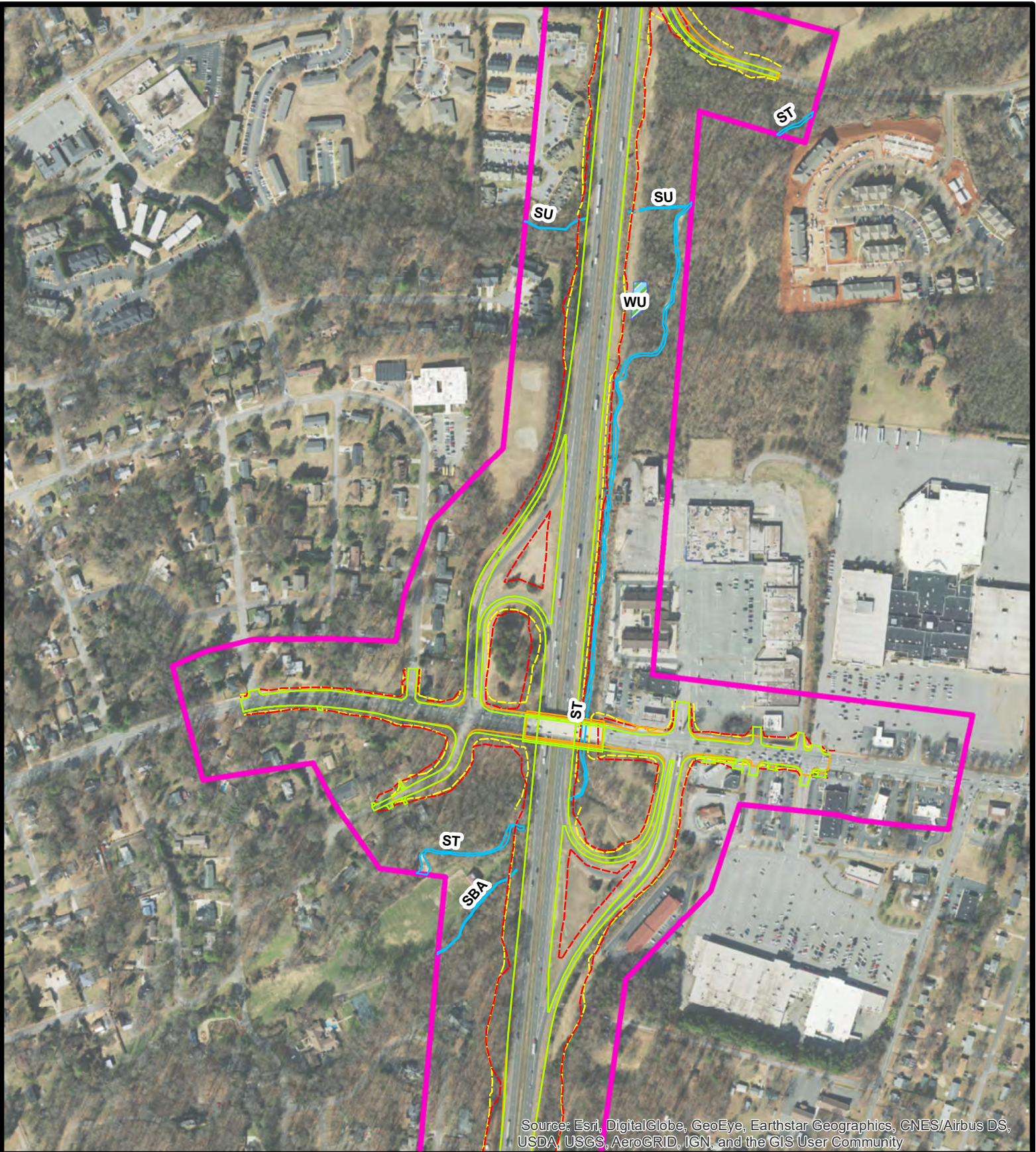
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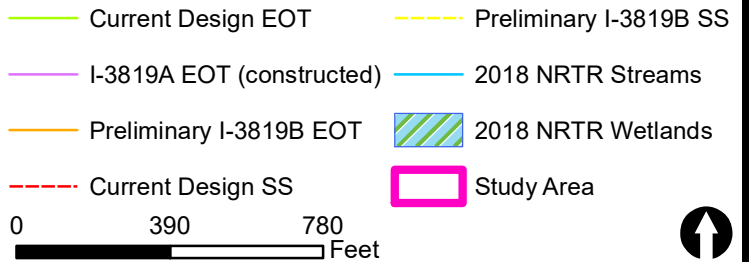
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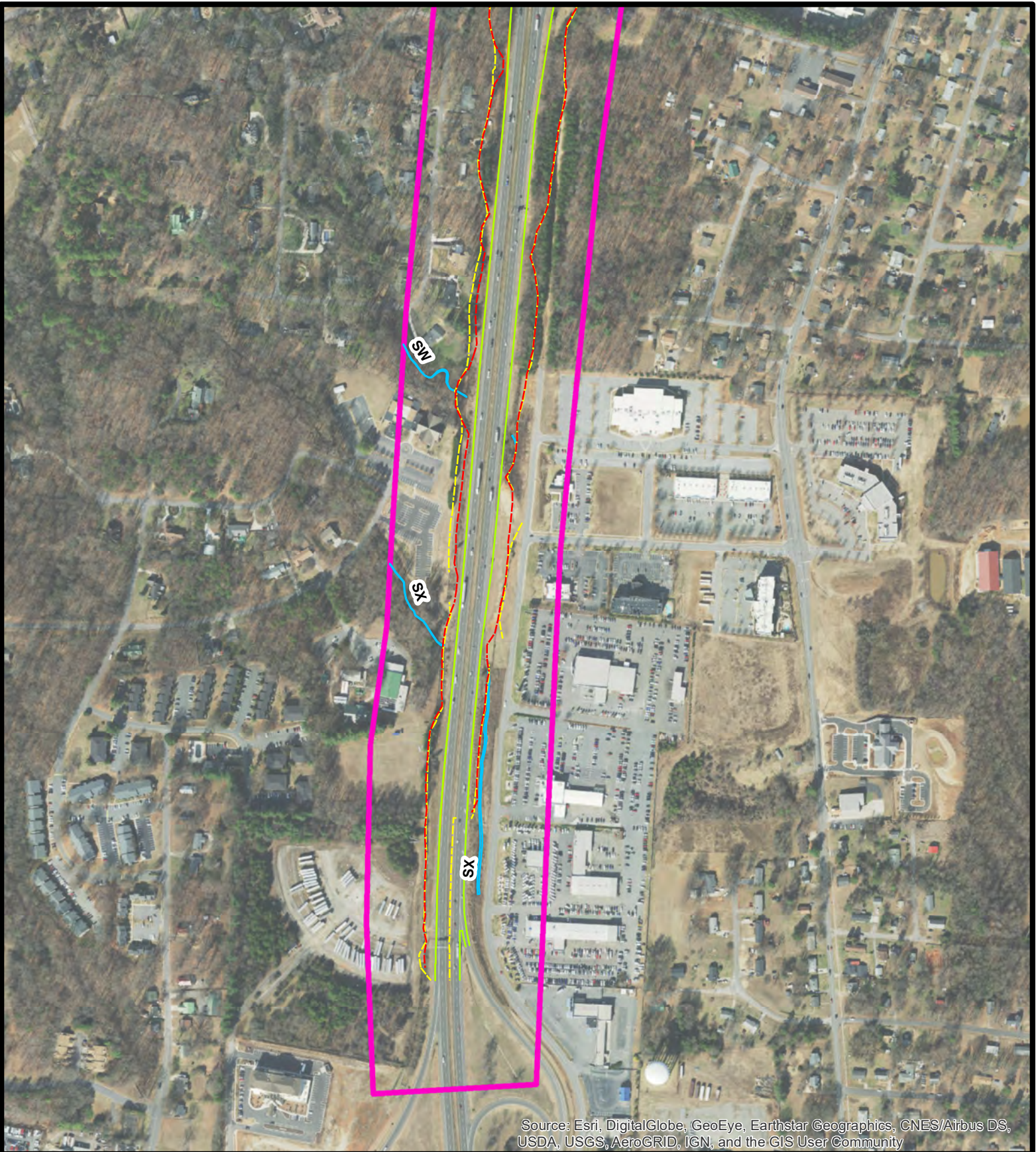




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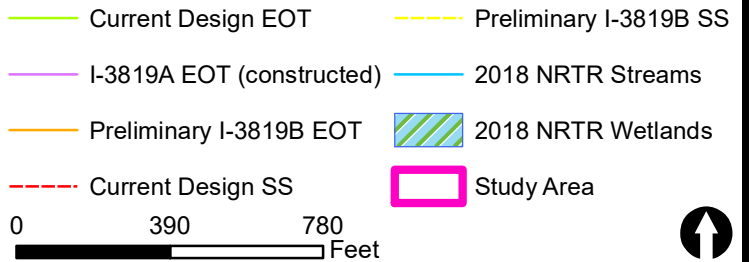


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Appendix C – Draft minutes from Concurrence Point 4B Meeting

I-40/I-77 Interchange

To: Concurrence Point 4B Merger Meeting Attendees

From: Everett Gupton, PE

Date: March 20, 2019

Location: NCDOT Structures Design Conference Room, Raleigh, NC

Subject: Meeting Minutes for Concurrence Point 4B Merger Meeting
I-40/I-77 Interchange
TIP Numbers I-3819B, U-6039

Attendees (* By teleconference) (**submitted comments by email prior to meeting)

| | |
|-----------------------|--|
| Nicholle Braspennickx | U.S. Army Corps of Engineers (USACE) |
| Monte Matthews | U.S. Army Corps of Engineers (USACE) |
| Amanetta Somerville* | US EPA |
| Claire Ellwanger | US Fish and Wildlife (USFW) |
| Donna Hood | N.C. Division of Water Resources (NCDWR) |
| Marla Chambers** | N.C. Wildlife Resources Commission (NCWRC) |
| Tim McFadden | NCDOT Design-Build |
| Dan Duffield | NCDOT Design-Build |
| Erin Cheely | NCDOT Environmental Assessment Unit (EAU) |
| John Jamison | NCDOT Environmental Policy Unit (EPU) |
| Larry Carpenter* | NCDOT Division 12 |
| Matthew Evans* | NCDOT Division 12 |
| Mark Staley | NCDOT Roadside Environmental Unit |
| Anthony Moore | NCDOT TEA |
| Patrick Tuttle | NCDOT L & S (Region III) |
| James Jeffreys | NCDOT L & S (Region III) |
| Matt Miltner | Lane Construction |
| Everett Gupton | WSP |
| Adam Karagosian | WSP |
| Daniel Bridges | WSP |
| Jason Gorrie | WSP |
| Chris Davis | WSP |
| Jon Becker | WSP |

A Concurrence Point 4B meeting was held on March 20, 2019 in the NCDOT Structures Design Conference Room at 1:00 pm. The primary purpose of this meeting was to review the submitted 4B plans and discuss significant design changes. A summary of the agenda and discourse is provided below.

Note that the original design which was presented at the 2A and 4A review stage is referred to as the “NCDOT preliminary design” and the current design being proposed for construction and review at this 4B meeting is referred to as the “WSP/Lane design”.

The meeting began with attendee introductions. After which, Everett Gupton began a PowerPoint presentation which has been attached to these meetings in PDF format. During presentation of the PowerPoint, several topics were discussed.

- Everett began with an introduction of the project, and how it relates to the I-3819A project, and provided a timeline of the project history.
- Everett presented a project timeline and stated the full construction is anticipated in November 2019 while earlier construction work outside of jurisdictional areas may commence as early as April 2019. An exhibit is included at the end of the minutes displaying the areas of early work outside of jurisdictional areas. After the project history, he presented the environmental commitments from the EA.
- Exhibits were shown which highlighted which improvements were part of the I-3819A project, and how the current WSP/Lane design ties into the I-3819A project.
- Exhibits were also presented which compared the overall WSP/Lane design to the NCDOT preliminary design.
- For reference, Everett mentioned that the quadrants of the proposed turbine interchange are identified as follows:
 - Northeast Quadrant – “A”
 - Northwest Quadrant – “B”
 - Southwest Quadrant – “C”
 - Southeast Quadrant – “D”
- Daniel Bridges presented a few of the significant design changes, and the impetus for each. These changes include:
 - **Shifting I-77 (near the crossing with I-40) to the east:** This shift minimized wetland impacts within quadrant C, and allowed for shifting of ramp in quadrant A, closer to the existing I-40 alignment.
- Everett provided a preliminary table of impact quantities. For the proposed design, WSP expects a slight increase in stream impacts, but fewer wetland impacts.
- In quadrant C, Everett presented that the proposed bridge over the wetland “WD” is fewer lanes (2 lanes) than the NCDOT design (4 lanes). Additionally, the alignment was selected to limit the number of bents in the wetland. Additionally, rock plating is specified along select Ramp C fill slopes to minimize impacts due to fill. The WSP/Lane design impacts a longer stream segment. This is due to the revised ramp layout. An existing 54” RCP outfall will be replaced by a 60” RCP outfall further downstream. However, also due to the revised ramp layouts, proposed wetland impacts are significantly less than what was shown in the NCDOT preliminary design.
- In quadrant A, WSP/Lane proposed reduction in impacts to the existing mitigation area buffers (as outlined during the I-3819A project). Everett estimated that the current proposed slope stakes encroach nearly 100’ less into the mitigation area than the NCDOT preliminary design.
 - Nicholle Braspennickx asked if there was any credit given for the mitigation site buffer. Erin Cheely indicated that the difference between wetland/stream credit and buffer credit was not broken out. This detail will need to be quantified and developed further for the 4C meeting.
- Everett presented that in quadrant A, the WSP/Lane design incorporates a channel change, in order to eliminate the need for a box culvert under the ramps. As with the NCDOT preliminary design, the WSP/Lane design shows the removal of the existing dual 7x7 concrete box culvert under I-40, and replacing it with a bridge.

- Everett reiterated that the design changes in quadrant A primarily minimize impacts to the mitigation site, and eliminates the need for a proposed culvert. Instead of the culvert, a channel change will be required. This results in a net increase in quantity of stream impact, but results in an open channel, rather than a closed culvert.
- Donna Hood pointed out that the NCDOT preliminary design is what was previously signed-off on by the Merger Team.
- Donna wondered if there is any way that the design team can gain environmental credit as a result of removing the dual 7x7 box culvert. She also discussed the possibility for “natural channel elements” with Erin. Donna asked that WSP/Lane evaluate options for a more natural stream surface (e.g., constructed riffles), as opposed to simply dumping riprap in the channel. Matt Miltner agreed that WSP and Lane are open to evaluating such a design. Everett pointed out that the channel is very flat in this location. Dan Duffield expressed concern about impeding hydraulic conveyance. Donna asked that at the very least, the riprap along the new channel bed should be embedded. It was mentioned that discussions regarding the channel design will continue up to, and through the 4C meeting.
- Donna asked about a comparison of pre vs post-construction discharges, and expressed support for the use of stormwater detention basins. Everett mentioned that the WSP/Lane design currently incorporates 7 detention basins.
- Nicholle asked whether federal funds are being used for I-3819B. Erin indicated that I-3819 has a federal EA and FONSI but I-3819B is now state funded. The I-3819A project used federal funds for construction.

Following general discussion, Everett presented each 4B plan sheet where potential impacts to jurisdictional waters and wetlands exist. Marla Chambers provided comments through email. Those comments have been inserted in the appropriate locations below and responses included.

Sheet 5

Everett mentioned that the existing 60” CMP was filled with flowable fill, and replaced with 72” RCP during the I-3819A project. The WSP/Lane design does not propose significant permanent impacts to jurisdictional features in this area. The design simply proposes a new headwall to reduce impacts from the roadway fill slope.

Sheet 7

No impacts to jurisdictional features are proposed on this sheet. Everett presented that existing stormwater outfalls will be retained and utilized. The WSP/Lane design incorporates new riprap to ensure stable outfall locations prior to flow entering wetland “WAA”.

Sheet 9A

Again, Everett mentioned that there are no impacts to jurisdictional features in this area. Existing storm drain boxes will be adjusted to match the new proposed road surface and an existing riprap spillway channel will be utilized as an outfall location near Fourth Creek.

Sheet 10

The WSP/Lane design incorporates a proposed bridge along YRPCA to span an existing UT to Fourth Creek and existing wetlands. Stormwater outfalls in this area will discharge to old sediment basins. The berms of these basins will be removed in a manner that ensures minimal velocities discharging into the wetland. Nicholle asked if interior bridge piers were displayed on the map. Bridge piers were not shown, but Daniel and Matt offered to provide an elevation view of the bridge, to display the span configuration and the pier locations as compared to the environmental features.

Everett mentioned that the proposed 60" RCP in quadrant C (southwest quadrant), which will replace the existing 54" RCP, will incorporate outlet protection to a length of 4 times the pipe diameter. Additionally, the 54" RCP will be removed where feasible, and the rest filled with flowable fill.

Donna mentioned that on the I-85 project, they had issues where their jack and bore conflicted with the replaced pipe, and the outlet ended up in a different location than initially intended. She asked that WSP/Lane confirm how much space is required between the existing pipe and the newly proposed alignment to ensure there are no issues during the jack and bore process.

Matt reiterated that only the portion under I-40 is jack and bore, the rest will be installed via an open cut. Matt confirmed the separation shown currently is within construction tolerances for this type of work.

Sheet 11

Donna asked that the design team modify the alignment of the proposed channel change, so that it does not intersect the existing stream at a 90 degree angle.

Marla Chambers Email Comment: "Suggest a better angle where the channel change outlets to the stream".

The design build team confirmed that they will look to make a better intersection angle where the channel change enters Tributary 3 to 4th Creek.

Nicholle asked if the plan sheet showed a bridge over the mitigation site. Everett clarified that a bridge is not proposed here but roadway fill for the ramp is proposed in this location. Everett reiterated that the WSP/Lane design in this location does minimize impacts to the existing mitigation area, with significantly less impact than the NCDOT preliminary design.

Everett presented that there is an existing bridge over tributary 3 along Ramp D from the I-3819A project. Our work along that bridge will be limited to shoulder pavement reconstruction.

Everett presented that an existing detention basin in the quadrant will be utilized to provide peak flow reduction, and Donna voiced her support.

Sheet 12

Marla Chambers Email Comment: "about station 122, is there a jurisdictional stream involved, being put in the stormwater system?"

After a brief review of the blue line on this sheet, as presented on the 4B plans, Adam Karagosian and Erin confirmed that the line did not represent a jurisdictional feature.

Sheet 15

Everett mentioned that this sheet portrays the eastern extents of the project, and that although the design utilizes an outfall to an existing wetland, it does not require any physical adjustment of the storm drainage system in that area.

Donna asked for clarification on the large ditch drawn between the "L" alignment and the "Y15RPB" alignment. Everett mentioned that it may not necessarily be that steep, but both Dan and Everett mentioned that it is fairly deep.

Sheet 16

Everett mentioned that temporary impacts will be required along the eastern edge of I-77, in order to install rock plating (and a 1.5:1 slope). However, there should be no permanent impacts in this area. Donna stated that the stream in this location showed signs of degradation and stress. Donna stressed that constructing the rock plating in this location will be a challenge. Erin indicated the stream in this location is intermittent until it crosses under I-77 to the west.

Sheet 17

The WSP/Lane design continues the slope protection (rock plating) through to the existing culvert at station 37+50. The design also incorporates a supplement to the existing pipe.

Donna asked if the supplement is big enough. She was concerned about the function of the creek, and how far apart the pipes might end up. Erin asked that in the 4C meeting WSP/Lane show worst case scenario for jack and bore. She mentioned it is easier to show “more” impacts, in case the jack and bore ends up a bit further from the existing culvert than expected.

Everett confirmed that the permit drawings will show impacts for a graded bench. This will provide a conservative estimate of the impact area, in case the jack and bore ends up further than expected from the existing pipe. As such, the design is less likely to require permit modifications.

Dan asked if the design could incorporate the standard 500 feet of bank stabilization. Donna stated that she was not overly concerned about permitting of stabilization. Ensuring the stabilization measures work well, is more important.

Adam asked if stabilization could tie in to the toe of the stream (below the ordinary high water mark). Erin confirmed that such stabilization would be a permanent impact, but would not require mitigation.

Everett moved on to second cross-pipe supplement location on the same sheet (Station 47+00) and another detention basin. In the vicinity of this second supplement, Erin confirmed that the small segment between the existing 54” RCPs east of I-77 is jurisdictional.

Donna mentioned that this area is very flashy and asked that the design team evaluate larger pipes, or at least to ensure that the inlet and outlet areas will remain stable.

Everett briefly mentioned the current design criteria, and that junction boxes will be utilized to ensure stable conveyance.

Sheet 19

Everett began with discussion of the triple box culvert extension and highlighted the Broad Street bridge replacement. He also mentioned the location of the retaining wall to limit impacts to the stream.

Everett mentioned that there will be temporary impacts during construction of the retaining wall, but permanent impacts will be avoided where possible.

Matt mentioned that WSP/Lane are currently evaluating wall types, and are conducting soil borings right now.

Donna asked if the existing concrete slope protection under the Broad Street bridge would be removed. Daniel and Everett presented the proposed channel geometry and bank material. Everett also mentioned that the pier will be located on the bench. Everett mentioned that a channel change will be required beneath the bridge.

Daniel offered to provide an elevation view of this bridge as well. Everett shared an image from the current BSR which displayed the proposed layout, the slopes of the stream bank, and dimensions in relation to the proposed wall.

Everett mentioned that the impacts in this area are consistent with what was shown in the NCDOT preliminary plan. The WSP/Lane design does shorten the length of the retaining wall by approximately 400’ (1300’ total instead of 1700’ total).

Erin asked if Everett could quickly address Marla’s comment about the flow distribution between the three culverts. Everett mentioned that we could evaluate design options, but there would likely be issues with the base flood elevation if the design incorporated sills, floodplain benches, etc. Since this is a culvert extension designing sills and floodplain benches is not practical.

Sheet 20

Everett showed the detention basin in this area. Donna asked for clarification of the material of the spillway. Everett confirmed that it will be riprap lining.

Chris Davis mentioned that it is likely a City of Statesville easement in this area.

Erin and Donna wanted to confirm that riprap in the bed will be embedded.

Marla Chambers Email Comment: "lower left corner, 42" CSP & 5' basin coming from dry detention basin appear to cross stream ST, rather than come to the edge of it. Also outletting flow at a perpendicular angle to the stream – may need protection on opposite bank or angled differently. Also 5' basin at outlet of 66" CMP – basin rock should be imbedded in the stream bottom, if not already. Center of page – new 48" welded steel culvert – outlet should connect to the existing stream, rather than a riprap pad."

Sheet 21

Everett pointed out wetland impacts near the US-64 bridge. Everett mentioned that the shift of I-77 begins in this area and slightly increased wetland impacts here would be offset by decreased impacts in quadrant C.

Sheet 22

Everett highlighted the layout of the YRPAC bridge in the southwest quadrant, and explained that the horizontal alignment, and span configuration had been selected to minimize impacts to the wetland. Specifically, the alignment crosses in a narrower segment of the wetland, where one fewer bent would be constructed within the wetland boundary that in an earlier WSP/Lane Team configuration. Additionally, the WSP/Lane design impacts one small/skinny wetland on the east side of I-77, but it is more than offset by reduction of impacts along the west side of I-77.

Sheet 23

The WSP/Lane design requires some impact to the existing mitigation area buffer, but not to the jurisdictional resources on this sheet.

Donna asked how that reduction in impacts will be quantified and assessed. Erin and Nicholle will discuss if that is on a square footage basis. According to Erin, this mitigation site offset impacts for only the I-3819A project. She briefly mentioned that DMS may require re-payment for any impacts to the mitigation site.

After seeing another detention basin, Donna reiterated her support for them, and would like to see the level of storage and treatment provided by these basins.

Sheet 24

Everett mentioned that we are supplementing an existing 48" pipe with a proposed 42" pipe. Everett mentioned that the WSP/Lane design will utilize a trenchless pipe, a proposed headwall, and the existing riprap.

Erin suggested that modifications to the riprap at the outlet would be bank stabilization impacts in the mitigation area. The rest of the group appeared to agree.

Sheet 27

Everett mentioned that the northern extent of the current WSP/Lane design does not cross/impact stream "SR".

After completing the review of individual plan sheets, Everett opened the floor for discussion or comment.

- Nicholle asked for information on associated projects. Erin confirmed there are no permits required for the U-6039 portion of the project. Everett showed the location of the U-6039 project.
- Nicholle asked if the project area has changed. Erin confirmed that the project area has not changed.
- Nicholle pointed out that the DOT and Merger Team previously agreed that this would be a modified Merger process. Erin mentioned that concurrence for I-3819 included both CP 2A (bridging) and 4A and the merger process began at CP 2A/4A. CP 1, CP 2, and CP 3 were not included in previous merger discussions and decisions. .
- Erin and Donna discussed the 54" pipe in the southwest quadrant which was proposed to be retained in the NCDOT preliminary design, but is proposed for replacement in the WSP/Lane design. They noted that the existing 54" RCP was not large enough at the time to be included in the previous CP 2A decision.
- Nicholle asked when WSP/Lane would be submitting a permit application. WSP/Lane offered to check the schedule, but estimated a June timeframe.
- Donna mentioned that any significant design changes should be brought back to the merger team for review. That has not yet been done. She admitted that the WSP/Lane team has just recently developed a final design. She asked that an overview of the significant design changes be attached to the meeting minutes. The overview could then be reviewed and signed for administrative purposes.
- Erin offered a comparison of the two designs (what was presented for 2A, vs. the current WSP/Lane design).
- Erin said that the Team will resend the 2A/4A materials with the meeting minutes, for re-signature/finalization.
- Nicholle asked about the presence of threatened and endangered species. Erin indicated three species are listed and none are an issue. The updated NRTR (2018) found no heartleaf. Bog turtle is not an issue here. Northern long-eared bat is not an issue. Erin will check but believes a SLOPES memo has been completed. Monte Matthews confirmed that since FHWA signed off on the NEPA doc that they will be the lead on the NLEB. Erin will check to see if clearance has been provided to satisfy FHWA.
- Dan (Duffield) asked for confirmation about why we need to re-send the 2A/4A forms for signature. Donna and Erin mentioned that the forms will simply present the revised footprint, so that the signed 2A documents are in line with the current proposed design.
- Daniel (Bridges) asked for, and received, confirmed that even though the 2A/4A forms need to be re-sent for signature, the design can progress toward 4C.
- The updated 2A/4A form should describe "avoidance and minimization"
- Donna asked that WSP/Lane "keep it simple" on the 2A and 4A forms and simply show the footprint of the NCDOT preliminary design and the footprint of the WSP/Lane design.
- Adam asked for, and received, confirmation that 2A/4A goes through docusign only to those that need to sign. Everyone else will only receive the meeting minutes.
- Donna asked about utility impacts. Daniel (Bridges) mentioned that there is a tower carrying power lines that will need shifted. He also mentioned that the design will relocate the sewer line that is currently running through the dual 7x7 box culvert, which will be replaced by a bridge.

Daniel also mentioned a sewer relocation at broad street. Daniel reiterated that the only utility impacts outside of the project construction area is the one tower that needs to be relocated.

- Dan (Duffield) asked if anyone had final comments.
- Meeting closed with no further comment.