U.S. Department of Transportation
Federal Highway Administration

South Carolina

1835 Assembly Street, Suite 1270
Columbia, South Carolina 29201
803-765-5411
803-253-3989

May 4, 2023

In Reply Refer To:
HDA-SC

Mr. Chad Long
Director Environmental Services Office
South Carolina Department of Transportation (SCDOT)
955 Park Street, P.O. Box 191
Columbia, South Carolina 29202

Dear Mr. Long:

The South Carolina Department of Transportation (SCDOT) recently submitted for FHWA's approval, a Categorical Exclusion (CE) to improve mobility and operations at the existing system interchange of I-26 and I-95, Dorchester and Orangeburg Counties, South Carolina (Federal Project Number P038677). The FHWA finds that the project will not induce significant impacts and will not adversely affect threatened or endangered species or cause adverse impacts to historic resources. Therefore, a CE determination under 23 CFR § 771.117(c)(26) is appropriate for this project. Enclosed is the approved CE for the project.

SCDOT is authorized to proceed with further project development. Please ensure that the project commitments made during the NEPA process are included in the project construction proposal and ultimately carried out. Please address any questions to Sandra Saint-Surin at Sandra.SaintSurin@dot.gov /803-253-3883.

Sincerely,

(for) Emily O. Lawton
Division Administrator

Enclosure

ec: Will McGoldrick, SCDOT Alternative Delivery NEPA Coordinator

NON-PROGRAMMATIC
CATEGORICAL EXCLUSION

Project ID No. P038677
Federal Project No. P038677 County: Dorchester/Orangeburg
Route: Interstate 95 and Interstate 26 Date: May 3, 2023

To: Federal Highway Administration

From: Will McGoldrick, Alternative Delivery Environmental Coordinator; SCDOT

Description: I-95/I-26 Interchange Improvements

(SEE ATTACHMENT)

The Department proposes to improve the interchange of Interstate 95 and Interstate 26 near the county line of Dorchester and Orangeburg counties, South Carolina. The Department's environmental review has determined the effects of this project are as described in the "Programmatic Agreement Between the Federal Highway Administration, South Carolina Division and the South Carolina Department of Transportation Regarding Approval of Actions Classified as Categorical Exclusions for Federal-Aid Highway Projects" dated April 26, 2021, and is in compliance with the required findings reflected below. The project has been assessed for possible effects on the human and natural environment with a determination that no significant environmental impact will occur. The class of action and impact determination documented by this statement would qualify this project as a categorical exclusion under 23 CFR 771.117(c)(26) for modernization of a highway by reconstruction, where the state can assume CE responsibilities but does require FHWA approval.

Based on an analysis of suitable habitat and observations of the listed species in the project area, the proposed action will have no effect on some and may affect but not likely adversely affect other threatened or endangered species or critical habitats currently listed by the U.S. Fish and Wildlife Service for Orangeburg and Dorchester Counties. Coordination with USFWS occurred and they have concurred with these findings.

The project will impact waters of the U.S. and will therefore require a permit or certification authorization under Section 404 and 401 of the Clean Water Act (CWA).

In accordance with Section 106 of the National Historic Preservation Act, it has been determined that no historic properties would be affected by the proposed undertaking.

5-3-23
Date

Will McGoldrick Digitally signed by Will McGoldrick Date: 2023.05.03 11:20:39 -04'00'
South Carolina Department of Transportation

5-4-23
Date

J. Shane Belcher Digitally signed by J. Shane Belcher Date: 2023.05.04 09:55:42 -04'00'
Federal Highway Administration

Date: 05/03/2023

NEPA ENVIRONMENTAL COMMITMENTS FORM

Project ID : P038677 | County : Orangeburg | District : District 6 | Doc Type: Non-PCE | Total # of Commitments: 8

Project Name: I-26 at I-95 Interchange Improvement

The Environmental Commitment **Contractor Responsible** measures listed below **are to be included in the contract and must be implemented**. It is the responsibility of the Program Manager to make sure the Environmental Commitment **SCDOT Responsible** measures are adhered to. If there are questions regarding the commitments listed please contact:

CONTACT NAME: Brad Reynolds **PHONE #:** (803)-737-1440

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Cultural Resources | NEPA Doc Ref: Page: 11 Paragraph: 3 | Responsibility: CONTRACTOR

The contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics,flakes, bones, graves, gravestones, or brick concentrations during the construction phase of the project, if any such remains are encountered, the Resident Construction Engineer (RCE) will be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Archaeologist directs otherwise.

☐ Special Provision

Water Quality | NEPA Doc Ref: Page: 12 Paragraph: 4 | Responsibility: CONTRACTOR

The contractor will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality.

☐ Special Provision

Migratory Bird Treaty Act | NEPA Doc Ref: Page: 17 Paragraph: 1-3 | Responsibility: SCDOT

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The South Carolina Department of Transportation (SCDOT) will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests.

The contractor shall notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. After this coordination, it will be determined when construction/demolition/maintenance can begin. If a nest is observed that was not discovered after construction/demolition/maintenance has begun, the contractor will cease work and immediately notify the RCE, who will notify the ESO Compliance Division. The ESO Compliance Division will determine the next course of action.

The use of any deterrents by the contractor designed to prevent birds from nesting, shall be approved by the RCE with coordination from the ESO Compliance Division. The cost for any contractor provided deterrents will be provided at no additional cost to SCDOT.

☐ Special Provision

Project ID : P038677	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Lead-Based Paint	NEPA Doc Ref: Page: 19 Paragraph: 2	Responsibility: CONTRACTOR

The existing structures shall be removed and disposed of by the Contractor in accordance with Subsection 202.4.2 of the Standard Specifications. The Contractor's attention is called to the fact that this project may require removal and disposal of structural components containing lead-based paints. Removal and disposal of structural components containing lead-based paints shall comply with all applicable Federal, State, and Local requirements for lead as waste, lead in air, lead in water, lead in soil, and worker health and safety.

☐ Special Provision

USTs/Hazardous Materials	NEPA Doc Ref: Page: 19 Paragraph: 4	Responsibility: CONTRACTOR

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary.

☐ Special Provision

Individual Permit	NEPA Doc Ref: Page: 13 Paragraph: 1	Responsibility: SCDOT

Impacts to jurisdictional waters will be permitted under a Department of the Army Section 404 permit from the U.S. Army Corps of Engineers. Based on preliminary design, it is anticipated that the proposed project would be permitted under an Individual Army Corps of Engineers Permit (IP). SCDOT will provide the Army Corps with information regarding any proposed demolition activities during the Section 404 permitting process. The required mitigation for this project will be determined through consultation with the USACE and other resource agencies.

☐ Special Provision

Project ID : P038677	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	SCDOT ENVIRONMENTAL SERVICES

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Non-Standard Commitment | NEPA Doc Ref: Page: 16 Paragraph: 4 | Responsibility: SCDOT

Threatened and Endangered Species

Based on the April 5, 2023 IPaC submission, the project may affect, but is not likely to adversely affect Norther Long Eared Bat. If impacts may occur after 4-1-24 additional coordination with USFWS will be required. Consultation is complete and no further action is necessary unless either of the following occurs:
1. new information reveals effects of the action that may affect NLEB in a manner or to an extent not previously considered; or,
2. the identified action is subsequently modified in a manner that causes an effect to NLEB that was not considered when completing the determination key.

☐ Special Provision

Non-Standard Commitment | NEPA Doc Ref: Page: 16 Paragraph: 4 | Responsibility: CONTRACTOR

Clearing Restriction

To minimize potential impacts to the Northern Long Eared Bat (NLEB) and Tricolored bat (TCB) (proposed endangered species), tree clearing will be prohibited from December 1 through February 28 for the hibernation season and from May 1 through July 31 for the pup season. All tree clearing/removal must be completed outside this time frame.

☐ Special Provision

Non-Standard Commitment | NEPA Doc Ref: Page: 16 Paragraph: 4 | Responsibility: CONTRACTOR

Culvert Exclusion

Prior to culvert construction activities, exclusionary devices (such as netting, hardware cloth, or one-way doors) will be installed at the inlet and outlet of all culverts where protected bats have been documented to be present. Exclusionary devices would be installed outside of the pup season (May 1 - July 31). The CONTRACTOR will consult with SCDOT environmental staff prior to selection and installation of the devices.

☐ Special Provision

I-26 at I-95 Interchange Improvements

NON-PROGRAMMATIC CATEGORICAL EXCLUSION

Orangeburg and Dorchester Counties

April 21, 2023

P038677

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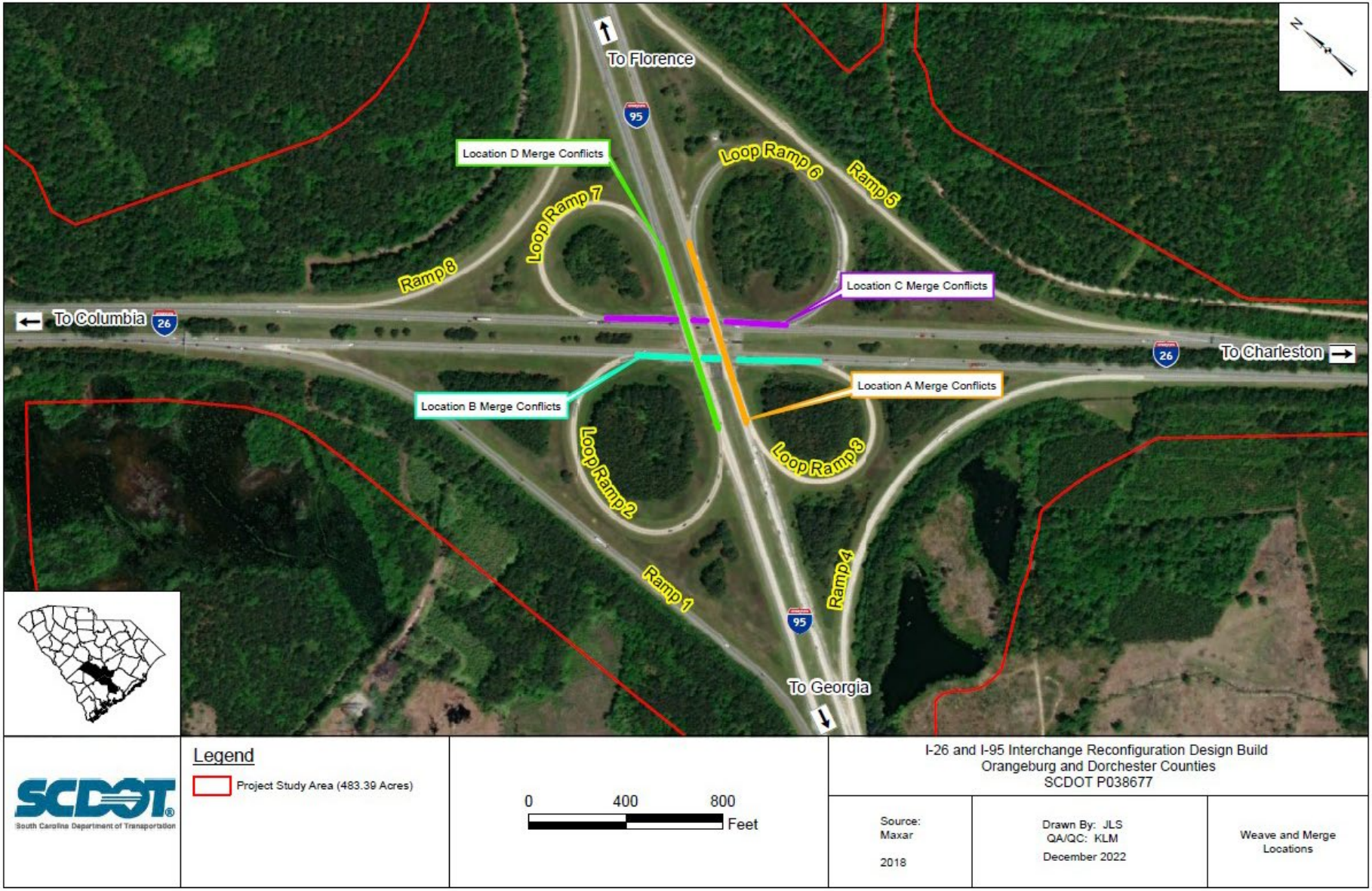
Project Description

The South Carolina Department of Transportation (SCDOT) proposes to improve the interchange on I-26 at I-95 in Dorchester and Orangeburg Counties. The interchange is located at Exit 169B along I-26 and Exit 86A & B along I-95 approximately 8 miles east of Bowman and 11 miles west of Holly Hill. The interchange is located in Orangeburg County; however, project limits also extend into Dorchester County. This project will be a full interchange improvement to address the operational deficiencies of the current configuration. These improvements will address merge and weave movements along I-26 eastbound/westbound and I-95 northbound/southbound. The interchange ramps are anticipated to be realigned to provide more direct movement from interstate to interstate and improve operations and safety. The new overpasses will allow additional travel lanes on I-26 as well as a 16-foot westbound shoulder for evacuation purposes. A project study area (PSA) has been established to encompass all potential impacts of the project (see **Appendix A, Project Location Map**). The PSA encompasses an area approximately 483.39 acres in size, generally centered on the existing I-26 at I-95 interchange.

Purpose and Need

The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. The need for the improvements stems from operational issues including weaving movements from on and off loop ramps resulting in rear-end and sideswipe crashes and travel delays due to weaving and merging (See Figure 1: Operational Deficiencies and Existing Conditions). The current interchange design contains four outer directional ramps and 4 inner loop ramps (See Figure 1: Operational Deficiencies and Existing Conditions). Location A indicates conflicts at the I-95 northbound entrance and exit ramps. Location B is the site of conflicts along the I-26 eastbound entrance and exit ramps. Location C indicates conflicts along I-26 westbound at the entrance and exit ramps. Location D is the site of conflicts along I-95 southbound. The cloverleaf on and off loop ramps can result in increased travel times. The I-26 and I-95 interchange is listed as the third highest ranked rural interstate improvement project in South Carolina. Level of Service (LOS) is the term used to refer to automobile congestion and travel time delay. This metric is important, as poor levels of service would indicate that traffic along the ramps would be high, contributing to tighter spacing among vehicles and increased weaving and merging at the ramps. LOS A generally represents the best, free-flow operating conditions, and LOS F represents the worst operating conditions. Some of the ramps and loops at the interchange are operating at LOS E or F currently, and additional ramps and loops are anticipated to operate at LOS E and F in the future if no improvements are made.

Figure 1. Operational Deficiencies and Existing Conditions



Vehicles typically accelerate/decelerate when weaving, resulting in reduced efficiency along the corridor and less safe conditions for all motorists. To better understand the mix of vehicles utilizing the corridor, historic vehicle classification data was reviewed, and future data was obtained via modeling and actual field counts. Truck traffic composition exceeds 20 percent on both I-26 and I-95, with I-95 linking freight along the eastern seaboard and I-26 serving a critical link to the SC Port facilities in Charleston. Table 1 outlines the truck percentage data for the project corridor.

Table 1. Truck Percentages for I-26 and I-95

Location	Site Summary	Site Dashboard	Statewide Model		Project Counts (3/1/22 - 3/7/22)			Forecast Truck Percentages	
			2015	2045	Week-day	Week-end	Over-all	2030	2050
I-95 north	12%	23.1%	26.3%	27.5%	35%	29%	33%	22%	22%
I-95 south	21%	24.5%	27.7%	29.7%	31%	19%	29%	22%	22%
I-26 west	24%	21.0%	30.8%	41.3%	31%	16%	28%	22%	28%
I-26 east	21%	21.0%	29.2%	45.6%	23%	17%	22%	22%	28%

Source: I-26 at I-95 System Interchange Improvement, Traffic Analysis Report, March 2023.

Overall, the existing truck volumes on both interstates are high and are expected to increase to 28 percent by 2050 along I-26.

Reasonable Availability of Funding

The funding for this project is referenced in the 2021 - 2027 Statewide Transportation Improvement Program, or STIP, as line item "I-26/I-95 Interchange Improvement /I-26/I-95 Interchange Improvement", Rank 2018-3. This project is under Program Category Widening/New Construction of the National Highway Program (NHP) Federal Program. [1] The total cost allocated to the project included in the STIP is $239,000,000, including funding for the preliminary engineering and construction phases.

The "I-26 at I-95 Interchange Improvement Project" is noted in the Lower Savannah Council of Governments (COG) Transportation Improvement Program as a Non-Guideshare Project.

[1] SCDOT, *Statewide Transportation Improvement Program 2021 – 2027*, Revision 17. November 22, 2022 available at http://206.74.144.42/estip/home/main

Evaluations of Alternatives

SCDOT intends to use the design-build delivery method to replace the interchange. In an effort to provide the design-build contractor with flexibility in design, the environmental analysis conducted for this project included an assessment of full reconfigurations of the interchange and the construction of multiple flyover lanes. Environmental studies and/or analysis were completed, including a wetland/stream delineation, cultural resources study, threatened and endangered species biological assessment, Limited Phase I Analysis for hazardous materials, lead/asbestos surveys, environmental justice analysis, and an assessment of potential relocations. This information was used for assessing impacts for the alternative concepts.

Three alternative concepts were developed and assessed for potential impacts within the PSA (See Figures 2 through 4). The alternatives were also evaluated to determine if they qualified as a class of action for a Categorical Exclusion (CE) and this project qualifies as a CE that requires approval by FHWA. Interchange improvements can be covered by 23 CFR 771.117 (c)(26) for modernization of a highway by reconstruction, where the state can assume CE responsibilities. However, the project must also meet several constraints, of which it does not meet the following (23 CFR 771.117 (e) (1-2):

- an acquisition of more than a minor amount of right-of-way or;
- an action that does not meet the terms and conditions of a U.S. Army Corps of Engineers nationwide or general permit under section 404 of the Clean Water Act.

Per the "*Programmatic Agreement between FHWA, SC Division, and SCDOT Regarding Approval of Actions Classified as Categorical Exclusions for Federal-Aid Highway Projects*" (April 26, 2021) a minor amount of right of way is defined as less than 10 acres of impacts. Each alternative would require more than 10 acres of right of way, requires an Interchange Modification Report (IMR), and an Individual Permit may be needed. Because of those constraints, the project conditions do not fall within the conditions of completing a CE without further FHWA approval. Appropriate environmental studies have been conducted and this documentation is being submitted to FHWA for approval as a Non-Programmatic CE. An IMR was completed to analyze traffic operations and safety for the proposed interchange alternatives through the years of 2030 to 2050; see **Appendix B: Interstate Modification Report**.

Figure 2. Alternative 1

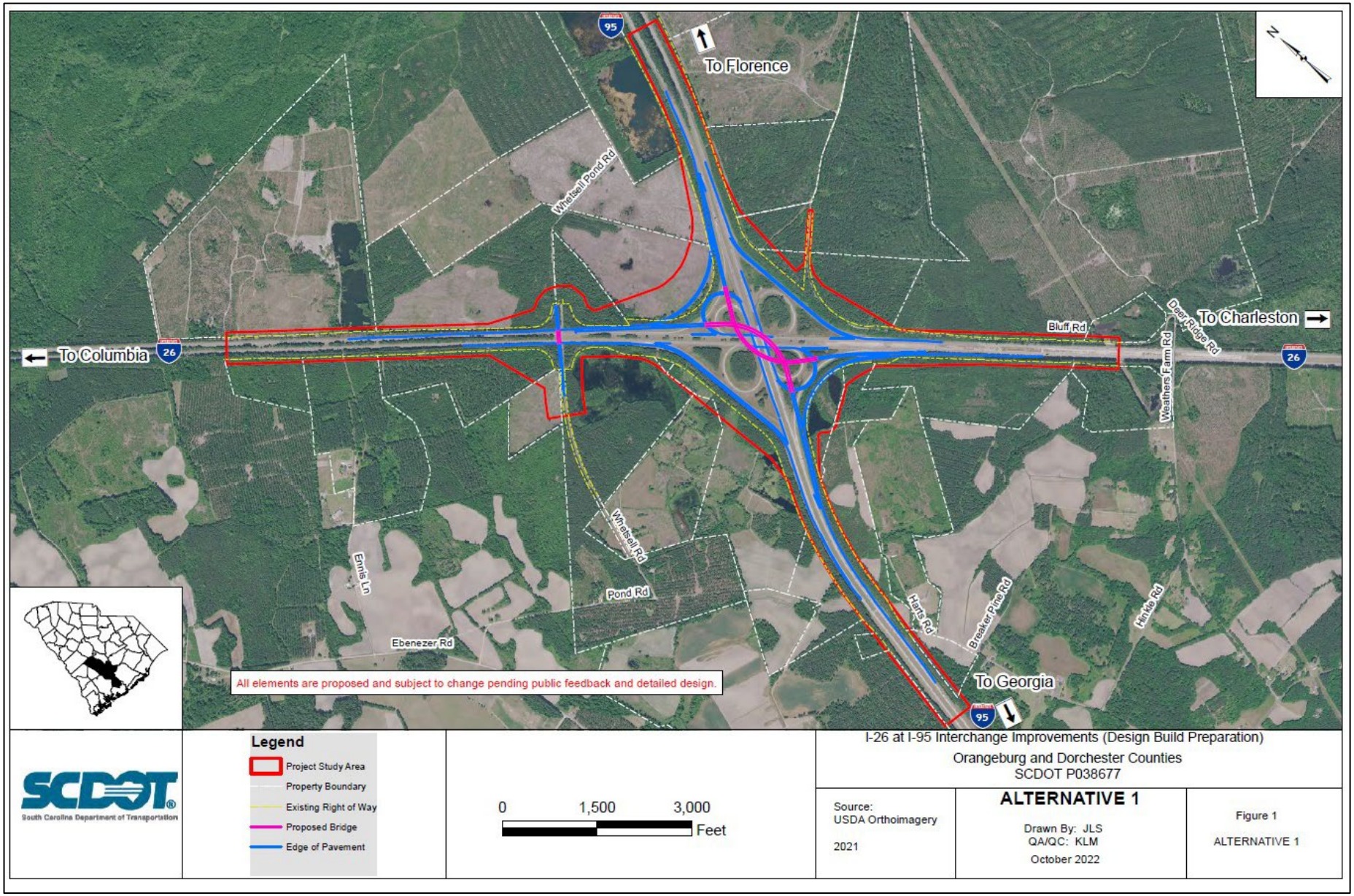


Figure 3. Alternative 2

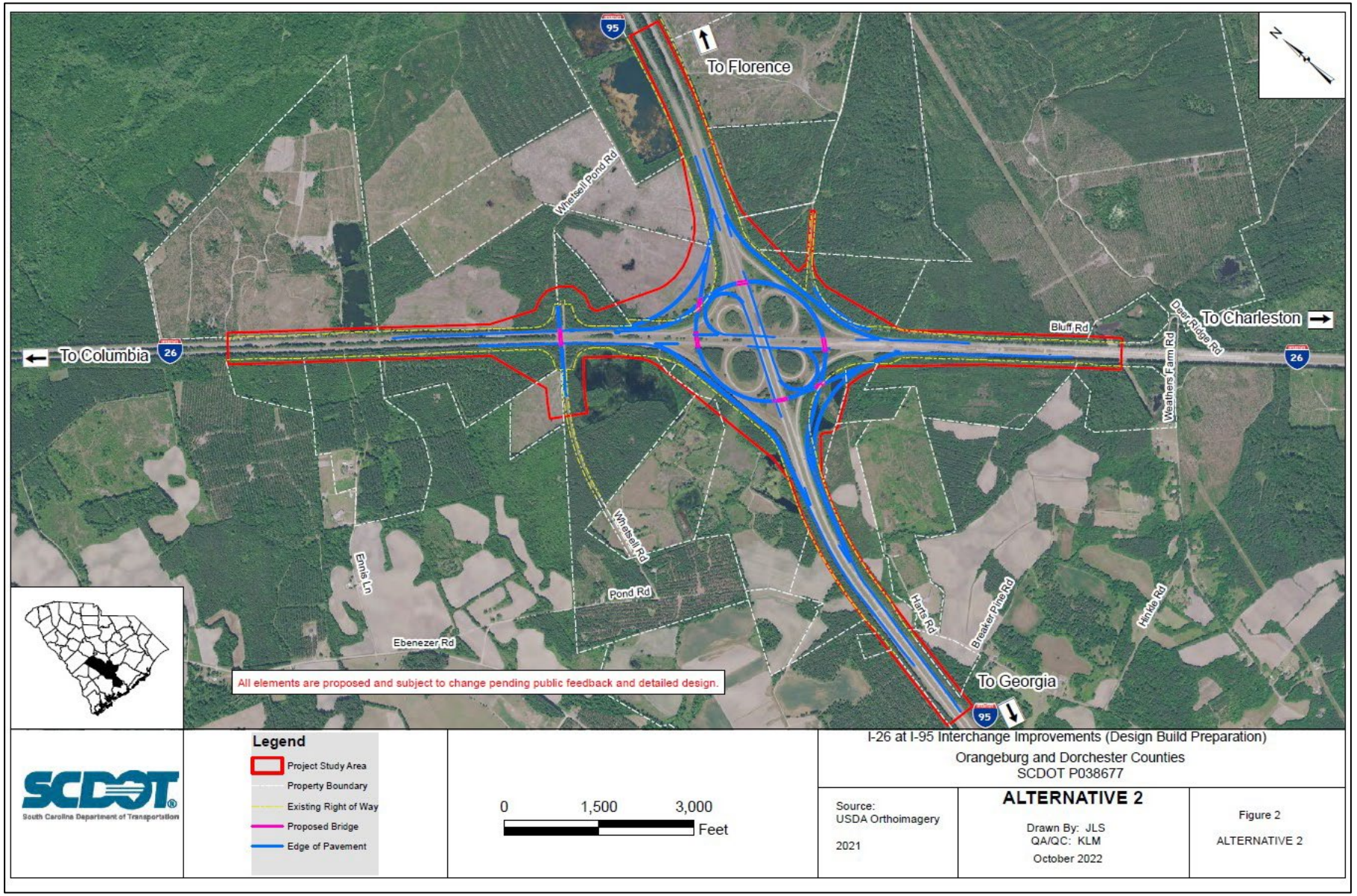
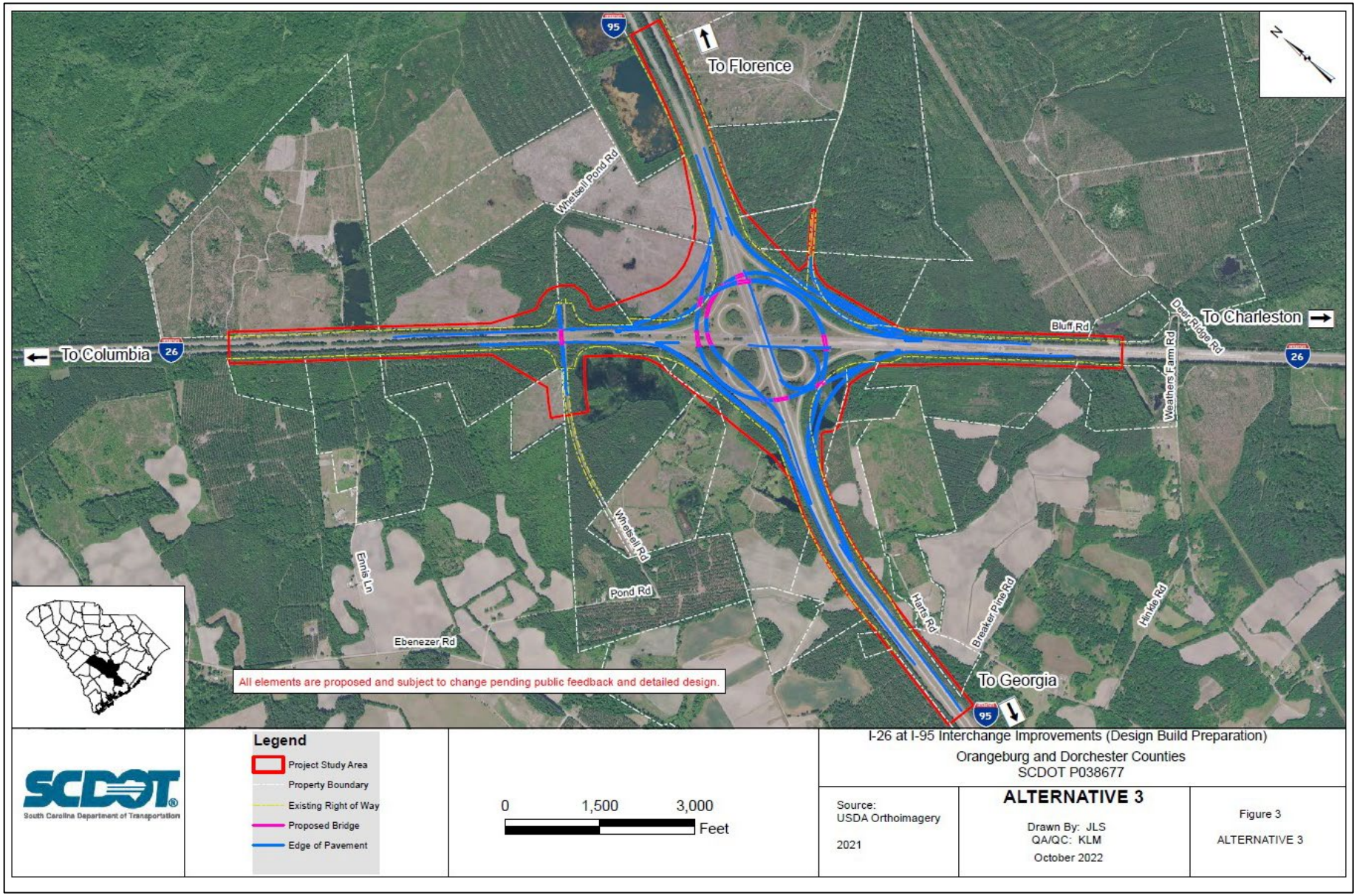


Figure 4. Alternative 3



The impacts from the three alternative configurations are summarized in Table 2.

Table 2: Alternative Impacts Comparison Summary

	No Build	Alternative 1	Alternative 2	Alternative 3
Stream Impacts (linear feet)	0	111	148	170
Wetland Impacts (acres)	0	14	14	15
Jurisdictional Pond Impacts (acres)	0	0.9	1.0	1.0
Right of Way (acres)	0	13.1	25.5	31.0
Total Number of Tracts Impacted (no relocations)	0	6	8	8
Total Cost	$0	$283,585,676	$194,891,836	$216,439,781

With respect to key environmental impacts, Alternative 2 has slightly higher Waters of the U.S. (WOUS) impacts than Alternative 1 (an increase of 37 LF stream and 0.1 acre of pond impacts). There would be no relocations under any alternative. Alternative 1 would have the lowest number of parcel impacts, while Alternatives 2 and 3 would each have two more parcels impacted.

Each of the three alternatives would satisfy the purpose and need. They would all improve operations at the interchange by eliminating operational deficiencies related to merging and weaving at the interstate ramps. Because poor LOS indicates that traffic along the ramps would be high, contributing to tighter spacing among vehicles, and increased weaving and merging at the ramps, LOS for each ramp was also considered with respect to operational improvements. Table 3 outlines the LOS for each ramp in the design year of 2050.

Table 3. Interstate Ramps Level of Service (LOS) for 2050

Location	Alternative 1	Alternative 2	Alternative 3
Ramp 1	F* / C**	F* / C**	F* / C**
Ramp 2	D	D	D
Ramp 3	A	A	A
Ramp 4	A	A	A
Ramp 5	D	D	D for a portion of ramp 5 to I-95 north F for a portion of ramp 5 to I-95 north
Ramp 6	D	D	D
Ramp 7	B	B	B
Ramp 8	A	A	A

*LOS F at I-26 eastbound (towards Charleston) ramp to I-95 southbound (towards Georgia) with the current four-lane section of I-95.

**LOS C at the I-26 eastbound (towards Charleston) ramp to I-95 southbound (towards Georgia) with a potential future widening of I-95.

Two conditions were reported for Ramp 1. I-95 southbound (to Georgia) is currently a two-lane facility. Each alternative would have a LOS of F at the I-26 eastbound ramp to Georgia, as there would be high volumes of vehicles on this ramp. However, there would be no other nearby ramps at this location and vehicle weaving would not be present. If I-95 is eventually widened to three southbound lanes, the LOS at Ramp 1 under each alternative would be LOS C. As summarized in Table 3, one ramp in Alternative 3 would operate at LOS F, whereas the other alternatives would have ramps with LOS A through D. Alternatives 1 and 2 were equally viable from a traffic analysis perspective. Elimination of full clover interchanges improves overall operations, increases safety, and allows for higher design speeds within a similar interchange footprint.

Alternative 3 was not selected as the Preferred Alternative because one ramp would operate at LOS F. Alternative 1 was also not selected. While it meets the purpose and need, it has a higher cost than any other alternative. Alternatives 2 was selected as the Preferred Alternative because it meets the project purpose and has WOUS impacts that are comparable to Alternatives 1 and 3. See **Appendix C: Alternatives Analysis Memo** for additional information regarding the three build alternatives.

The following sections detail existing environmental conditions and potential impacts.

Acquisitions/Displacements

This project would result in no relocations or displacements.

Public Involvement

A Public Involvement Plan was developed to outline activities proposed to engage the public (**see Appendix D: Public Involvement**). A website (http://scdotgis.online/i26ati95interchange) was provided by SCDOT detailing the proposed project, alternatives, schedule, comment form, and contact information. A project summary was emailed by SCDOT to their stakeholder list. Postcards announcing the proposed project with a map and link to the website were mailed to property owners to view the proposed alternatives and provide comments within a 30-day comment period. A Facebook advertisement was created to bring about awareness for the project to local residents, as well as drivers who travel through the PSA. The Facebook advertisement ran for a total of 30 days and coincided with the 30-day comment period. A total of two comments were received, both requesting new access from the interchange to private property. Response letters were sent to the commenters. Due to the limited population within the PSA and nearby, and the relatively minor impacts to the social and natural environment, a public information meeting was not held for this project. **See Appendix D: Public Involvement** for all public information materials.

Socioeconomics and Environmental Justice

Executive Order 12898 requires federal agencies to ensure its actions do not result in disproportionately high or adverse effects to minority or low-income communities. Minority includes persons who are American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino and Native Hawaiian and other Pacific Islander. Low-income populations are defined as the number or percent in households where the household income is less than or equal to twice the federal poverty level. Low-income populations were calculated by adding the below poverty population and the near poor population between 100 percent and 149 percent of poverty level as prescribed by the US Health and Human Services poverty guidelines. Socioeconomic data was obtained through the Environmental Protection Agency's (EPA) EJ-Screen Environmental Justice Screening Tool from an area within a two-mile radius of the proposed project. This study region was utilized because the technical study PSA would include no residential households. The immediate project study area itself is too sparsely populated to determine a representative demographic makeup, therefore an expanded study region of two miles was used. See Table 4 and **Appendix E: EJ Screen Report** for these results.

Table 4. EPA EJ Screening Tool Results (2-mile buffer including 507 residents)

Identifier	**Expanded Study Region**	Statewide Average
Minority population	28 %	36 %
Low-income population	26 %	35 %

There are both minority and low-income populations within the study area. Because the project area percentages of minority and low-income populations are below the statewide averages and because there are no substantial impacts to communities, there are no disproportionate impacts to an EJ community. In addition, socioeconomic impacts are not anticipated, as there would be no impacts to community cohesion, access to community facilities, disruption of emergency services travel patterns, and minimal impacts to overall travel patterns in the study area. No minority or low-income populations have been identified that would be adversely impacted by the proposed project as determined above. Therefore, in accordance with the provisions of EO. 12898 and FHWA order 6640.23A, no further EJ analysis is required.

Section 106 – Cultural Resources (Archaeological/Historic)

In accordance with 36 CFR 800.4, archival research and coordination with the State Historic Preservation Office (SHPO) was performed to identify and help predict the locations of significant cultural resources in the vicinity of the proposed project. The archaeological and architectural surveys performed were designed to provide the necessary management data to allow for the

sites and properties to be evaluated for recommendations of eligibility to the National Register of Historic Places (NRHP).

Background research from the South Carolina Institute of Archaeology and Anthropology (SCIAA) and the NRHP indicated there are no previously recorded archaeology sites or architectural resources within the Area of Potential Effect (APE). Archaeological and architectural surveys were conducted between August 30, 2022 through September 17, 2022 and November 21, 2022 through November 22, 2022. One new archaeological resource and one new architectural resource were recorded during the field surveys. Neither resource is recommended as eligible for listing in the NRHP under Criteria A, B, or C. The project location and findings were coordinated with the SHPO. Based on the data provided by background research and the results of the cultural resources surveys, it is anticipated that no historic resources would be affected by the proposed project. The SHPO concurred with this determination on February 21, 2023.

A copy of the cultural resources survey and associated SHPO concurrence is included in **Appendix F: Cultural Resources**.

The contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations during the construction phase of the project. If any such remains are encountered, the Resident Construction Engineer (RCE) will be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Archaeologist directs otherwise.

Section 4(f)/6(f)

No Section 4(f) or Section 6(f) properties were identified within the project area boundary. Thus, no impacts would occur to these properties.

Water Quality

The PSA is located within the Edisto River Basin (Hydrologic Unit Code [HUC] 03050205) as designated by the US Geological Survey (USGS). The Edisto River Basin extends from eastern Edgefield County to the coast and follows the course of the Edisto River. Within the Edisto River Basin, the PSA is further located in the Lower Four Hole Swamp Watershed (USGS HUC 03050205-03) which consists primarily of the tributary to Four Hole Swamp.

The most recent SC Department of Health and Environmental Control (SCDHEC) Basinwide Watershed Water Quality Assessment Report for the Edisto River Basin (2012) and the SC Watershed Atlas online mapping tool were reviewed in obtaining general watershed and water quality information. The recent approved State of South Carolina Integrated Report (SCDHEC,

2020) was also reviewed for information pertaining to 303(d) impaired waters and Total Maximum Daily Loads (TMDLs). 303(d) impaired waters are surface waters documented by the SCHDEC as not meeting water quality standards and having impaired uses. The identification of impaired waters is a requirement of Section 303(d) of the Clean Water Act (CWA).

No SCDHEC water quality monitoring stations are located within or near the PSA; and there are no streams within the PSA that are downstream of any monitoring stations with identified impairments. Therefore, no impacts to 303(d) impaired waters are anticipated.

The contractor will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality.

Wetlands and Streams

Field reviews of the approximate 484-acre PSA were conducted to identify the presence of potential Waters of the U.S. (WOUS) between March 4th and April 14th, 2022. The boundaries of jurisdictional waters, including wetlands, were flagged (delineated) in the field at this time. Jurisdictional wetlands were determined using the Routine On-Site Determination Method as defined in the 1987 US Army Corps of Engineers (USACE) Wetland Delineation Manual and the appropriate Regional Supplements to the Manual. Jurisdictional streams were determined utilizing the most recent USACE District procedural guidance. Open waters or ponds were determined to be jurisdictional based on the features being located within Orangeburg County natural drainageways and/or within areas of mapped hydric soils or relict stream channels as depicted on USGS topographic mapping, the Natural Resources Conservation Service (NRCS) soil survey, or historical aerial imagery.

Potential WOUS identified and delineated within the PSA include 1 freshwater stream, 25 freshwater wetlands, and 9 open waters or ponds. These waters are presumed jurisdictional with the submittal of a Preliminary Jurisdictional Determination (PJD) request. These aquatic features were assessed based on the “Revised Definition of Waters of the United States", published on January 18, 2023 and effective March 20, 2023 (33 CFR Part 328). A copy of the PJD request figures are included in **Appendix G: PJD Request Figures**.

Permitting

Impacts to jurisdictional waters will be permitted under a Department of the Army Section 404 permit from the USACE. Based on preliminary design, it is anticipated that the proposed project would be permitted under an Individual Permit (IP). Impacts of 14 acres of wetland impacts, 1.0 acres of jurisdictional ponds, and 148 linear feet of stream impacts are currently estimated. The required mitigation for this project will be determined through consultation with the USACE and other resource agencies**.** Avoidance, minimization, and mitigation measures would be required as part of the Section 404 permitting process, which would be further evaluated when final design is completed in the design-build process. Compensatory mitigation would be required to offset impacts to WOUS and would be calculated based on impacts from the final design. The potential mitigation banks in the Primary Service Area with available wetland and/or stream credits, as identified in the Regulatory In-Lieu Fee and Bank Info Tracking System (RIBITS) are shown in Table 5.

Table 5: Approved Mitigation Banks Summary

Mitigation Bank Name	Bank Service Area	Wetland Credits Available?	Stream Credits Available?
Beidler Forest Spring Branch	Primary	Yes	No
Brosnan Forest Coldwater Branch	Primary	Yes	Yes
Brosnan Forest	Primary	Yes	No
Swallow Savannah	Primary	Yes (very limited)	No

*Table 5 Note: Credit availability and bank status frequently changes without notification from the bank managers, the USACE, or updates to RIBITS. Additional coordination is required to determine if use of these banks would be feasible to compensate for impacts from the project.

In addition to the Section 404 permit, the SCDHEC must grant, deny, or waive a Water Quality Certification (WQC), in accordance with Section 401 of the CWA. Waters considered by SCDHEC to be sensitive may also require additional consideration during the 401 WQC process. These include waters that drain to 303(d) listed impaired waters, and waters located with a designated TMDL watershed. Because these waters are not present within the PSA, additional water quality protection and stormwater treatment measures are not anticipated. This would be determined once final design is completed and impacts to WOUS are quantified. A Coastal Zone Consistency (CZC) Certification is required for all land disturbing activities that require permit coverage within the state's coastal counties. This certification establishes that all land and water uses are consistent with both the State's Coastal Zone Management Plan and the South Carolina Coastal Zone Management Act. Because this project is partially within a Dorchester County but does not

impact the Critical Area (like tidal waters), SCDHEC will issue the Section 401 Certification and also incorporate the SCDHEC, Office of Ocean and Coastal Resource Management (OCRM) CZC.

Floodplains

Floodplain and floodway protection is required under several federal, state, and local laws, including Executive Order 11988, entitled "Floodplain Management," which requires federal agencies to avoid making modifications to and supporting development in floodplains wherever practical. Floodplains subject to inundation by the one-percent-annual-chance (100 year) flood event are regulated by the Federal Emergency Management Agency (FEMA).

Based upon a review of the floodplain mapping FIRM Maps (see **Appendix H: Floodplains**), a small portion of the PSA near the northern boundary of I-95 is designated as an AE flood zone. Zone AE floodplains are areas inundated by 1% annual chance flooding, for which Base Flood Elevations have been developed. The proposed project improvements would not cross or encroach on the AE flood zone and there would be no impacts to floodplains.

Threatened and Endangered Species

Pursuant to Section 7 of the Endangered Species Act (ESA), field surveys were conducted for protected species within the PSA in March, August, and September 2022. Prior to the field surveys, a literature search was conducted for threatened and endangered species that may or are known to occur in Dorchester and Orangeburg County. These species and the findings are shown in Table 6 and detailed in **Appendix I: Biological Assessment**.

Table 6: Endangered, Threatened, & Protected Species of Dorchester & Orangeburg Counties

Species	Protection Status	Biological Conclusion
Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Endangered	No effect
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No effect
Canby's dropwort (*Oxypolis canbyi*)	Endangered	No effect
Pondberry (*Lindera melissifolia*)	Endangered	May Affect, Not Likely to Adversely Effect
Northern long-eared bat (*Myotis septentrionalis*)	Endangered	May Affect, Not Likely to Adversely Effect
American wood stork (*Mycteria americana*)	Threatened	May Affect, Not Likely to Adversely Affect

Red-cockaded woodpecker (*Picoides borealis)*	Threatened	No effect
+Tricolored bat (*Perimyotis subflavus)*	At-Risk Species*	Presumed Conclusion: May Affect, Not Likely to Adversely Effect
Rafinesque's big-eared bat (*Corynorhinus rafinesquii)*	State Endangered	May Affect, Not Likely to Adversely Affect
Bald Eagle *(Haliaeetus leucocephalus)*	BGEPA**	No impact

+On September 13, 2022, the USFWS issued a public notice proposing to list the tricolored bat as endangered. The comment period ended on November 14, 2022 and a final decision is expected within 12 months or sooner.

*At-Risk Species: Species that the USFWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist.

**BGEPA: Federally protected under the Bald and Golden Eagle Protection Act

No federally protected species were found during field surveys. While not a federally protected species, Rafinesque's big-eared bat is discussed here to provide clarity on bats that were identified within the PSA during field surveys. Day roost surveys were conducted on September 14, 2022. Approximately 18 bats were detected utilizing three box culverts within the PSA, demonstrating the suitability of these structures for use by bats. While no Northern long-eared bats (NLEB) or tricolored bats were able to be positively identified during day roost surveys, a total of 20 bats were found within three box culverts in the PSA. Eighteen of these bats were identified as Rafinesque's big-eared bat. Two individuals could not be identified to species; however, they were confirmed to *not* be Rafinesque's big-eared bat.

A concurrence letter was provided by the USFWS, dated January 23, 2023 for all species except the NLEB. On February 1, 2023, the USFWS provided a clarification letter noting that until March 31, 2023, the project is in compliance with Section 7 of the ESA, and any take of the NLEB that may occur incidental to this proposed project is not prohibited under the final 4(d) rule (50 CFR §17.40(o)) and associated programmatic biological opinions. These letters can be found within **Appendix I: Biological Assessment.** Since that time, the USFWS anticipated that there may be thousands of incomplete projects that relied upon the finding of the 2016 Programmatic Biological Opinion and 4(d) rule to fulfill project-specific Section 7 responsibilities. Because USFWS expected concern over the timeliness of completing the required consultations for many projects, they developed the Interim Consultation Framework (ICF) for the Northern Long-eared

Bat (March 31, 2023) to help federal agencies ensure that their actions are not likely to jeopardize NLEBs while streamlining consultation for actions consistent with the former 4(d) rule.

Per the ICF, this project is eligible for the interim process because it would not disturb NLEBs in their hibernacula, would not clear trees within 0.25 miles of hibernacula, and would not cut/destroy known occupied maternity roost trees or any trees with a 150-foot radius around a roost tree. The NLEB Range-wide Determination Key in IPaC was completed on April 5, 2023. Based on the April 5, 2023 IPaC submission and a standing analysis completed by the USFWS, the project "may affect, but is not likely to adversely affect NLEB". The 15-day period following the issuance of this letter did not result in any additional direction from the USFWS (**See Appendix I**). Therefore, this letter verifies that consultation on the action is complete and no further action is necessary unless either of the following occurs:

1. new information reveals effects of the action that may affect NLEB in a manner or to an extent not previously considered; or,
2. the identified action is subsequently modified in a manner that causes an effect to NLEB that was not considered when completing the determination key.

The ICF addresses potential project impacts that may occur from March 31, 2023 until April 1, 2024. If any impacts are expected to occur outside of this timeframe, additional coordination with USFWS and FHWA will occur.

While the bald eagle is no longer protected under Section 7 of the ESA, it is still afforded protection under the Bald and Golden Eagle Protection Act. No bald eagle nests are known to occur within the PSA, and none were observed during the field surveys. Thus, the project would not impact the bald eagle.

Migratory Birds

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The Department will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests.

Ground nests, arboreal nests, and nests built on man-made structures could occur within the project area. Active nests of barn swallow (*Hirundo rustica*) were documented on overpasses along I-26. Additionally, nesting migratory birds in the surrounding vegetated areas are likely.

The contractor shall notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. After this coordination, it will be determined when construction/demolition/maintenance can begin. If a nest is observed that was not discovered after construction/demolition/maintenance has begun, the contractor will cease work and immediately notify the RCE, who will notify the ESO Compliance Division. The ESO Compliance Division will determine the next course of action. The use of any deterrents by the contractor designed to prevent birds from nesting, shall be approved by the RCE with coordination from the ESO Compliance Division. The cost for any contractor provided deterrents will be provided at no additional cost to SCDOT.

Noise

The SCDOT Traffic Noise Abatement Policy (February 24, 2023) applies to all Type I Federal Highways Administration (FHWA) projects that receive Federal-aid funds or are subject to FHWA approval. The interchange improvements would result in the addition and relocation of interchange lanes and ramps. However, a noise analysis is not required for this project because there are no noise-sensitive receptors within the PSA. Due to the rural nature of the project setting, the nearest receptor, such as a residence, is over 1,000 feet away from I-26.

Air Quality / Mobile Source Air Toxins (MSATs)

Dorchester and Orangeburg Counties are in attainment areas for National Ambient Air Quality Standards (NAAQS). As a result, both Dorchester and Orangeburg Counties meet or exceed the standards established by the EPA for criteria pollutants and air quality.

The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, Environmental Protection Agency (EPA) regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES3 model forecasts a combined reduction of over 76 percent in the total annual emissions rate for the priority MSAT

from 2020 to 2060 while vehicle-miles of travel are projected to increase by 31 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, January 18, 2023). This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

Land Use

The proposed project is located along the I-26 at I-95 interchange, in Orangeburg and Dorchester Counties, South Carolina. The PSA consists primarily of undeveloped forested areas, forested areas that have been clear cut, and former farmland. Use of these areas includes hunting (such as the Triple H Hunt Club) and prior agricultural use. The proposed project would result in some right of way impacts as well as WOUS impacts and may modify existing land use but is not likely to change the timing or density of potential development in the area. The project is not in conflict with a known plan, existing land use, or zoning regulations. [2]

Farmlands

The Farmland Protection Policy Act (FPPA) of 1981 requires evaluation of farmland conversions to nonagricultural uses. Pursuant to 7 CFR § 658.3(c), the FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland. Farmland can be prime farmland, unique farmland, or farmland of statewide or local importance. Of the total PSA, 181.6 acres are designated as farmland of statewide importance. Soils designated as prime farmland within and adjacent to the PSA are primarily undeveloped rangeland and exist as woodland habitat. Existing farmed areas account for only 32.5 acres of the total PSA.

In accordance with the FPPA, a Farmland Impact Conversion Rating Form for Corridor Type Projects (NRCS-CPA-106) was completed. Sites receiving scores less than 160 are given minimal consideration for protection. The proposed project received a Total Corridor Assessment score of 130. Since this Total Corridor Assessment score is under the 160-point threshold described above, neither consideration of alternative sites nor additional studies is required under the FPPA. The Farmland Impact Conversion Rating Form is located in **Appendix J**.

Hazardous Materials

On September 15, 2022 asbestos and lead-based paint surveys were conducted for the three bridges within the PSA, I-95 northbound bridge over I-26, I-95 southbound bridge over I-26, and

[2] *Our Region Our Plan* https://www.bcdcog.com/wp-content/uploads/2015/11/BCD_OROP_Final_01_15_2013.pdf
Transportation Improvement Program
LSCOG Transportation Improvement Plan
https://static1.squarespace.com/static/57e557e0bebafb38f5b22bad/t/6013170931da361bcbfbd263/1611863818285/LSCOG_TIP_2021-2027+Rev.pdf

S-38-1302 bridge over I-26; see **Appendix K: Asbestos and Lead-Based Paint Survey Report**. No Asbestos was found in any of the three sites. Lead-Based paint was found on the I-95 northbound bridge specifically on a steel beam flange on the west underside that had two positive readings for lead-based paint greater than 1.0 milligrams. Recommendations for proceeding include that in the event that any suspect painted materials, not addressed in this survey, are encountered, the materials should be presumed coated with lead paint until laboratory analysis can be conducted. The existing structures shall be removed and disposed of by the Contractor in accordance with Subsection 202.4.2 of the Standard Specifications. The Contractor's attention is called to the fact that this project may require removal and disposal of structural components containing lead-based paints. Removal and disposal of structural components containing lead-based paints shall comply with all applicable Federal, State, and Local requirements for lead as waste, lead in air, lead in water, lead in soil, and worker health and safety.

A Limited Phase 1 Environmental Site Assessment (ESA) for the proposed project was completed in September 2022 in general accordance with ASTM E 1527-13, Standard Practice for ESAs. The purpose of the Limited Phase 1 ESA is to identify Recognized Environmental Conditions (RECs) and Historical Recognized Environmental Conditions (HRECs). No evidence of gas station or industrial use was noted within or adjacent to the study area during the field reconnaissance or on aerial photographs. Several past fuel spills have been identified within or near the interstates in the study area. The spills appeared to be typical of highway incidents involving tractor / trailers. File information indicates the spills were addressed. However, it is possible that small quantities of residual fuel-based soil contamination may remain and could possibly be encountered. Therefore, the listed fuel spill sites are considered to represent a low to moderate potential for adverse impact to the study area. **See Appendix L: Limited Phase I Report**.

It is SCDOT’s practice to avoid the acquisition of hazardous waste materials, if at all possible. If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, SCDHEC will be informed. Hazardous materials will be tested and removed and/or treated in accordance with the EPA and SCDHEC requirements, if necessary.

Appendices

Appendix A – Project Location Map

Appendix B – Interstate Modification Report

Appendix C – Alternatives Analysis Memo

Appendix D – Public Involvement

Appendix E – EJ Screen Report

Appendix F – Cultural Resources

Appendix G – Preliminary Jurisdictional Determination Request Figures

Appendix H – Floodplain Map and Checklist

Appendix I – USFWS Correspondence and Biological Assessment

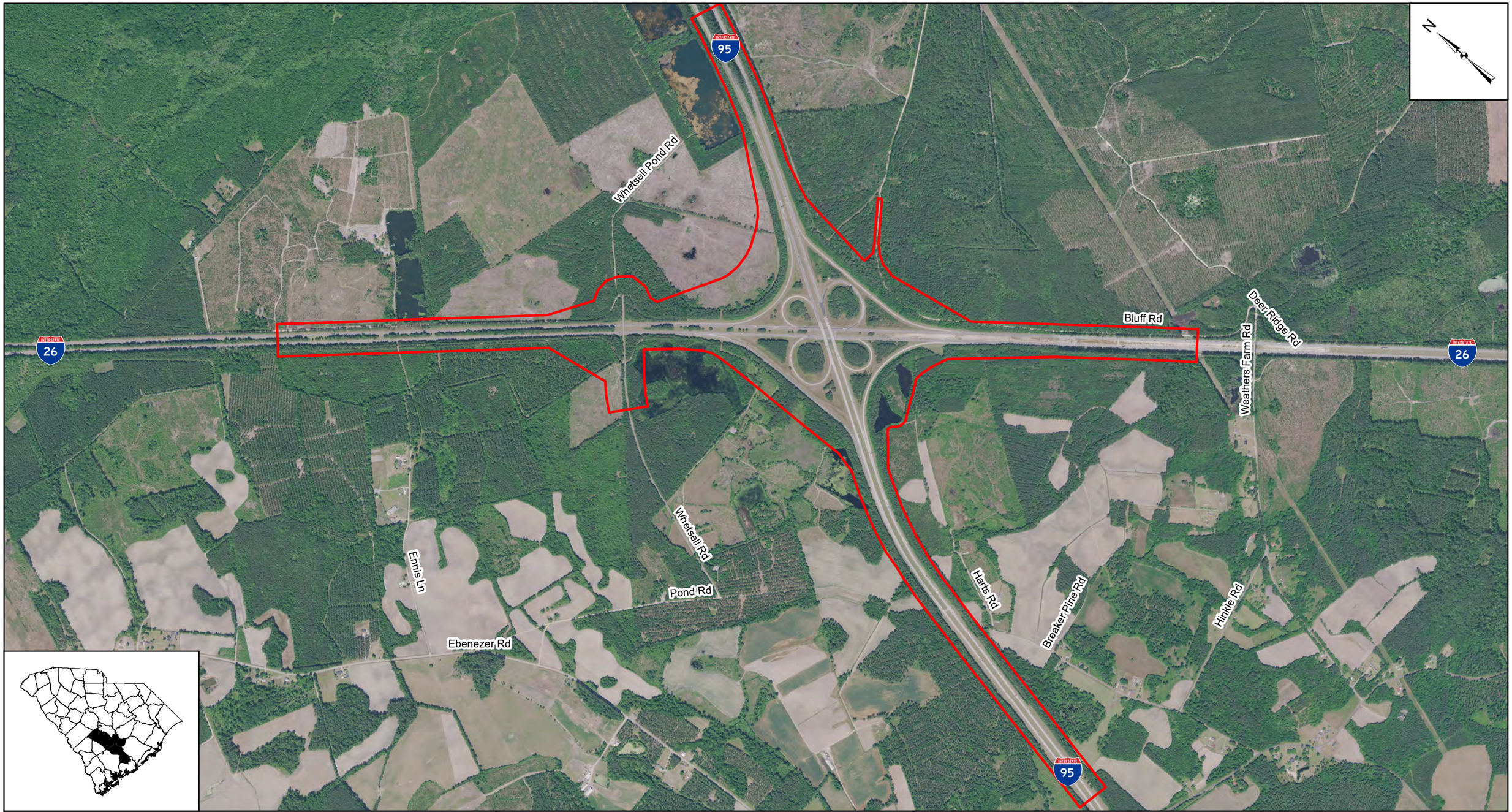
Appendix J – Farmland Impact Conversion Rating Form

Appendix K – Asbestos and Lead-Based Paint Survey Reports

Appendix L – Limited Phase I Environmental Site Assessment

Appendix A

Project Location Map



SCDOT
South Carolina Department of Transportation

Legend

Project Study Area (481.94 Acres)

0 1,750 3,500
Feet

I-26 and I-95 Interchange Reconfiguration Design Build
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

Drawn By: JLS
QA/QC: KLM
November 2022

Project Study Area

Appendix B

Interstate Modification Report

South Carolina Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

I-26 at I-95 System Interchange Improvement

Interstate Modification Report (IMR)

Updated May 2023

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EXECUTIVE SUMMARY

The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 system interchange in Orangeburg County, South Carolina. The interchange currently experiences congestion issues that are expected to worsen with anticipated traffic growth. This project will be a full interchange improvement to address the operational deficiencies of the current full cloverleaf configuration. Key elements include removal of the four existing weaving sections (two on I-26 and two on I-95), providing directional ramps for key movements, and improving overall operations.

This Interchange Modification Report (IMR) summarizes the traffic operations and safety analyses performed for the proposed interchange alternatives, resulting in Alternative 1 or 2 being equally viable as the preferred Alternative from a traffic analysis perspective. Nevertheless, Alternative 2 was selected as the Preferred Alternative based on other factors including but not limited to environmental impacts, engineering requirements and construction costs.

Discussion of the two key FHWA policy points for modifying access to an existing interstate interchange follows the analysis.

Analysis Assumptions, Methodology & Findings

As part of this review, multiple assumptions and analysis step were required as documented in this report. Three of the critical analysis steps were a crash analysis of the study area and key interchange, the development of traffic forecasts for 2030 and 2050, and the capacity analysis to compare alternatives and identify key design requirements.

Crash and Safety Analysis

A crash analysis of the study area is summarized in Chapter 3. Key findings include:

- The total crash rate and the injury crash rate on both I-26 and I-95 are below the statewide average for similar rural interstate facilities.
- On I-26, however, it was noted that both the serious injury and fatal crash rate exceed the statewide average crash rates.
- The crash patterns at the existing I-26 at I-95 interchange were examined and five high frequency crash locations were identified including the southbound I-95 major merge and each of the four existing weaves formed by the four existing loop ramps.

Traffic Forecast

Traffic forecasts were developed for the project based on multiple sources of data and analysis steps. Baseline traffic data were analyzed, and growth factors were applied to identify 2030 and 2050 traffic volumes for I-26, I-95 and study area interchanges. Some key elements of the analysis included:

- In determining the K-factors for I-26 and I-95, a review of the highest hourly volume data was conducted, focused on identifying the "knee of the curve."
  - On I-26, a K-factor of 10.5 percent was selected reflecting the 78th Highest Hourly Volume (HHV).
  - On I-95, a K-factor of 10.5 percent was also selected reflecting the 98th HHV on I-95 (although the I-95 HHV is likely closer to the 150th HHV if all holiday data for 2019 were available).
- This forecast has been developed assuming a single mid-day peak period (approximately 3 PM to 4 PM) with peak flows in both directions on I-95 and I-26.
- Although there is variation in actual counts, the design period reasonably approximates a typical Friday afternoon in the spring for both I-26 and I-95.

The estimated peak hour volumes developed for this study are presented in Figure 4.2 (2022 Base Year), Figure 4.3 (2030), and Figure 4.4 (2050). The details of the traffic forecasting assumptions and methodologies is detailed in the Appendix D Traffic Forecast Technical Memorandum.

Initial Capacity Analysis & Comparison of Alternatives

A series of capacity analyses were conducted using multiple software and methods for 2030 and 2050 No Build and three Build alternatives. This analysis was conducted and summarized in Chapters 5, 6 and 7. Key assumptions and findings include:

- Through discussions with SCDOT it was agreed that LOS D will be viewed as an acceptable minimum level of service (LOS) for the 2050 design period.
- The initial Highway Capacity Software (Section 6.2) and TransModeler (Section 6.3) corridor analysis was conducted to identify key constraints or updates that would be needed for the three initially proposed concepts.
- A more detailed comparison of interchange alternatives was conducted and documented in Chapter 7 using TransModeler. This analysis included an assumed widening of I-95 to the south to identify the demand requirements of the interchange ramps and key merge and diverge points.
- Additional analysis was conducted of the key merge constraints for I-26 westbound and I-95 southbound as summarized in Chapter 8. This analysis included a year of failure analysis and identified suggested interim merge lengths.

Capacity Constraints on I-95 Southbound and I-26 Westbound Two-Lane Merges

Another key issue examined was operations on the I-95 southbound merge as well as the westbound I-26 merge as analyzed in Chapter 8. In both cases, a two-lane ramp must merge with the interstate. The 2050 TransModeler analysis shows LOS F in the 2050 design year with queuing on both the interstate and merging ramps.

On I-95 south of I-26, simulation analyses showed queues extending back into the I-26 at I-95 interchange on I-95 southbound. The queues observed in the simulation model originate at the merge of the proposed two-lane Ramp 1 (which serves I-26 eastbound to I-95 southbound traffic) with I-95 southbound. This queue will back onto I-26 eastbound during peak 2050 conditions as shown in Figure 9.4.

An analysis was conducted of potential alternate merge treatments to reduce queuing at this merge (see Section 8.3) until the I-95 mainline can be widened south of I-26. The key findings at the I-95 southbound merge include:

- A 5,000-foot southbound merge onto I-95 (2 + 2 lanes = 4 lanes) is recommended to minimize queuing back into the proposed interchange. The merge would be evenly divided into two 2,500-foot merges for each merge lane. This recommendation is despite the observation that there is queuing on I-95 southbound and the merging ramp in 2050 with LOS F operations. This merge treatment recommendation is examined in Chapter 8. The proposed length was based on observations from TransModeler analysis and guidance from the Institute of Transportation Engineers (ITE) *Freeway and Interchange Geometric Design Handbook* discussed in Section 8.3.2.
- A similar merge issue was noted on I-26 westbound where the two-lane flyover Ramp 6 (which replaces loop Ramp 6) merges onto I-26 westbound. In this case, however, I-26 has three lanes westbound which helps disperse the traffic at the merge. Regardless, a series of model runs were indicated that a 4,000-foot westbound merge of the two-lane ramp would be needed to minimize potential queuing back into the interchange area in 2050.
- This analysis was done assuming that all ramp traffic from I-95 northbound would be accommodated by flyover Ramp 6. To do this, the TransModeler network assumed an additional I-95 northbound lane. Since an additional lane on I-95 is not planned, the traffic demand may be metered during the highest periods of congestion, reducing the ramp movement and subsequent merge movement that was analyzed to determine the 4,000-foot merge length.

Note that the I-26 westbound merge is less critical than the I-95 southbound merge despite a freeway volume that is 10 percent lower on I-95 than I-26. The key reason is that the lower volume is more than offset by a 50 percent increase in capacity for a three lane I-26 freeway segment compared with a two-lane I-95 freeway segment.

Comparison of Build Alternatives & Selection of Preferred Alternative

Based on the Chapter 6 comparison of alternatives, the following observations were made:

- All three alternatives operate substantially better than the existing interchange under 2030 and 2050 conditions.
  - The primary improvement is the removal of four weave segments impacting I-95 and I-26 in both directions. In addition to capacity constraints, the elimination of weave segments will also provide safety benefits since the four weave segments are currently the 2nd – 5th highest frequency crash segments in the study area.
  - The other key improvement is the provision of two lanes on the I-26 eastbound to I-95 southbound ramp (Ramp 1 in the report) and the I-95 northbound to I-26 westbound flyover (Ramp 6) replacing the loop in the northeast quadrant.
- Alternatives 1 and 2 effectively operate the same from traffic operations perspective. Both can successfully meet LOS D or better operations in 2050. There is a slight difference in travel times, but this is related to the longer length on the flyovers in Alternative 2(albeit partially offset by a higher design speed). Nevertheless, from a traffic engineering perspective, there is no key difference.
- Alternative 3 does not meet the LOS D operational goal of the entire interchange through 2030 or 2050. Specifically, the third flyover requires incorporation of a fifth shared ramp segment combining two ramps from I-26 westbound. As currently designed, this single lane shared ramp segment does not provide LOS D operations.
- The preferred alternative from a traffic perspective is either Alternative 1 or 2. After additional analysis related to the environmental impacts, design requirements, and construction costs, Alternative 2 was selected as the Preferred Alternative. For this traffic analysis, however, Alternative 1 and 2 traffic analysis are effectively the same.

Analysis of Preferred Alternative & Two-Lane Merge Operations

Based upon this analysis, a refined TransModeler analysis was conducted of the No Build and Preferred Alternative in 2030 and 2050. This analysis is detailed in Chapter 8. The key conclusions were:

- The LOS findings are illustrated in Figure 9.1 through Figure 9.4 for both the No Build and preferred alternative scenarios. These illustrations use color coding to illustrate levels of congestion based on density/LOS thresholds.
- The preferred alternative would include a 5,000-foot merge on I-95 southbound mainline merge with the two-lane ramp from I-26 eastbound. Although this

treatment still operates at LOS F in 2050, it improves operations and minimizes queuing as compared with a shorter merge and is supported for application of ITE guidance for two-lane merges.

- The preferred alternative will also include a 4,000-foot merge on I-26 westbound with the merge of the proposed I-95 northbound to I-26 westbound flyover. This merge is anticipated to operate at LOS F in 2050. Nevertheless, the provision of a 4,000-foot merge is sufficient to prevent queuing back onto the proposed flyover ramp.

Using these assumptions for the preferred alternative, the Alternative 2 model was updated to reflect the final preferred alternative for analysis in TransModeler and comparison with No Build operations. Key observations from this comparison are summarized in Chapter 8.

Interchange Modification Report Requirements

This IMR is required by FHWA for modifications or changes to existing interchanges on the interstate network. In addition to the capacity analysis, the IMR requires some additional elements be provided in reviewing the document for approval. These elements include:

- Design exceptions are typically identified as part of the IMR. For this project, however, there are no anticipated design exceptions.
- Analysis confirms that all Build Alternatives considered improve operations as compared with the No Build. Key improvements include widening of two key ramps, elimination of four weave sections impacting I-26 and I-95 in all four directions, and improvement of major merge, particularly on I-95 south of the interchange and I-26 west of the interchange.
- There are some operational exceptions, however, to the identified congestion threshold of minimum acceptable LOS D operations in 2050. Detailed analysis of the two-lane merges is included in Section 8.3.2 and addressed as part of this summary. Specifically:
  - The existing four-lane segment of I-95 south of I-26 is expected to exceed capacity and operate at LOS F in the 2050 design year. No widening or capacity improvements are currently identified for the I-95 corridor in SCDOT's 2021-2027 Statewide Transportation Improvement Program. Improvement of the I-95 mainline is beyond the scope of the current I-26 at I-95 interchange improvements.
  - The proposed 5,000-foot southbound merge of I-95 and the two-lane ramp from I-26 eastbound will operate at LOS F in 2050. Queuing will extend onto the ramp and I-95 southbound approaches to the merge.

- The proposed 4,000-foot westbound merge of I-26 and the proposed two-lane flyover from I-95 northbound will operate at LOS F in 2050 (even with the assumed widening of I-26 to six lanes in the No Build). Queuing is expected in the merging section but is not anticipated to back up onto the flyover ramp in 2050.
- Additional traffic analysis was conducted to examine operations in five-year increments between 2030 and 2050 for the two high volume merges. This analysis is included in Section 9.2.5.

FHWA Policy Points

FHWA policy requires that all requests for new or revised access to an interstate facility must provide sufficient supporting information to allow FHWA to independently evaluate the request. The FHWA decision to approve a request requires documentation of two key policy points as included in the following table.

Policy Point 1 – Operations & Safety"
"An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections." The proposed modifications to the existing I-26 at I-95 interchange will have a positive impact on both traffic safety and the operations of I-26, I-95 and the I-26 at I-95 interchange overall. Key improvements in the preferred alternative include: ***Widening of Key Ramps*** The two highest volume movements within the interchange are between I-26 to the west toward Columbia and I-95 to the south toward Georgia with approximately 4,400 vph (both directions combined) in the 2050 peak period. This movement is currently served by a single lane ramp in the eastbound to southbound direction and a single lane loop ramp in the returning direction. The preferred alternative replaces the existing ramps with a two-lane ramp in the eastbound to southbound direction and a two-lane flyover for northbound to westbound traffic. In addition, the diverge and merge areas for these widened ramps are converted to two lanes at each of the ramp tie-ins to I-26 and I-95. These changes improve traffic operations to an acceptable LOS D from LOS F and improve traffic flow (particularly related to elimination of the existing loop in the northeast quadrant). ***Elimination of Weaves on I-26 and I-95*** The current interchange configuration is a full cloverleaf with loops in all four quadrants. This type of interchange allows for free flow for all movements in the interstate-to-interstate system interchange. By 2050, however, the weave areas

between loop ramps will degrade, resulting in queuing and delays on the freeway segments. The issue affects each of the weave areas in the main interchange, in particular the weave along I-95 northbound which operates at LOS F in 2030. The four weave areas were identified in the crash analysis as having a high frequency of crashes. The elimination of the four weaves is expected to improve operations and safety for both ramp traffic and through vehicles on I-26 and I-95.

Improvement of Major Merge Areas

Two major weave areas are proposed to be widened from a single lane merge to dual lane merges on I-26 westbound and I-95 southbound. The capacity improvements are key to improving flow in the future, but it is still anticipated that there will be queuing and operational issues by 2050, particularly for the I-95 southbound merge. In addition to the 2030 and 2050 analysis, interim year operations were examined in 5-year increments. The primary reason for the operational issues at the merge is the future need to widen I-95 south of I-26.

To minimize the future impact of these flow issues, the merge areas have been lengthened in accordance with recommendations from the ITE *Freeway and Interchange Geometric Design Handbook* as discussed in Section 8.3.2. Even with these caveats, the proposed ramp improvements substantially improve traffic operations as compared with the No Build interchange.

Safety is improved at the major merge areas being improved. The I-95 southbound merge is the highest frequency crash location in the study area as shown in Table 3.10 primarily due to rear end crashes likely resulting from queues at the merge congestion point onto I-95. The location of the I-26 westbound merge improvements is also identified as a crash hot spot in Figure 3.2.

Other Safety Recommendations

As part of the safety analysis in Chapter 3, three safety recommendations were identified. These included elimination of the weave areas as well as improvements at high volume merge areas (especially at the I-95 southbound merge due to capacity constraints on I-95) that are noted above.

In addition, the analysis of fatal crashes indicated that approximately 70 percent of fatal crashes on I-26 in the study area ultimately involved a vehicle striking a tree off the edge of the road. To minimize this, the proposed design should consider the elimination of trees in the clear zones on both the outer and inner (i.e., the median) sides of I-26 in both directions.

Policy Point 1(continued) – Adjacent Interchanges

"The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f))."

The study area and network limits examined in this analysis include four adjacent interchanges on each approach to the system interchange. Despite the interchange being located in a rural area, the adjacent interchanges were included in recognition of the key regional importance and high volumes along both I-26 and I-95. Each of these interchanges are spaced more than two miles from the system interchange, as noted below. The four interchanges are detailed in Section 1.3.3 and include:

- I-95 at U.S. 176 Old State Road (Exit 90): 4 miles to the north
- I-95 U.S. 178 Charleston Highway (Exit 82): 2.9 miles to the south
- I-26 at S.C. 210 Vance Road (Exit 165): 3.2 miles to the west
- I-26 at U.S. 15 (Exit 172): 2.4 miles to the east

The HCS analysis in Section 6.2 included freeway operations analysis for each of the four interchanges. As part of the traffic forecasting, however, all four interchanges were identified as serving relatively low volume facilities (maximum 2021 AADT of 3,000 vpd was noted) and low historical and forecasted annual growth rates.

Based on the analysis, it was concluded that the adjacent interchanges are not adversely impacted by the proposed improvements at the I-26 at I-95 interchange. Key observations included:

- The freeway operations analysis indicated that ramp operations were not critical in either 2030 or 2050.
- It was noted that I-95 requires future widening south of I-26 (LOS F in 2050) which would address any merge or diverge improvement needs. Similarly, some LOS E operations were noted on I-26 west of I-95 in 2050 even with a six-lane segment. To address potential modeling issues associated with downstream bottlenecks impacting flows into the key interchange with the TransModeler network, theoretical widening assumptions were applied as detailed in Chapter 8.

Since the operations at the four interchanges do not require future capacity improvements and are spaced more than two miles on all approaches to the I-26 at I-95 interchange, the specific operations are not critical to this IMR. All four adjacent interchanges were included in the TransModeler simulation models to provide proper flow patterns into the interchange.

Policy Point 1(continued) – Crossroads& Local Street Network

"The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d))."

The local road network at each of the four adjacent interchanges was examined as part of the traffic forecasting process discussed in Chapter 4 and detailed in Appendix D. Key observations included:

- All four interchanges have low AADT volumes based on 2021 AADT data (3,000 vpd or less).
- Growth rates are low at the three diamond interchanges (SC 210, U.S. 176 and U.S. 178) which is reflected by the historical trends noted in both historical AADT volumes and land use patterns for Orangeburg County. In addition, at each of the three diamond interchanges, no traffic signals are currently in place and are not anticipated in the future based on the anticipated traffic growth rates and volumes.
- For the existing full cloverleaf interchange at U.S. 15, a higher growth rate was noted. Nevertheless, the increase in volumes was minimal due to the low existing volumes. The HCS freeway operations capacity analysis confirmed the adequacy of the weaves (LOS C in 2050) on I-26.

Based on these observations, a formal capacity analysis of the local road network and intersection operations was not conducted since it would not impact traffic flows or design requirements at the I-26 at I-95 interchange. The adjacent interchanges were included in the TransModeler network, however, to better reflect flows loading into the study interchange.

Policy Point 1(continued) – Conceptual Signing Plan
"Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d))."
A conceptual signing plan is provided for the proposed interchange layout and is attached in Appendix S. The conceptual plan focuses on guide signs on the approaches to the interchange as well as guide signs at various ramp exits and splits.
Policy Point 2 – Provision of All Movements & Public Road Access
"The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design."
The I-26 at I-95 interchange is a system interchange with all movements allowed in a full cloverleaf configuration. The preferred alternative (Alternative 2) maintains and improves all movements including the provision of flyover ramps to replace some loop ramps. All new ramps (including two loops) will be reconstructed and will meet or exceed current design standards. Each of these movements are between I-26 and I-95, which are both public roads serving key national, regional, state and local network connections.

1. INTRODUCTION

1.1 Project Background

The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 system interchange in Orangeburg County, South Carolina. The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. The need for the improvements stems from operational issues including weaving movements from on and off loop ramps resulting in rear-end and sideswipe crashes and travel delays due to weaving and merging. Alternative interchange designs were analyzed at the I-26 at I-95 system interchange to mitigate the effects of future traffic projections, in conjunction with analysis of the I-26 and I-95 mainlines.

1.2 Study Area

The study area for this widening project is shown in **Figure 1.1.** The study area is focused on the I-26 at I-95 system interchange and four adjacent interchanges including:

- U.S. 176 (Old State Road) at I-95 to the north
- U.S. 178 (Charleston Highway) at I-95 to the south
- S.C. 210 (Vance Road) at I-26 to the west
- U.S. 15 at I-26 to the east

1.3 Existing Roadway Conditions

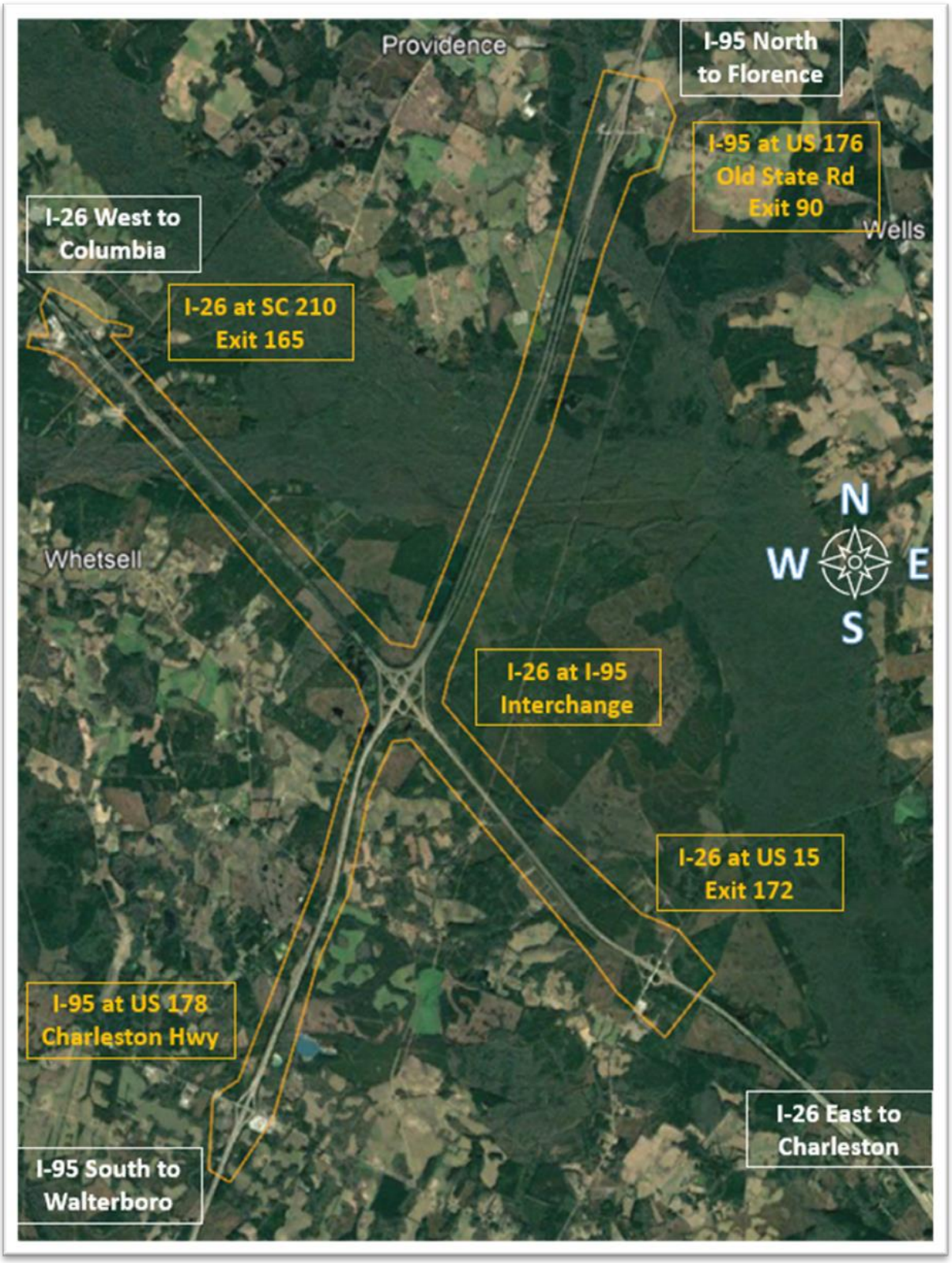
1.3.1 Study Corridors

I-95

I-95 is a north-south interstate on the east coast that extends from the United States – Canada border in the north to Miami, Florida in the south. In the study area, I-95 is a rural interstate with a speed limit of 70 mph that provides connectivity for local traffic, regional and freight traffic in South Carolina, and interstate traffic along the east coast. In South Carolina, I-95 links Florence in the north to Savannah, Georgia in the south in addition to providing access to multiple municipalities. The following interchanges are present within the study area limits on I-95:

- U.S. 176 Old State Road (Exit 90)
- I-26 (Exit 86)
- U.S. 178 Charleston Highway (Exit 82)

Figure 1.1: Study Area Location Map



Source: Google Earth Pro Image, 03/2022, Project Study Area

I-26

I-26 is an east-west interstate that extends southeast from I-81 in Kingsport, Tennessee to Charleston, South Carolina. In the study area, I-26 is a four-lane divided rural interstate with a speed limit of 70 mph that provides connectivity for local traffic, regional and freight traffic in South Carolina, and interstate traffic. In South Carolina, I-26 links three major municipalities: Spartanburg in the Upstate, Columbia in the Midlands, and Charleston in the coastal area of the Lowcountry. The following interchanges are present within the study area limits on I-26:

- S.C. 210 Vance Road (Exit 165)
- I-95 (Exit 169)
- U.S. 15 (Exit 172)

U.S. 176 Old State Road

Classified as a rural minor arterial with a speed limit of 45 mph, U.S. 176 is located on I-95 northeast of the I-26 at I-95 System interchange. Within the project area U.S. 176 is a two-lane undivided roadway. The I-95 at U.S. 176 interchange is an unsignalized diamond interchange. At the I-26 northbound ramps at U.S. 176 intersection, traffic is controlled by a stop sign on the I-95 northbound ramp while the east and west approaches remain free. At the I-95 southbound ramps at U.S. 176 intersection, traffic is controlled by a stop sign on the I-95 southbound ramp while the east and west approaches remain free. The 2021 AADT is 3,000 vpd west of I-95 and 2,500 vpd east of I-95.

U.S. 178 Charleston Highway

Classified as a rural minor arterial with a speed limit of 45 mph, U.S. 178 intersects with I-95 southwest of the I-26 at I-95 System interchange. Within the project area U.S. 176 is a two-lane undivided roadway. The I-95 at U.S. 176 interchange is an unsignalized diamond interchange. At the I-95 northbound ramps at U.S. 178 intersection, traffic is controlled by a stop sign on the I-95 northbound ramp while the east and west approaches remain free. At the I-95 southbound ramps at U.S. 178 intersection, traffic is controlled by a stop sign on the I-95 southbound ramp while the east and west approaches remain free. The 2021 AADT is 2,500 vpd east of I-95.

S.C. 210 Vance Road

Classified as a rural major arterial with a speed limit of 45 mph, S.C. 210 intersects with I-26 northwest of the I-26 at I-95 System interchange. Within the project area S.C. 210 is a two-lane undivided roadway. The I-26 at SC 210 interchange is an unsignalized diamond interchange. At the I-26 eastbound ramps at S.C. 210 intersection, traffic is controlled by a stop sign on the I-26 eastbound ramp while the north and south approaches remain free. At the I-26 westbound ramps at S.C. 210 intersection, traffic is controlled by a stop sign at each approach. The 2021 AADT is 1,200 vpd north of I-26.

U.S. 15

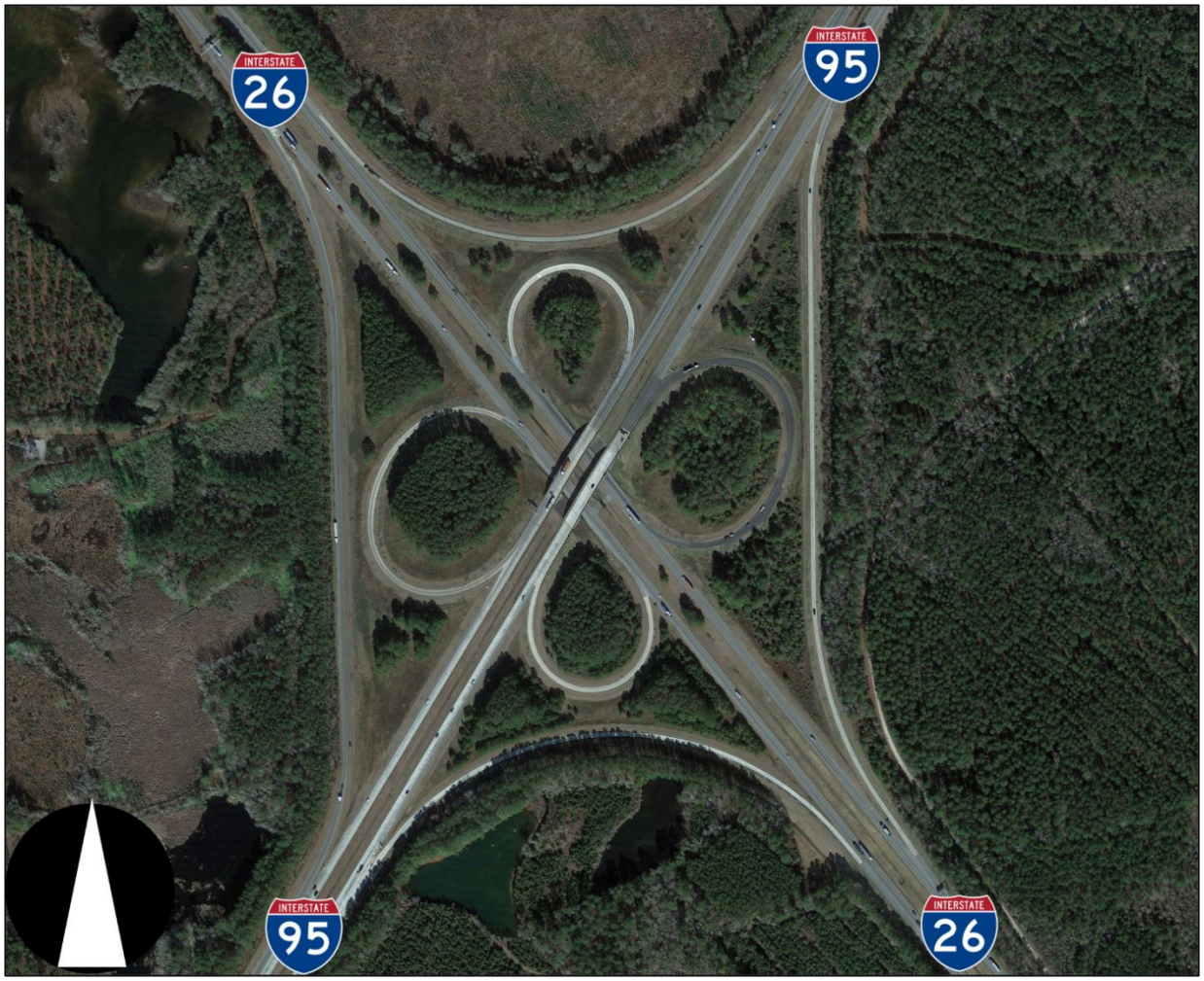
Classified as a rural major arterial with a speed limit of 45 mph, U.S. 15 intersects with I-26 southeast of the I-26 at I-95 System interchange. Within the project area U.S. 15 is a four-lane divided roadway. The I-26 at U.S. 15 interchange is a full cloverleaf interchange with weaves on I-26 and U.S. 15. At the I-26 eastbound and westbound on and off-ramps, movements are free-flow controlled by merging and diverging maneuvers. The 2021 AADT is 2,400 vpd north of I-26.

1.3.2 Study Interchange

I-26 at I-95 System interchange

The I-26 at I-95 System interchange is a full access cloverleaf interchange where the I-26 mainline runs under the I-95 bridge. No collector-distributor roadway is provided along either I-26 or I-95. Instead, all merges, diverges and weaves occur along the mainline lanes. This interchange will be modified and is the focal point of this analysis. The existing I-26 at I-95 System interchange is shown in **Figure 1.2**.

Figure 1.2: I-26 at I-95 System interchange

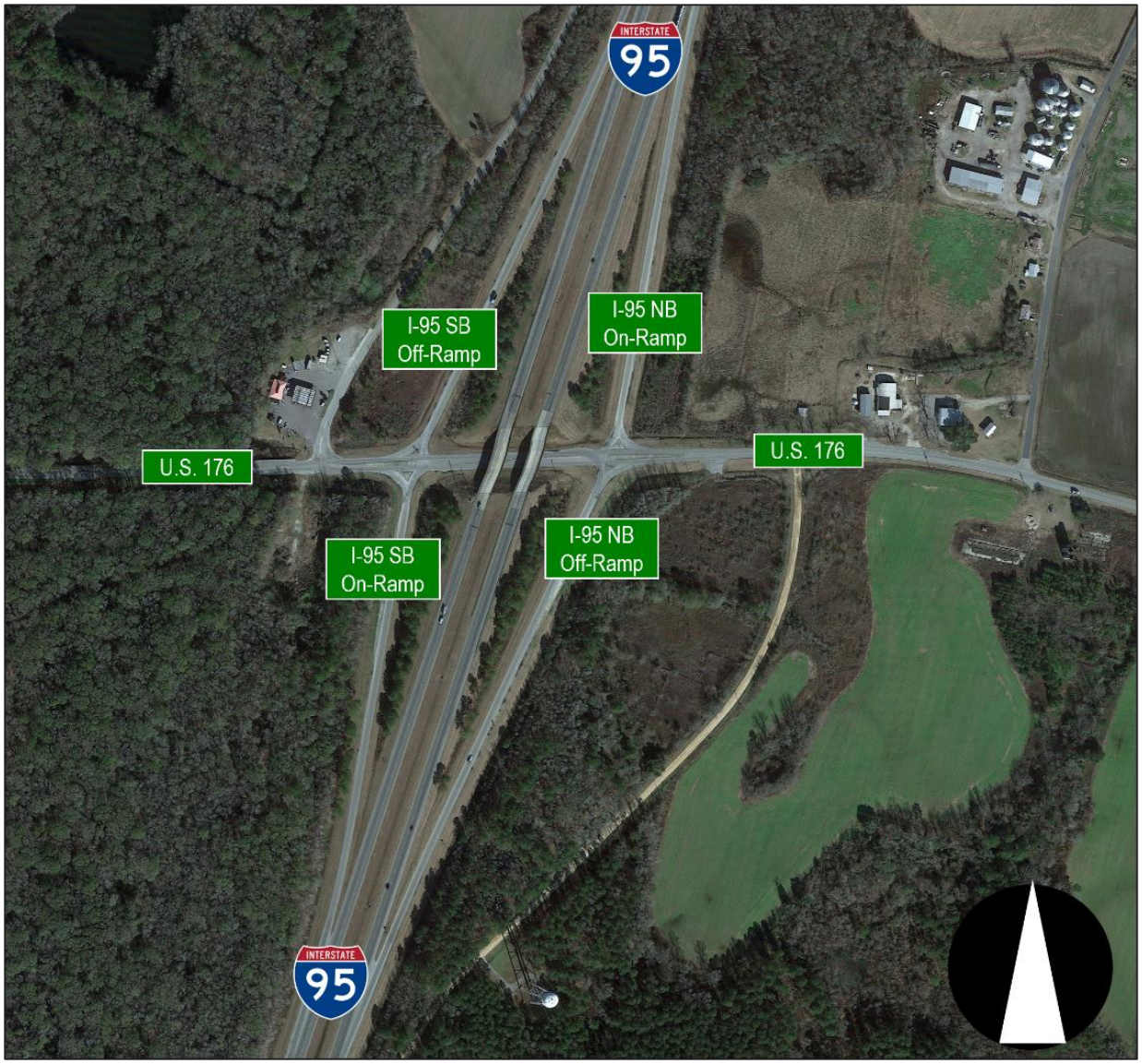


1.3.3 Adjacent Interchanges

U.S. 176 Old State Road to the north

Located 4 miles north of the system interchange, the U.S. 176 interchange is a diamond interchange where the arterial runs under the I-95 bridge. Each I-95 ramp intersection is unsignalized. While this interchange is not expected to be modified, it is included in this analysis as it is adjacent to the I-26 at I-95 system interchange. The U.S. 176 interchange is shown in **Figure 1.3**.

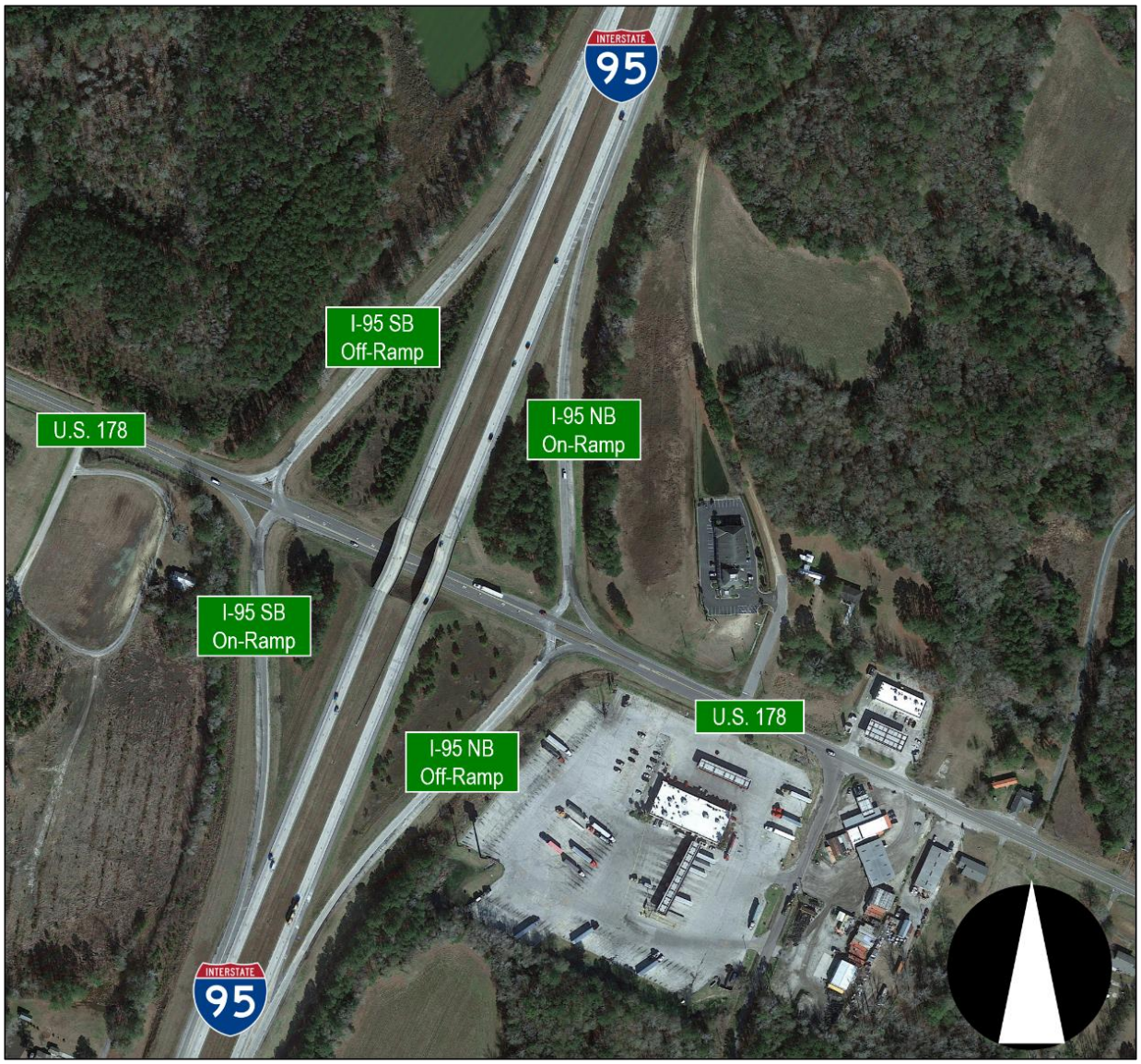
Figure 1.3: U.S. 176 Interchange



U.S. 178 Charleston Highway to the south

Located 2.9 miles south of the system interchange, the U.S. 178 interchange is a diamond interchange where the arterial runs under the I-95 bridge. Each I-95 ramp intersection is unsignalized. While this interchange is not expected to be modified, it is included in this analysis as it is adjacent to the I-26 at I-95 System interchange. The U.S. 178 interchange is shown in **Figure 1.4**.

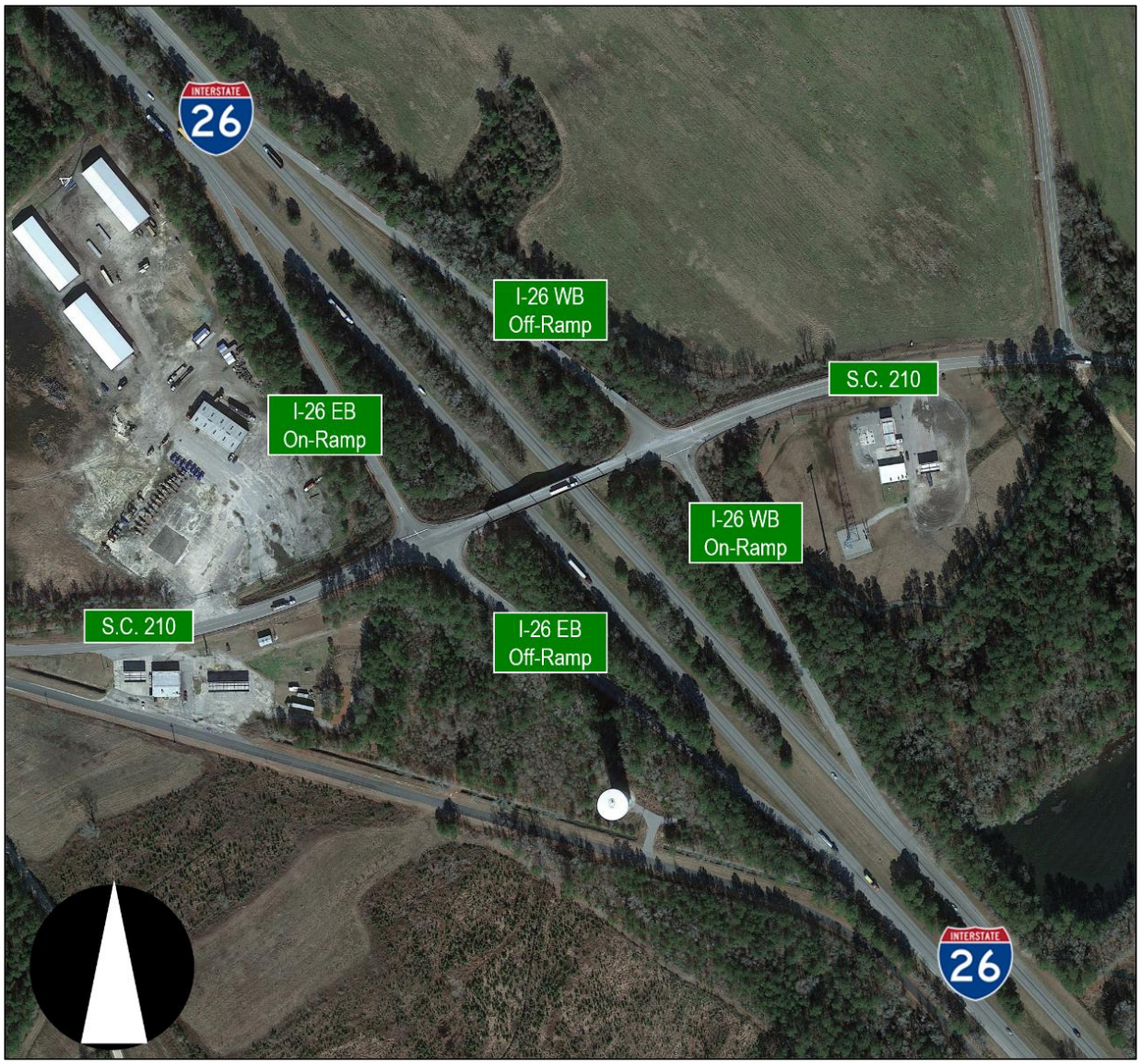
Figure 1.4: U.S. 178 Interchange



S.C. 210 Vance Road to the west

Located 3.2 miles west of the system interchange, the S.C. 210 interchange is a diamond interchange with a bridge over I-26. Each I-26 ramp intersection is unsignalized. While this interchange is not expected to be modified, it is included in this analysis as it is adjacent to the I-26 at I-95 System interchange. The S.C. 210 interchange is shown in **Figure 1.5.**

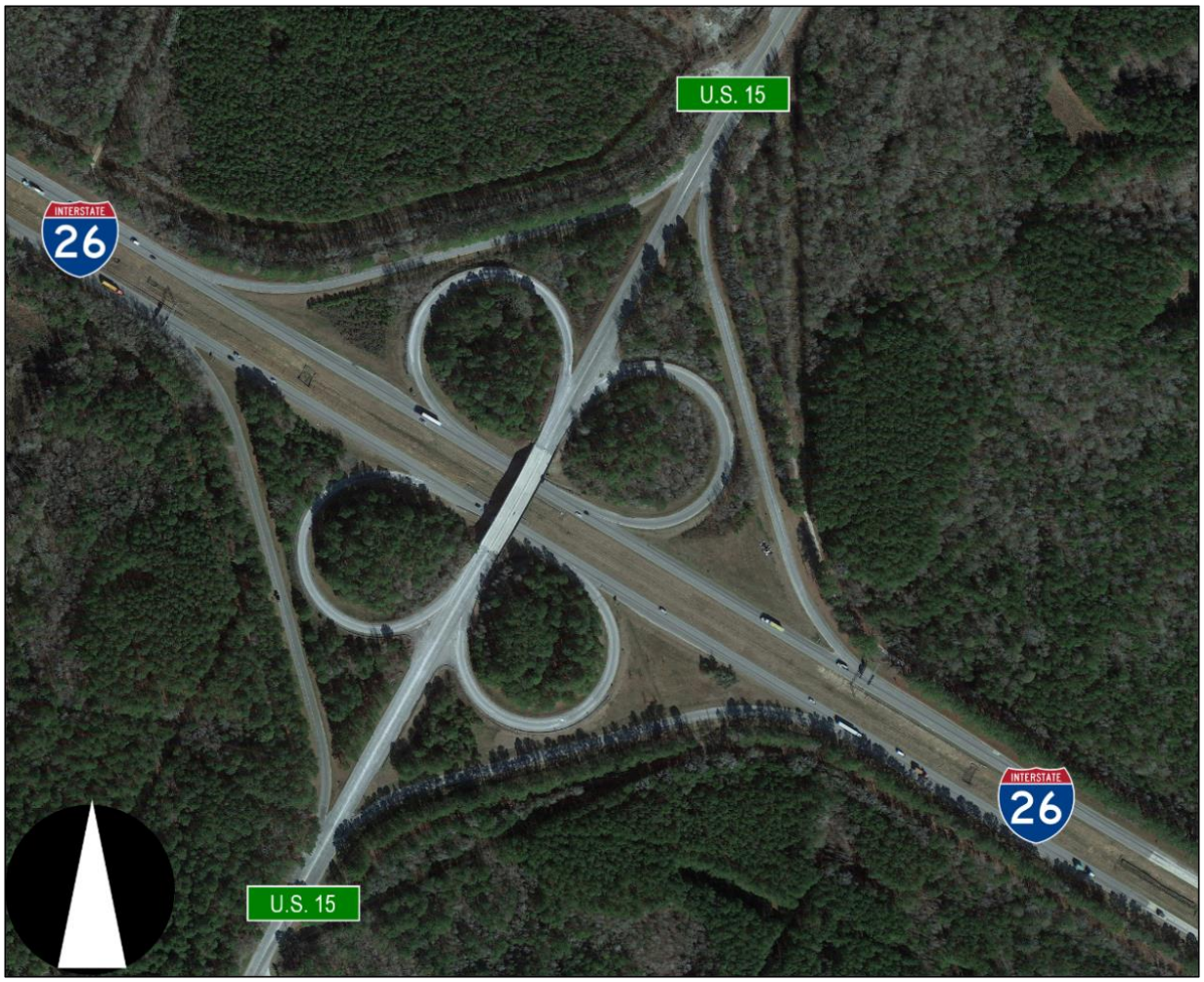
Figure 1.5: S.C. 210 Interchange



U.S. 15 to the east

Located 2.4 miles from the system interchange, the U.S. 15 interchange is a full cloverleaf interchange with a bridge over I-26. There are four cloverleaf ramps in each quadrant and four slip ramps. No collector distributors are in place along either I-26 or U.S. 15. While this interchange is not expected to be modified, it is included in this analysis as it is adjacent to the I-26 at I-95 System interchange. The U.S. 15 interchange is shown in **Figure 1.6.**

Figure 1.6: U.S. 15 Interchange



1.4 Proposed Study Area Improvements

SCDOT is currently planning for widening of I-26 to six lanes through the entire study area as part of the widening of I-26 between Columbia and Charleston under multiple projects separate from this study. The section of I-26 through the study area is part of the I-26 widening project between MM 165 to MM 176. The widening of I-26 is therefore incorporated into this analysis as part of the baseline No Build future conditions to accurately assess future traffic operations. The widening on I-26 will expand the existing four lane section to six lanes east and west of I-95 through the study area.

1.5 Proposed Design Years

Project design years were developed using the South Carolina Roadway Design Manual (SCRDM) guidelines. The SCRDM recommends a design year 20 years after the date of the completion of the project's plans, specifications and estimates package. For this project, the anticipated opening year was shifted to 2030 to be conservative, which results in a design year of 2050.

Based on the design criteria for rural freeways presented in SCDOT's 2021 Roadway Design Manual, Highway Capacity Manual (HCM) LOS C is the preferred minimum LOS for a rural interstate analysis. Through discussions with SCDOT it was agreed that LOS D will be viewed as an acceptable minimum level of service (LOS) for the 2050 design period.

2. DATA COLLECTION

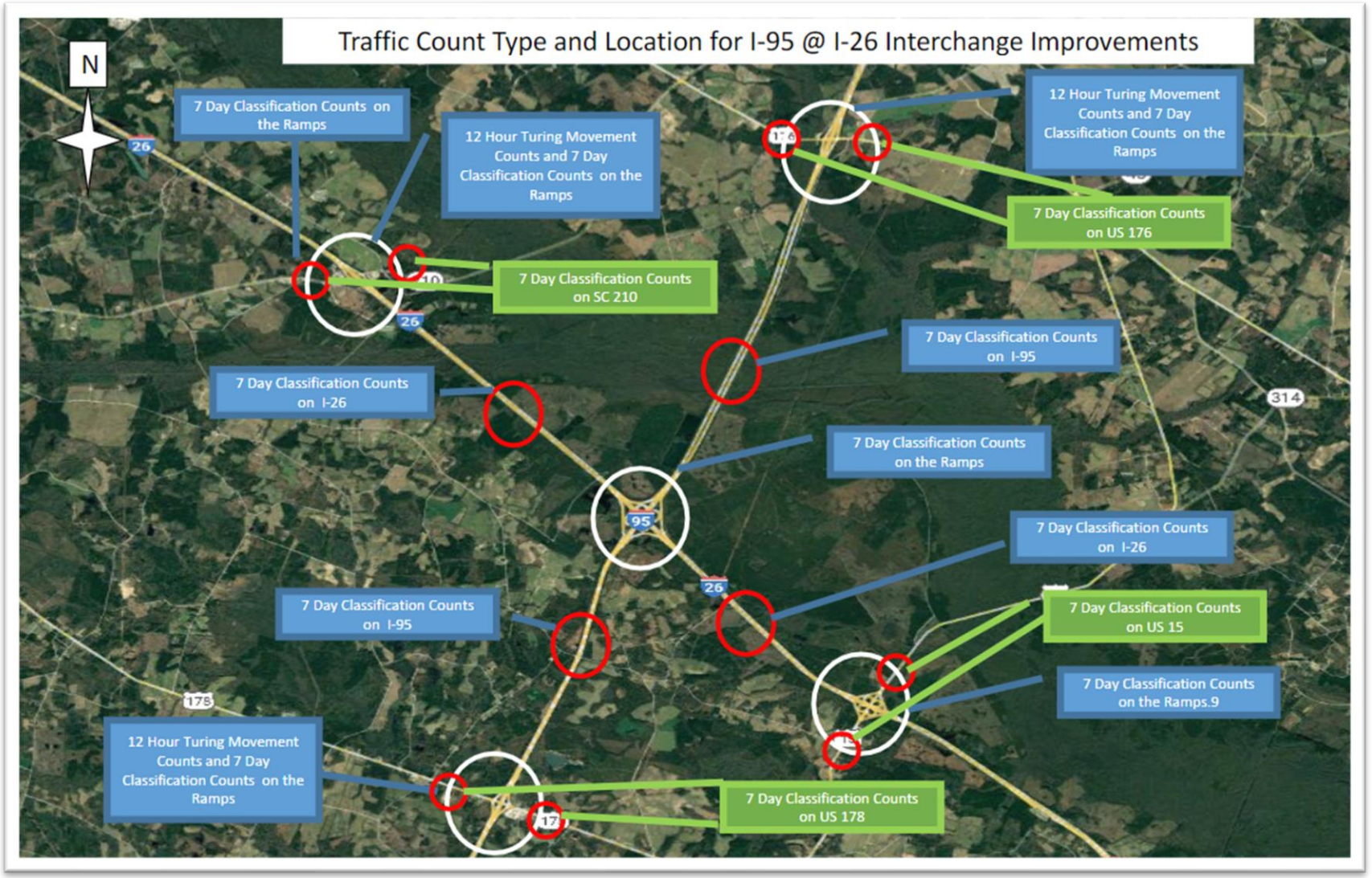
The following section describes the data collection activities performed for this analysis.

2.1 Traffic Count Collection

Interstate volumes from SCDOT's Traffic Monitoring Program were obtained via SCDOT's traffic counts website for two permanent ATR count stations: station #0056 on I-95 and station #0020 on I-26. In addition, historic AADT data were utilized for all approaches to the interchanges on I-95 and I-26 as well at the ramps for the I-26 at I-95 System interchange and the four adjacent interchanges.

Bi-directional interstate classification counts were also collected from Friday, March 1 to Thursday, March 7, 2022, on I-95 and I-26. Similar classification counts were taken at the four local roads at adjacent interchanges (U.S. 178, U.S. 176, SC 210 and U.S. 15), and ramps at each of the five interchanges in the study area. These counts identified the percentages of different vehicle types in the traffic stream. In addition, speed profiles were collected and summarized to be used in calibration of a traffic simulation. As part of the field effort, intersection turning movement counts were collected at the study intersections on Friday, March 1, 2022. The reports for these counts are provided in **Appendix A**. An illustration of the count locations is shown in **Figure 2.1**.

Figure 2.1: Count Location Map



Source: Google Earth Pro Image, 03/2022, Project Count Location

2.2 Vehicle Classification Data

Vehicle classification data was collected with the interstate traffic volume data and intersection turning movement counts to be used in this analysis. The project counts were compared with SCDOT online data and the Statewide travel demand model to estimate existing and future truck percentages on both I-26 and I-95.

Truck composition exceeds 20 percent on both I-26 and I-95, with I-95 linking freight along the eastern seaboard and I-26 serving a critical link to the SC Port facilities in Charleston. Each of the SCDOT permanent traffic counters on I-26 and I-95 summarizes the truck percentages based on FHWA's breakdown of 13 vehicle types.

The data sets and forecasted truck percentages for 2030 and 2050 are summarized in **Table 2.1**.

Table 2.1: Truck Percentages for I-26 and I-95

Location	Site Summary from SCDOT Website	Site Dashboard (Class 5-13)	Statewide Model 2015 & 2045	Project Counts (3/1-3/7)	Forecast Truck Percentages 2030	Forecast Truck Percentages 2050
I-95 North	12%	23.1%	26.3% 2015 27.5% 2045	35% weekday 29% weekend 33% overall	**22%**	**22%**
I-95 South	21%	24.5%	27.7% 2015 29.7% 2045	31% weekday 19% weekend 29% overall	**22%**	**22%**
I-26 West	24%	21.0%	30.8% 2015 41.3% 2045	31% weekday 16% weekend 28% overall	**22%**	**28%**
I-26 East	21%	21.0%	29.2% 2015 45.6% 2045	23% weekday 17% weekend 22% overall	**22%**	**28%**

Note that higher truck percentages are forecast for I-26 in 2050 (28 percent) than 2030 (22 percent). This increase is based on input from the official 2045 Statewide Model Version 4 (SCSWMv4) and existing counts. The Statewide model is used by SCDOT for freight planning purposes and includes anticipated increases in freight volumes related to the SC Ports facilities in Charleston as well as other shipping and truck focused industries along the corridor. Note that the forecasted 28 percent trucks for 2050 is still substantially lower than the more than 40 percent identified by the 2045 Statewide model. The future 28 percent truck percentage for 2050 was based on coordination with SCDOT as a balance between the Statewide model and existing conditions.

2.3 Travel Speed Data

Travel speed data was obtained with the collected count data. March 2022 data was analyzed for the calibration of the existing conditions TransModeler model. **Table 2.2** provides the existing conditions travel speeds that were averaged for the week of data collection and used for the TransModeler model calibration purposes. The reports for these travel speeds are provided in **Appendix B.**

Table 2.2: I-26 at I-95 Project Corridor Collected Travel Speeds

Location	Average Speed (mph)
I-26 Eastbound	70
I-26 Westbound	70
I-95 Northbound	69
I-95 Southbound	70

3. CRASH ANALYSIS

A safety analysis of crashes from January 2015 to December 2019 was conducted for the project study area with crash data provided by the South Carolina Department of Public Safety (SCDPS). Data was analyzed for key roadways within the study area including:

- Within the study area, a total of 1,022 crashes were reported as presented in **Table 3.1**.
- Along I-95, data was analyzed on 9.22 freeway miles from south of the U.S. 178 interchange (MP 81.64) to north of the U.S. 176 interchange (MP 90.86).
- Along I-26, crash data was analyzed on 7.42 miles from west of the SC 210 interchange (MP 164.49) to the east of the U.S. 15 interchange (MP 171.91).
- Ramp crash data at the I-95 at I-26 interchange
- The crossroads at the four adjacent interchanges to the project (U.S. 178, U.S. 176, SC 210 and U.S. 15).

Table 3.1: Number of Crashes and Crash Severity by Year

Crash Severity	2015	2016	2017	2018	2019	Total	Proportion
Fatality	2	4	1	4	3	***14***	1%
Injury	39	43	46	33	50	***211***	21%
Property Damage Only	141	158	166	169	163	***797***	78%
Total	***182***	***205***	***213***	***206***	***216***	***1,022***	***100%***

The following sections discuss these crashes by facility, location, type, and severity.

3.1 Statewide Crash and Fatality Rates

Between 2015 and 2019, there were 534 crashes on I-95 and 488 crashes on I-26. Of these, there were 3 fatal crashes with 5 deaths on I-95 and 11 fatal crashes on I-26 with 12 deaths. In order to better understand the crash issues, crash rates were calculated for both I-95 and I-26 in the study area and compared with statewide average crash rates.

Crash rates are calculated by taking the number of crashes on a certain segment of roadway and dividing it by the exposure rate. The exposure rate is the number of vehicle miles travelled on the segment during the study period. Crash rates are typically reported based on the number of crashes per 100 million vehicle miles traveled which is computed using the following equations.

Equation 3-1: Segment Crash Rate Calculations

Exposure per 100 MVM = $\frac{\text{AADT x segment length (miles) x 365 x number of years}}{100{,}000{,}000}$

Segment Crash Rate = $\frac{\text{Number of Crashes in the n Year Period}}{\text{Exposure for the n Year period (in 100 MVM)}}$

Using these formulas, four types of crash rates were computed for both I-95 and I-26. These rates include:

- Total Crash Rate (all crashes including property damage only, injury and fatal)
- Serious Injury Crash Rates (incapacitating injury crashes only)
- Total Injury Crash Rate (all injuries and possible injuries)
- Fatal Crash Rates (fatal crashes only)

These rates are then compared to average crash rates for similar facilities in South Carolina. **Table 3.2** provides a summary of the crash rates on I-95 and I-26 within the study area as well as a comparison to statewide averages. Key observations include:

- The total crash rate on both I-95 (72.46 crashes per 100mvm) and I-26 (79.55 crashes per 100 mvm) are less than half the statewide average total crash rate (167.27 crashes/100mvm) for rural principal arterial interstates.
- I-95 generally has lower crash rates than I-26 in the study area.
- I-26 has a high serious injury crash rate (2.45 serious injury crashes/100 mvm) and fatal crash rate (1.79 fatal crashes per 100mvm) that exceed the statewide averages of 2.08 serious injury crashes per 100mvm and 1.17 fatal crashes per 100mvm.

Table 3.2: Crash Rate Comparison between I-95, I-26 and Statewide Averages

Description	Dist (mi.)	AADT (vpd)	Total Crash Rate	Injury Crash Rate	Serious Injury Crash Rate	Fatal Crash Rate
Statewide Average – 2019 Rural Principal Arterial (interstate)	Varies	Varies	**167.27**	**35.20**	**2.08**	**1.17**
Interstate 95 in study area	9.22	43,800	72.46	13.43	0.81	0.41
Interstate 26 in study area	7.42	45,300	79.55	18.26	**2.45**	**1.79**

Notes: Crash rates are shown in terms of the number of crashes per 100 million vehicle miles (crashes per 100Mvm)
Red text identifies crash rates that exceed the statewide average.

Calculations are provided in **Appendix C**. Recommendations for safety improvements are provided at the end of this section.

3.2 I-95 Crash Patterns

As identified in Table 3.2, all crash rate types in the study area on I-95 are substantially lower than the statewide average (less than 50 percent in all cases).

3.2.1 Crash Severity

Table 3.3 summarizes I-95 crash severity types by year. Of the 534 crashes, 19 percent involved some level of injury and 1 percent involved a fatality. Using the same table, the number and severity of crashes varied by year, but in general was stable between years reflecting little variation. For this reason, the analysis focuses on total crashes over the five-year period. In addition to the analysis in this section, Section 3.6 examines the fatal crashes in more detail.

Table 3.3: I-95 Crash Severity

Crash Severity	2015	2016	2017	2018	2019	*Total*	Proportion
Fatality	0	1	0	1	1	***3***	1%
Injury	22	18	23	18	18	***99***	19%
Property Damage Only	69	91	90	96	86	***432***	81%
Total	***91***	***110***	***113***	***115***	***105***	***534***	100%

Source: SC Department of Public Safety Crash Reports, 2015-2019

3.2.2 Crash Types

The crash types on I-95 are summarized in **Table 3.4.**

Table 3.4: Type of Crash by Severity on I-95

Crash Type	Fatality	Injury	Property Damage Only	Total	Percent of All Crashes
Rear End	1	**50**	195	**246**	**46%**
Head On	0	0	0	**0**	**0%**
Angle	0	2	23	**25**	**5%**
Sideswipe	1	3	55	**59**	**11%**
Off Road	0	**40**	106	**146**	**27%**
Rollover	0	2	2	**4**	**1%**
Animal	1	1	27	**29**	**5%**
Other	0	1	24	**25**	**5%**
Total	**3**	**99**	**432**	**534**	
Percent of All Crashes	**0.6%**	**19%**	**81%**		

Note: Red highlighting used to identify fatal crashes and crash types with high number of injuries. High number of injuries was estimated based on crash type exceeding 12 percent of total injury crashes.

Key observations on total crashes on I-95 by crash type include:

- The most common crash type is rear end crashes (46 percent) which typically occur in areas with extensive queuing or, in the case of a freeway, substantially reduced speeds.

- On a freeway, sideswipe (11 percent) and angle (5 percent) crashes typically involve lane changes and merge, diverge and weaving movements. These account for 16 percent of crashes on I-95.
- Off-road crashes (27 percent) are the second most common crash type. Crashes of this type typically involve higher speed vehicles losing control and exiting the roadway.

Observations regarding crash severity as it varies by crash type include:

- Three fatal crashes occurred on I-95 with all being of different types (rear end, sideswipe and animal)
- Of the 99 injury crashes, 50 percent were rear end crashes and 40 percent were off road crashes.

3.2.3 Prime Contributing Factor

Understanding the causes of crashes is important to identifying roadway issues and developing countermeasures. Although there can be multiple contributing causes to a crash, the crash reports identify one key or "prime" contributing factor for each crash**. Table 3.5** provides a summary of the prime contributing factor for crashes on I-95 as it varies by crash severity.

Table 3.5: Prime Contributing Factor of Crashes on I-95 (Total Number of Crashes and Percent of Crashes by Key Type of Factor and Severity)

Prime Contributing Factor	Fatality	Injury	Property Damage Only	Total	Percent of All Crashes
Driving Action/Error	**0.2%**	**14.8%**	**64.6%**	**425**	**79.6%**
Driving too Fast for Conditions	0	**66**	237	303	56.7%
Improper Lane use/change	**1**	**9**	73	83	15.5%
Following too Closely	0	2	15	17	3.2%
Failure to Yield ROW	0	1	2	3	0.6%
Improper Turn	0	0	2	2	0.4%
Other Improper Action	0	0	7	7	1.3%
Ran off Road	0	0	7	7	1.3%
Swerving to Avoid Object	0	1	1	2	0.4%
Wrong side or Wrong Way	0	0	1	1	0.2%
Driver Condition	**0.0%**	**2.6%**	**4.7%**	**39**	**7.3%**
Distracted/Inattention	0	**4**	17	21	3.9%
Fatigued/Asleep	0	1	2	3	0.6%
Medical Related	0	**5**	1	6	1.1%
Under the Influence	0	**4**	5	9	1.7%

Prime Contributing Factor	Fatality	Injury	Property Damage Only	Total	Percent of All Crashes
Road Condition/ Hazard	**0.2%**	**0.2%**	**6.9%**	**38**	**7.1%**
Animal in Road	1	1	27	29	5.4%
Debris	0	0	7	7	1.3%
Obstruction in Roadway	0	0	1	1	0.2%
Other (environmental)	0	0	1	1	0.2%
Road Surface Condition	0	0	1	1	0.2%
Vehicle Issues	**0.0%**	**0.9%**	**2.8%**	**20**	**3.7%**
Brakes	0	0	1	1	0.2%
Cargo	0	0	2	2	0.4%
Steering	0	0	1	1	0.2%
Tires/Wheel	0	5	11	16	3.0%
Unknown	**0.2%**	**0.0%**	**1.9%**	**11**	**2.1%**
Unknown	1	0	10	11	2.1%
Total	**3**	**99**	**432**	**534**	
	0.6%	18.5%	80.9%		

Note: Red highlighting used to identify fatal crashes and contributing factors with high number of injuries. High number of injuries was estimated based on prime contributing factor exceeding 4 percent of total injury crashes.

Key observations from Table 3.5 on total crashes by prime contributing factor include:

- The prime contributing factor can be looked at in multiple ways. By combining some of the detailed factors, five key types of contributing factors can be identified:
  - Driver Actions or Errors – 79 percent of crashes
  - Driver Condition – 7 percent
  - Road Condition or Hazard – 7 percent
  - Vehicle Issues – 4 percent
  - Other – 2 percent

- On I-95, the majority of crashes have prime contributing factors related to driver actions or errors (79 percent). Of these, two specific factors are noted:
  - Driving too fast for conditions (72 percent of driver action related crashes and 57 percent of total crashes): On the existing I-95, this could be related to either the primary freeway speed (posted 70 mph) or exiting from I-95 at a ramp at too fast of speed.
  - Improper lane use or change (20 percent of driver action related crashes and 16 percent of total crashes): On the existing I-95, this is likely related to lane change crashes related to blind spots in driver mirrors and underestimation of available gaps for lane shifts. In addition, weaving areas at the existing I-95 at I-26 full cloverleaf interchange require traffic to weave

into and out of the weaving area simultaneously while accelerating or decelerating.
  - One observation is that running off the road is only the prime contributing factor in 1 percent of crashes compared with the off road crash type accounting for 27 percent of total crashes. This illustrates that other contributing factors can cause a run off the road crash (such as driving under the influence or an animal in the road).

- Driver condition is only identified as the primary cause in 7 percent of crashes on I-95. Of these, the majority (54 percent) involve distracted or inattentive drivers.

- Road conditions are only identified as the primary cause in 7 percent of crashes. Of these, the majority (74 percent) involve animals on the road. Note that of the 7 percent of crashes that were caused by an animal, 5 percent involved hitting the animal and 2 percent involved vehicles impacting a tree, median barrier, guardrail, or other off road hazard.

- Vehicle issues only account for 4 percent of crashes of which 80 percent of the crashes involve issues with the tires.

A review of crash severity and prime contributing factor was also completed to determine what prime contributing factors resulted in crashes with injuries or fatalities. Key observations include:

- The three fatal crashes that occurred in I-95 all have different prime contributing factors (improper lane use/ change, animal and unknown). The crash with an unknown primary cause was a two-vehicle rear end crash that resulted in hitting a median barrier.

- Of the 99 injury crashes, 67 percent have a primary contributing factor of driving too fast for conditions. The second most common prime contributing factor was also related to driver action/error with 9 percent of injury crashes involving improper lane use/ changes.

- Driver condition accounts for 14 percent of all injury crashes on I-95 with a relatively even distribution of specific driver condition factors.

- Vehicles issues relating to tire/ wheel failures account for 5 percent of injury crashes.

3.2.4 Other Crash Findings

The I-95 crash data were examined for multiple other issues to identify trends or unique issues. This included looking at the road surface (wet or dry), lighting condition (day or night), and the time or day of the crash.

Weekend Crashes on I-95

As shown in **Table 3.6,** an observation was found regarding crash frequency on the weekends versus weekdays.

Table 3.6: Comparison of Crashes & Volumes on Weekday versus Weekend on I-95

Day of Week	Total Crashes	Daily Percentage of Crashes	2019 Daily Average (vpd)	Daily Percentage of Traffic
Monday	71	13%	31,068	14%
Tuesday	41	8%	27,712	12%
Wednesday	35	7%	28,208	12%
Thursday	49	9%	31,477	14%
Friday	100	19%	37,748	16%
Saturday	118	22%	37,024	16%
Sunday	120	22%	35,735	16%
Total	***534***	***100%***	***228,972***	***100%***
Average M, T, W & H Weekday	49		29,616	
Average F, S & S Weekend	113	**130% higher**	36,836	**24% higher**

The key item noted in this review was:

- 63 percent of crashes occur on Friday through Sunday compared with 48 percent of the traffic volume. Looked at in terms of daily frequency of crashes, each Friday, Saturday, and Sunday crash rates have more than double the crashes than occur on each of the other 4 days of the week.
- The 2019 AADT at SCDOT's permanent I-95 count station (#56) was evaluated to determine typical traffic volumes each day of the week. The extended Friday-Saturday-Sunday weekend had an average daily volume of 36,800 vpd. In comparison, the other four days of the week had an average daily volume of 29,600 vpd.
- Typically, crash rates increase proportionately with an increase in volume. I-95, however, has a higher percent of crashes occurring on the weekend (130

percent higher) as compared with the increase in traffic volumes (24 percent higher). The reason for this is unclear, but two potential factors are:

- Weekend traffic could have a higher percentage of less experienced or older drivers that may not be familiar with the area due to long distance travel.
- The higher volumes on the weekend reach a high enough volume that capacity is reached at key junction points or bottlenecks resulting in traffic slowdowns and queuing. This slowing of traffic is not typical of a rural freeway facility and may result in a higher proportion of crashes when these unexpected bottlenecks occur on the weekend.

Other Crash Observations

Other miscellaneous observations of I-95 crashes include:

- Speed cited as issue in less than 10 percent of crashes.
- Crashes involving a single vehicle make up 33 percent of crashes on I-95. 53 percent involve two vehicles, and 12 percent involve three vehicles. Only 2 percent involve greater than three vehicles.
- Of the crashes indicating a motor unit was hit by another vehicle, 34 percent involved a stopped vehicle and 66 percent involved a moving vehicle.
- Trees were the ultimate harmful event in 10 percent of crashes on I-95. Median barriers accounted for 11 percent of the harmful events.
- Crash direction was distributed fairly evenly with 53 percent of crashes in the southbound direction and 47 percent in the northbound direction.

3.3 I-26 Crash Patterns

A similar crash analysis was prepared for I-26 in the study area. As identified in Table 3.6, crash rates on I-26 are slightly higher than I-95. Key observations include:

- I-26 has total crash rate of 79.55 crashes per 100mvm compared to 72.46 crashes per 100mvm on I-95.
- Similar to I-95, the total crash rate on I-26 is less than half the statewide average total crash rate (167.27 crashes/100mvm) for rural principal arterial interstates.
- Unlike I-95, I-26 has a serious injury crash rate (2.45 serious injury crashes/100 mvm) and fatal crash rate (1.79 fatal crashes per 100mvm) that exceed the statewide averages of 2.08 serious injury crashes per 100mvm and 1.17 fatal crashes per 100mvm.

3.3.1 Crash Severity

As noted, crash severity on I-26 is higher than on I-95 and higher than statewide averages. **Table 3.7** summarizes I-26 crash severity types by year. Of the 488 crashes, 23 percent involved some level of injury and 2 percent involved a fatality. In addition to the analysis in this section, Section 3.6 examines the fatal crashes in more detail.

Table 3.7: I-26 Crash Severity

Crash Severity	2015	2016	2017	2018	2019	*Total*	Proportion
Fatality	2	3	1	3	2	***11***	2%
Injury	17	25	23	15	32	***112***	23%
Property Damage Only	72	67	76	73	77	***365***	75%
Total	***91***	***95***	***100***	***91***	***111***	***488***	100%

Source: SC Department of Public Safety Crash Reports, 2015-2019

3.3.2 Crash Types

The crash types on I-26 and the respective severity of these crashes are summarized in **Table 3.8.**

Table 3.8: Crash Types on I-26

Crash Type	Fatality	Injury	Property Damage Only	Total	Percent of All Crashes
Rear End	**2**	**29**	99	**130**	**27%**
Head On	0	1	0	**1**	**0%**
Angle	0	9	42	**51**	**10%**
Sideswipe	0	**13**	89	**102**	**21%**
Off Road	**9**	**53**	96	**158**	**32%**
Rollover	0	2	4	**6**	**1%**
Animal	0	3	14	**17**	**3%**
Other	0	2	21	**23**	**5%**
Total	**11**	**112**	**365**	**488**	
Percent of All Crashes	**2.3%**	**23%**	**75%**		

Note: Red highlighting used to identify fatal crashes and crash types with high number of injuries. High number of injuries was estimated based on crash type exceeding 12 percent of total injury crashes.

Key observations on total crashes by crash type include:

- The most common crash type is rear end crashes (27 percent) which typically occur in areas with extensive queuing or, in the case of a freeway, reduced speeds. Note that this is lower on I-26 than on I-95 (46 percent).
- On a freeway, sideswipe (21 percent) and angle (10 percent) crashes typically involve lane changes and merge, diverge and weaving movements. These

account for 31 percent of crashes on I-26. Note that I-95 crashes had a lower percentage (16 percent) following into these two crash type categories.

- Off-road crashes (32 percent) are more common on I-26 than the combined sideswipe and angle crashes (31 percent). Crashes of this type typically involve high speed vehicles losing control and exiting the roadway. This percentage is similar to what was observed on I-95 for off-road crashes (27 percent).

Observations regarding crash severity as it varies by crash type include:

- Eleven fatal crashes occurred on I-26 in the study area. Over 80 percent of fatal crashes involved off road crashes. The other 20 percent were rear end crashes.
- Of the 112 injury crashes, 47 percent were off road crashes further enforcing the need to examine this type of crash on I-26. 26 percent of injury crashes are rear end crashes and 20 percent were either angle or sideswipe crashes.

3.3.3 Prime Contributing Factor

Table 3.9 provides a summary of the prime contributing factor for crashes as well as how severity varies based on the primary contributing factors on I-26. Key observations from Table 3.9 include:

- The prime contributing factor can be looked at in multiple ways. By combining some of the detailed factors, five key types of crash factors can be identified:
  - Driver Actions or Errors – 80 percent of crashes
  - Driver Condition – 5 percent
  - Road Condition or Hazard – 7 percent
  - Vehicle Issues – 7 percent
  - Other – 3 percent
- On I-26, the majority of prime contributing factors are related to driver actions or errors (80 percent). Of these, two specific factors are noted:
  - Driving too fast for conditions (50 percent of driver action related crashes and 40 percent of total crashes): On the existing I-26, this could be related to either the primary freeway speed (posted 70 mph) or exiting from I-95 at a lower speed ramp. Note that this is lower than noted on I-95 where 72 percent of crashes involved vehicles driving too fast.
  - Improper lane use or change (39 percent of driver action related crashes and 31 percent of total crashes): On the existing I-26, this likely results from lane change crashes related to blind spots and underestimation of available gaps for lane shifts. In addition, the full cloverleafs at the I-26 at I-95 interchange and the I-26 at U.S. 15 interchange have weaving sections requiring more complex lane changing maneuvers between vehicles.

- Driver conditions are only identified as the primary cause in 5 percent of crashes. Of these, the majority (55 percent) involve drivers under the influence. This is higher than the findings noted on I-95.
- Road condition is only identified as the primary cause in 7 percent of crashes. Of these, 47 percent involve animals on the road. Debris or other obstructions in the road account for 51 percent of road condition crashes on I-26.
- Vehicle issues only account for 7 percent of crashes of which 80 percent of the crashes involve issues with the tires.
- Of the 11 fatal crashes on I-26, driver action or error is identified as the primary cause in 72 percent of crashes. This may be higher since 18 percent were attributed to unknown causes.

Table 3.9: Prime Contributing Factor of Crashes on I-26

Prime Contributing Factor	Fatality	Injury	Property Damage Only	Total	Percent of All Crashes
Driving Action/Error	**1.7%**	**17.7%**	**60.2%**	**382**	**79.6%**
Driving too Fast for Conditions	1	49	140	190	39.6%
Improper Lane use/change	2	27	118	147	30.6%
Following too Closely	0	1	6	7	1.5%
Failure to Yield ROW	0	1	8	9	1.9%
Improper Turn	0	0	1	1	0.2%
Other Improper Action	1	2	8	11	2.3%
Ran off Road	3	4	6	13	2.7%
Swerving to Avoid Object	0	0	1	1	0.2%
Aggressive Operation	1	1	0	2	0.4%
Wrong side or Wrong Way	0	0	1	1	0.2%
Driver Condition	**0.0%**	**2.7%**	**1.9%**	**22**	**4.6%**
Distracted/Inattention	0	0	4	4	0.8%
Fatigued/Asleep	0	3	1	4	0.8%
Medical Related	0	0	2	2	0.4%
Under the Influence	0	10	2	12	2.5%
Road Condition/ Hazard	**0.0%**	**0.6%**	**6.9%**	**36**	**7.5%**
Animal in Road	0	3	14	17	3.5%
Debris	0	0	10	10	2.1%
Obstruction in Roadway	0	0	8	8	1.7%
Other (environmental)	0	0	0	0	0.0%
Road Surface Condition	0	0	0	0	0.0%
Work Zone	0	0	1	1	0.2%
Vehicle Issues	**0.2%**	**2.3%**	**4.0%**	**31**	**6.5%**
Brakes	0	0	0	0	0.0%
Cargo	0	1	1	2	0.4%
Steering	0	0	1	1	0.2%
Tires/Wheel	1	8	16	25	5.2%
Other (vehicle defect)	0	2	1	3	0.6%
Unknown	**0.4%**	**0.0%**	**2.3%**	**13**	**2.7%**
Unknown	2	0	11	13	2.7%
Total	**11**	**110**	**359**	**480**	
	2.3%	22.9%	74.8%		

Note: Red highlighting used to identify fatal crashes and contributing factors with high number of injuries. High number of injuries was estimated based on factor exceeding 4 percent of total injury crashes.

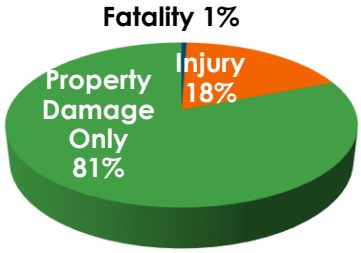
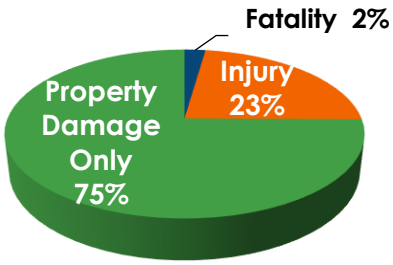
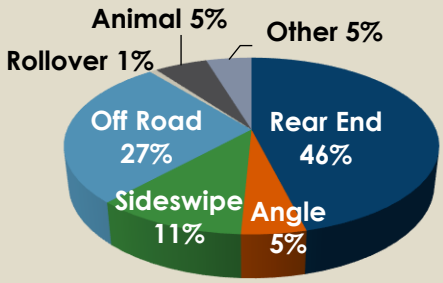
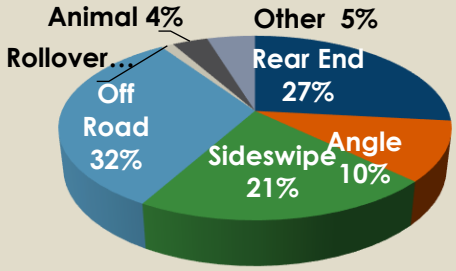
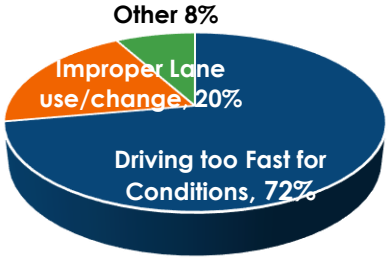
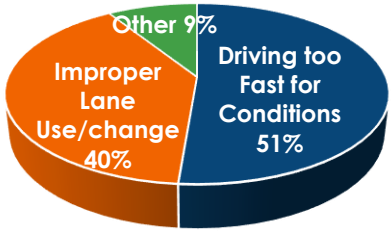
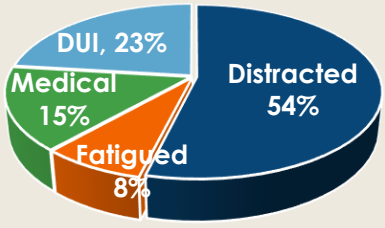
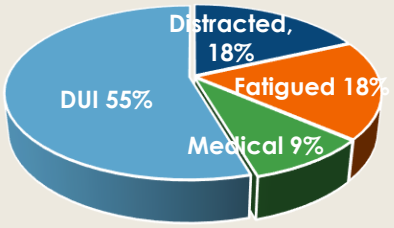
3.3.4 Other Crash Findings

- The crash data were examined for multiple other issues to identify trends or unique issues. On I-26, the key item that stood out, however, is the high number of fatal crashes. These are examined in Section 3.6.
- A review of the weekday versus weekend crashes indicated that I-26 does not have the same issue of higher crashes than expected occurring on the weekend that was observed on I-95.
- Speed cited as issue in only 12 percent of crashes.
- Crashes involving a single vehicle make up 35 percent of crashes on I-26. 59 percent involve two vehicles, and 4 percent involve three vehicles. Only 1 percent involve greater than three vehicles.
- Of the crashes indicating a motor unit that was hit by another vehicle, 11 percent involved a stopped vehicle and 89 percent involved a moving vehicle. This is likely because I-26 has fewer times when traffic is completely stopped or reduced to very slow speeds as compared with I-95.
- Trees were the ultimate harmful event in 26 percent of crashes on I-26, more than double noted on I-95. Median barriers accounted for 2 percent of the harmful events which is lower than on I-95. It is not known if this is due to more barriers separating trees from the roadway on I-95.
- Crashes were distributed fairly evenly with 53 percent of crashes in the southbound direction and 47 percent in the northbound direction.

3.4 Comparison of I-95 and I-26 Crash Patterns

As noted in the previous two sections, the crash patterns on I-95 and I-26, although similar, also have different characteristics. Some of the key differences are illustrated in **Figure 3.1**.

Figure 3.1: Comparison of I-95 and I-26 Crash Pattern Differences

Category	I-95	I-26
Crash Severity		
Crash Type		
Driver Actions as Prime Contributing Factor (79% of Crashes)		
Driver Condition as Prime Contributing Factor (5-7% of Crashes)		

3.5 High Frequency Crash Locations

A key to understanding crashes is observing the location of crashes on the corridor. Using GIS based on milepost data and the direction of flow the traffic occurred in, an overview of the project corridor.

Figure 3.2 shows the hotspots of crashes on I-95. The densest concentration of crashes on I-95 between U.S. 178 and U.S. 176 as well as on I-26 between the SC 210 and U.S. 15 interchanges.

Within the study area, the highest concentration of crashes is focused around the I-26 and I-95 full cloverleaf interchange that is being improved as part of this project. There is also a section of I-95 just south of the interchange with a high frequency of crashes. Based on this information, **Figure 3.3** was prepared to illustrate the type, locations, and direction of travel for crashes occurring within the I-26 at I-95 interchange.

Figure 3.2: Heat Map of Crashes on I-26 and I-95 within Study Area

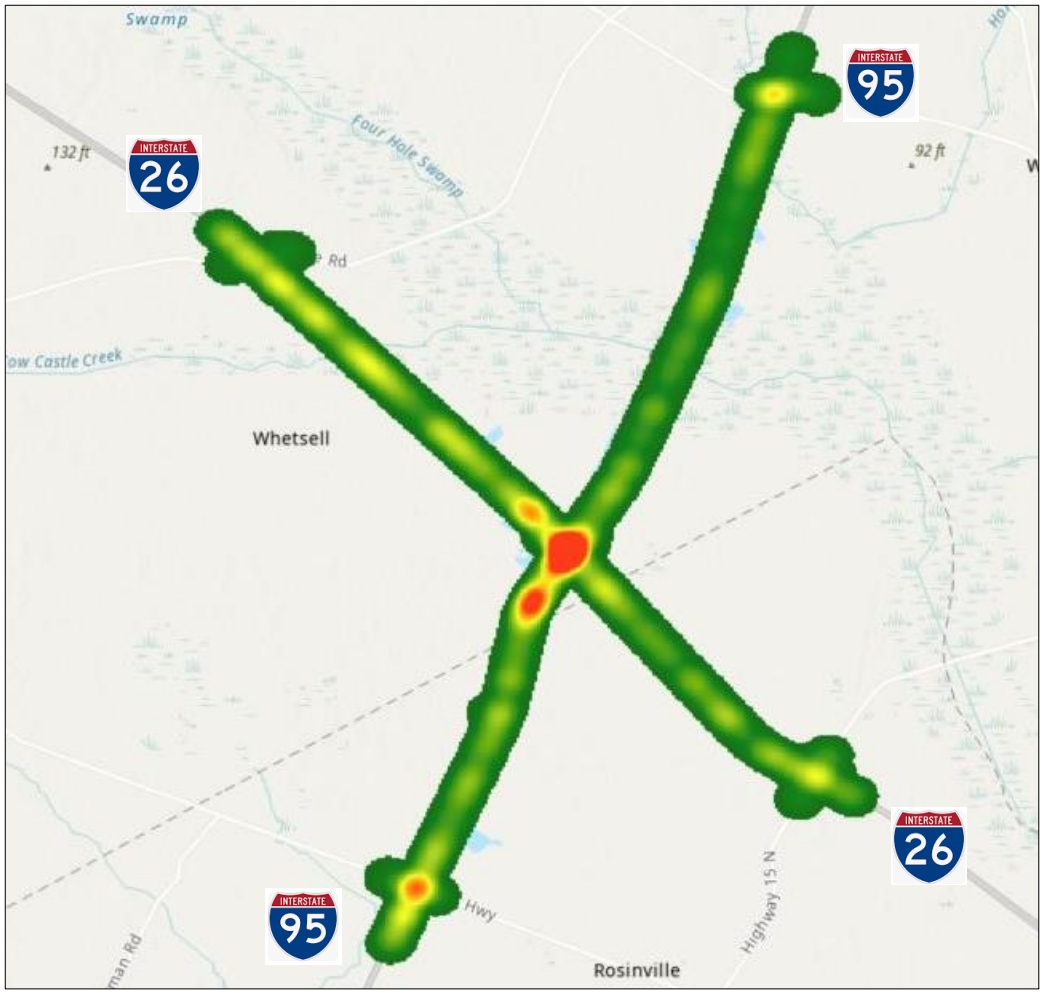
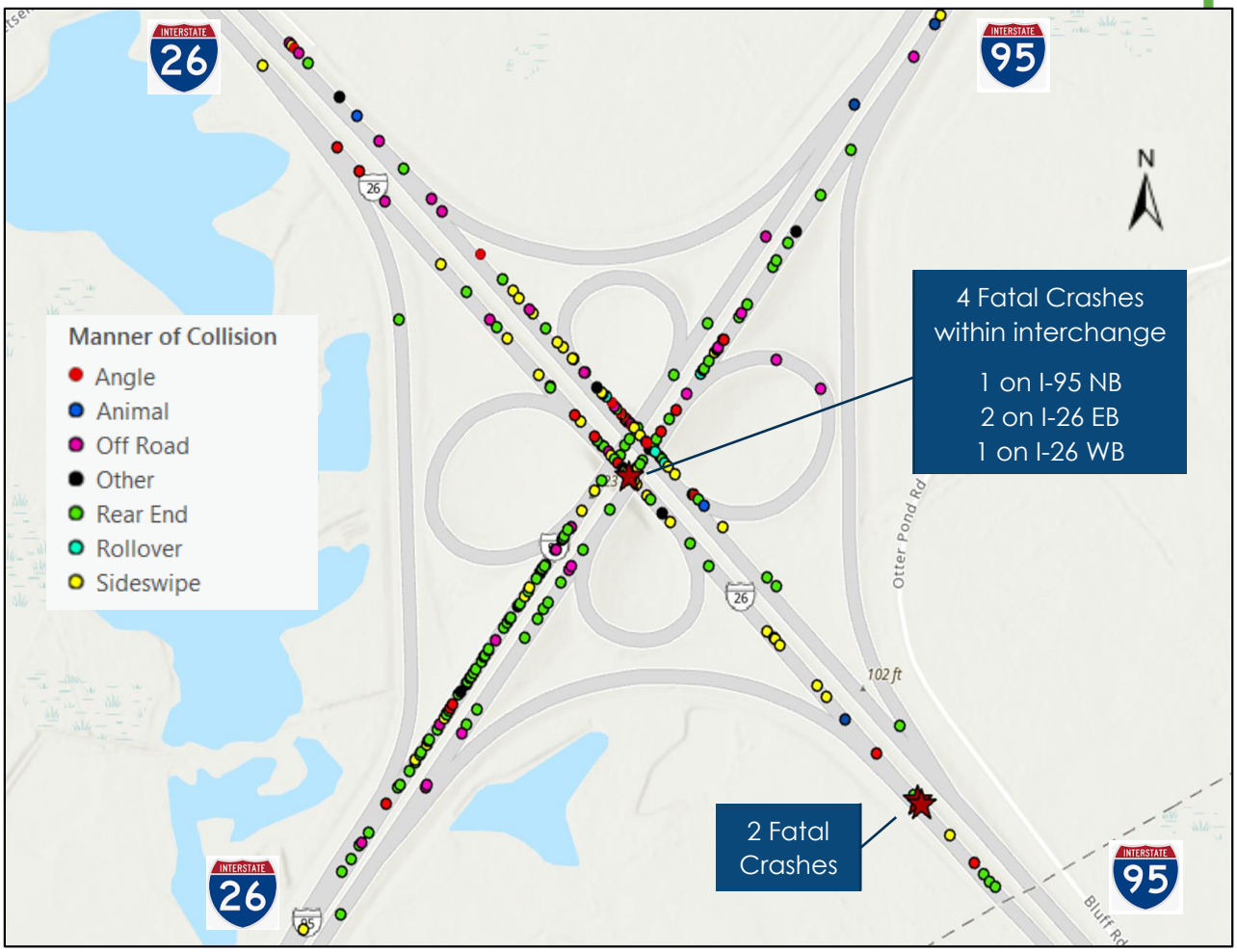


Figure 3.3: Crash Locations and Types at the I-26 and I-95 Interchange



Note: More detailed information on fatal crashes is included in Section 3.6.

Examining Figure 3.3, five locations were identified as locations with a high frequency of crashes. These include all four weave areas within the existing cloverleaf interchange as well as on I-95 southbound approaching the merge with the ramp serving I-26 eastbound traffic exiting to I-95 southbound.

Weave operations occur when two ramps or loops are located close to each other with traffic merging onto the freeway being forced to weave or change lanes to the left onto the freeway in the same segment where exiting traffic from the freeway must change lanes to take the next exit. These types of sections are relatively common on older interstates, but weaves are no longer preferred on interstate mainlines. Instead, weave sections are being removed or converted to collector distributors in many areas as freeway interchanges are upgraded. At the I-26 at I-95 interchange the four weave sections between the four loops all appear to be areas with a high frequency of crashes.

In addition to the four weaves, there is a high crash location on I-95 southbound downstream from the weave where the ramp from I-26 eastbound merges on mainline I-95 southbound.

Recognizing these issues, **Table 3.10** was developed to examine the crash types observes at the five high crash locations. Note that the 204 crashes identified within the five high crash locations account for 20 percent of the 1,022 crashes within the project study area despite representing less than 3 percent of directional interstate mileage in the study area.

Table 3.10: Crash Types at the high crash frequency locations at the I-26/I-95 Interchange

Crash Type	I-95 NB Weave	I-95 SB Weave	I-26 WB Weave	I-26 EB Weave	I-95 SB Merge	Total in High Frequency Areas
Rear End	**29**	**24**	11	7	**36**	**107**
Angle	4	0	**6**	**10**	5	**25**
Sideswipe	0	3	**10**	**19**	6	**38**
Off Road	6	3	3	5	6	23
Rollover	1	0	1	3	0	5
Animal	0	0	0	1	0	1
Other	1	0	1	1	2	5
Total	***41***	***30***	***32***	***46***	***55***	***204***

Note: Red text indicates the most common type of crash within each high frequency crash segment.

Key crash and safety observation at each weave and the southbound merge are:

Weave on I-95 Northbound:

- 41 crashes have occurred within the weave on I-95 northbound.
- Over 70 percent of crashes in the weave are rear end crashes which can be the result of slowing down to merge into a weave or due to queuing occurring upstream of a weave in the mainline traffic flow.
- Angle and sideswipe only comprise 10 percent of crashes.
- The loop in the northeast quadrant (I-95 northbound to I-26 westbound) carries the highest volume of all the loops with 15,800 vpd based on the latest 2021 AADT data. The weave LOS has existing LOS F operations during peak periods which will worsen in the future as traffic volumes raise. Also note that 15,800 vpd is essentially at the estimated capacity for a single lane loop ramp (excluding the consideration of over 20 percent trucks on the loop).

Weave on I-95 Southbound:

- 30 crashes have occurred within the weave on I-95 southbound.
- Over 80 percent of crashes in the weave are rear end crashes which can be the result of slowing down to merge into a weave or due to queuing occurring upstream of a weave in the mainline traffic flow.
- Angle and sideswipe only comprise 10 percent of crashes.

Weave on I-26 Eastbound:

- 32 crashes have occurred within the weave on I-26 eastbound.
- Only 34 percent of crashes in the weave are rear end crashes (unlike I-95 weaves).
- 50 percent of crashes are angle and sideswipe crashes that indicate that traffic is moving within the weave area but having issues finding gaps or openings to merge or diverge.

Weave on I-26 Westbound:

- 46 crashes have occurred within the weave on I-26 westbound which is the highest frequency of the four weave areas.
- Only 15 percent of crashes in the weave are rear end crashes (much lower than the 70 to 80 percent noted on the I-95 weaves).
- 63 percent of crashes in the weave are angle and sideswipe crashes indicating that traffic is moving within the weave area but having issues finding gaps or openings to merge or diverge.
- Three rollover crashes were noted in this weave area. This may be related to inadequate loop radii for exiting from a high-speed interstate facility. This type of crash can be of a higher severity in addition to requiring more time to clear and reopen the facility to traffic in all lanes. These response issues can lead to more crashes.
- The loop in the northeast quadrant is the loop with the highest demand (15,800 vpd AADT in 2021). This traffic merges into the weave area first congesting operations and allowing for minimal gaps for vehicles exiting from I-26 eastbound. In addition, this high volume of traffic is likely merging onto I-26 westbound at a lower speed effectively restricting flow in the rightmost lane of I-26.

Merge on I-95 Southbound:

- The crash heat map in Figure 3.2 and the interchange crash diagram in Figure 3.3 both indicate that there is a high crash location in the vicinity where I-95 southbound merges with the ramp serving I-26 eastbound to I-95 southbound.

This ramp movement is the opposite movement of the highest volume loop in the northeast quadrant. At this merge, the merging ramp volume from I-26 is forecast to exceed the I-95 southbound flow.

- There are 55 crashes observed in this merge area, a higher number of crashes than any of the weave areas.
- Of these crashes, 65 percent are rear end crashes, indicative of queuing and congested flow is occurring under existing conditions on I-95 southbound or the ramp itself.
- Only 20 percent of crashes in the weave are related to sideswipe and angle crashes.

Other Crash Observations at the I-26/I-95 Interchange

- The crash heat map in Figure 3.2 does show a hot spot to the west of the interchange. Although there are fewer crashes, these are related to a similar issue as on I-95 southbound with a high volume of traffic encountering westbound queuing. This queuing and resultant crashes may be alleviated with the planned widening of I-26 as part of a separate project.
- On I-95 and I-26 through each of the five high crash locations, approximately 10 percent of crashes are off road crashes. While the reasons are unclear, these typically result on roads with high travel speeds. Note that Section 3.5 examines these in more detail as the majority of fatal crashes on I-26 are also off road crashes.
- Within the interchange area, there are six fatal crashes in the five years of data examined (one on I-95, five on I-26). Unfortunately, the location data is insufficient to reliably identify the location of four of the crashes. Fatal crashes are also examined in Section 3.6.
- As shown in Figure 3.3, there is limited crash data tied directly to ramp crashes at the I-26/I-95 interchange. These crashes were likely coded as occurring at the nearest merge/diverge areas with I-26 or I-95 since typically the friction on ramps is less than at the beginning and end of merges and diverges.

3.6 Fatal Crashes

As noted in previous sections, the crash data indicated that there were 14 total fatal crashes in the study in 2015 through 2019. Three of these crashes were on I-95 and eleven on I-26. The location of these crashes is illustrated in **Figure 3.4**. Key observations from the data sets include:

3.6.1 I-95 Fatalities

Within the study area, the fatal crash rate for I-95 is 0.81 fatal crashes per 100mvm. This is lower than the statewide averages of 1.17 fatal crashes per 100mvm on similar rural interstate facilities.

- I-95 has three fatal crashes in the study area. Details on these three fatal crashes include:
  - Each of the crashes was of a different crash type (rear end, sideswipe and animal related)
  - All three crashes have different prime contributing factors (improper lane use/ change, animal and unknown).
  - Two of the crashes occurred at night.
  - All three crashes occurred despite a dry road surface.
  - The harmful event all involved drifting from the travel lane including running off the road, hitting a tree and hitting the median barrier.
  - Two of these crashes were mapped to within the I-26/I-95 interchange.
  - Each fatal crash is mapped in Figure 3.4 and shown in **Table 3.11.**
  - In addition to the three fatal crashes, there were six crashes with incapacitating injuries on I-95.

3.6.2 I-26 Fatalities

Unlike I-95, I-26 has a serious injury crash rate (2.45 serious injury crashes/100 mvm) and fatal crash rate (1.79 fatal crashes per 100mvm) that exceeds the statewide averages of 2.08 serious injury crashes per 100mvm and 1.17 fatal crashes per 100mvm.

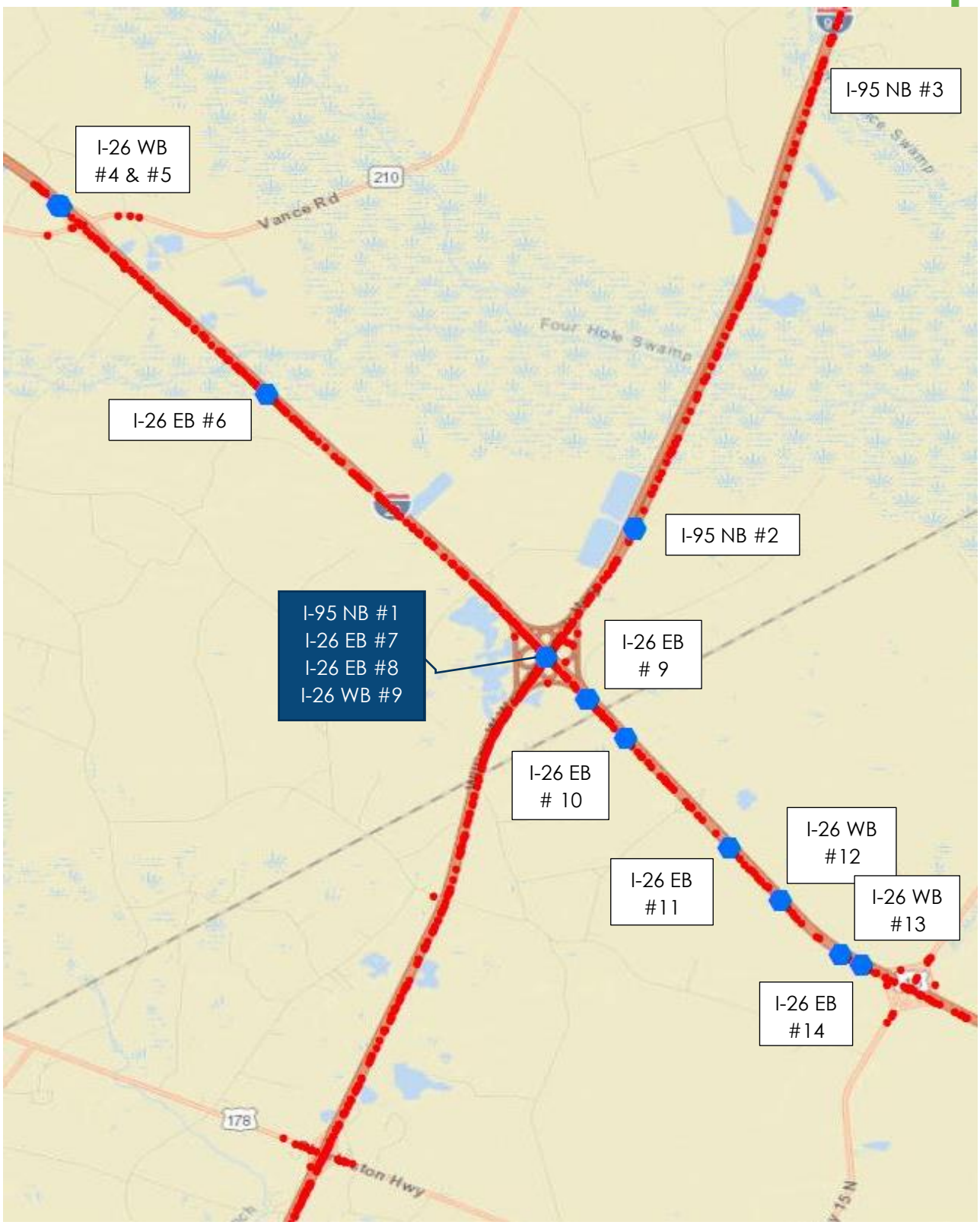
- I-26 has eleven fatal crashes in the study area. Details on these three fatal crashes include:
  - Over 80 percent of fatal crashes involved off road crashes. The other 20 percent were rear end crashes.
  - Driver action or error is identified as the primary cause in 72 percent of crashes and may be higher since 18 percent were unknown causes.
  - Three of the eleven fatal crashes occurred at night.
  - Two of the crashes involved a wet roadway surface.
  - Eight of the eleven crashes involved only one vehicle.
  - The harmful event all involved running off the road, two after a rear end crash. Eight of the 11 crashes specifically note hitting a tree.

- Five of these crashes were mapped to the I-26/ I-95 interchange area (or in the merge area just beyond the interchange).
- The eleven fatal crash locations are shown in Table 3.11 and mapped in Figure 3.4.
- In addition to the eleven fatal crashes, there were 15 crashes with incapacitating injuries.

Table 3.11: Fatal Crashes on I-95 and I-26 in the Study Area

Route	Date	Crash #	Number of Fatalities & Injuries	Direction of Flow	Crash Type	Prime Contributing Factor	Harmful Event
I-95	9/25/2016	1	1 fatality 5 injured	NB within I-26 interchange (MP 86.7)	Sideswipe	Improper Lane Use/Change	Ran Off Road
	5/7/2018	2	3 fatalities	NB within I-26 interchange (MP 86.7)	Animal	Animal in Road	Tree
	10/9/2019	3	1 fatality	NB near U.S. 176 interchange (MP 90.5)	Rear End	Unknown	Median Barrier
I-26	4/15/2017	4	1 fatality	WB near NC 210 interchange (MP 164.7)	Off Road	Unknown	Tree
	10/30/2015	5	1 fatality	WB near NC 210 interchange (MP 164.7)	Rear End	Driving too Fast for Conditions	Ran off Road Left
	10/16/2018	6	2 fatalities	EB (MP 166.4)	Off Road	Tires/Wheel	Tree
	11/7/2016	7	1 fatality	EB within I-95 interchange (MP 168.7)	Off Road	Improper Lane use/change	Other (Post, Pole, Support)
	9/9/2019	8	1 fatality	EB within I-95 interchange (MP 168.9)	Rear End	Other Improper Action	Tree
	5/22/2015	9	1 fatality	EB within I-95 interchange (MP 168.9)	Off Road	Unknown	Tree
	11/29/2016	10	1 fatality	WB (MP 169.3)	Off Road	Aggressive Operation	Tree
	8/8/2018	11	1 fatality	EB (MP 170.2)	Off Road	Ran off Road	Tree
	12/5/2019	12	1 fatality 1 injured	WB (MP 170.6)	Off Road	Ran off Road	Tree
	10/22/2016	13	1 fatality	WB (MP 171.1)	Off Road	Ran off Road	Tree
	9/27/2018	14	1 fatality	EB (MP 171.2)	Off Road	Improper Lane use/change	Ran off Road Left

Figure 3.4: Fatal Crashes in the Study Area



3.7 Safety Recommendations

FHWA's Proven Safety Countermeasures (PSC) are improvements that can be implemented to keep vehicles on the roadway, provide space for safe recovery, and reduce crash severity. This guide was consulted for the recommendations below. Overall, three critical crash issues need considered as part of the project design.

Weave Sections at the Existing I-26 at I-95 Full Cloverleaf

As documented in Section 3.5, the existing interchange has four weave areas as part of the existing interchange along both I-26 and I-95. These weaves are bounded by lower speed loop ramps for traffic entering and exiting the interchange. All four weaves were also identified as high frequency crash locations in the study area.

Modern design practice recommends avoiding the use of weave sections on freeways (unless a parallel collector distributor is provided to serve the weave), especially with high volume movements and in rural areas with expectations for higher speeds and less congestion. In addition to safety concerns, the existing weaves are anticipated to become more congested in the future resulting in additional congestion and periods with queuing on the interstates.

To address this issue, there is no formal guidance except to avoid the use of weaves in new projects or in the improvement of existing facilities. For the I-26 at I-95 interchange, it is recommended that a directional interchange alternative be provided that eliminates the existing four weave sections. Note that the inclusion of loop ramps (with 30 mph or greater design speeds) for lower volume movements is still viable and included in the proposed alternatives under review.

Run Off Road Collisions

Single-vehicle collisions account for 33 percent of crashes on I-95 and 35 percent on I-26. Related to this, on I-95 run off the road collisions account for 27 percent of all crashes, 40 percent of injury crashes, and none of the fatal crashes (although all three fatal crashes ultimately resulted in a vehicle hitting an object off the travelway even if it was not the initial cause of a crash). On I-26 the percentages of run off the road crashes are higher with 32 percent of all crashes, 47 percent of injury crashes, and 82 percent of fatal crashes (although like I-95, the two remaining "rear end" collision ultimately involved vehicles going off the road).

This type of crash is often the result of roadway departures and may include collisions with objects such as trees or guardrails. On I-26 in particular, trees were noted as being hit in 8 of the 11 fatal crashes. Overall, trees were identified in 26 percent of I-26 crashes and 10 percent of I-95 crashes. It was noted that median barriers and guard rails were involved in 15 percent of I-95 crashes and only 5 percent of I-26 crashes. A review of aerial mapping does indicate that there were trees in the median of I-26 west of I-95 and on I-95 north of I-26. Recent median improvement projects removed a good percentage of the trees in the median. In addition, based on the same aerial

mapping, it appears that the clear zone on I-95 is wider and that trees are located closer to the travelway on I-26.

Potential countermeasures for reducing roadway departures include:

- Increasing pavement friction
- Implementation of rumble strips and stripes
- Speed-feedback signing
- Installing median barriers
- Evaluating horizontal curve safety
- Improving nighttime visibility
- Increasing clear zones
- Flattening side slopes

Rumble strips are currently installed on I-95 and I-26 in the project corridor. It is recommended that additional clear zones and flattening side slopes be implemented with the future improvements on I-95 in the project corridor.

Rear End Collisions

Rear-end collisions were another common type of collision, especially on I-95. Rear-end collisions are typically the result of congestion on the roadway, following too closely, and driving too fast for conditions. On I-95, rear end crashes made up 46 percent of all crashes, 50 percent of injury crashes and 33 percent of fatal crashes. On I-26, rear end crashes made up 27 percent of all crashes, 26 percent of injury crashes and 18 percent of fatal crashes. In addition, 34 percent of rear end crashes on I-95 involve a stopped vehicle compared to 11 percent on I-26.

Potential countermeasures that may reduce rear-end collisions include:

- Improving pavement friction
- Increasing the number of lanes
- Increasing the length of acceleration/deceleration lanes
- Installing dynamic collision warning signs

Note that the higher percentage of rear end collisions is likely resulted high congestion and slowdowns on I-95, especially related to holidays and weekends. No widening is currently planned for I-95, but based on the crash patterns and capacity analysis, the provision of a longer southbound merge would be beneficial. A similar treatment can be considered on I-26 westbound.

I-26 has fewer rear end crashes than I-95. In addition, the planned widening of I-26 will reduce incidences of rear end crashes resulting from queuing vehicles on I-26.

All of the above countermeasures are recommended to be implemented with future improvements for the current project as well as future improvements on I-26 or I-95.

4. DEVELOPMENT OF ESTIMATED TRAFFIC

The development of traffic volumes for use in this study was documented in the approved *I-26 I-95 Traffic Forecast Tech Memo (September 2022)* which can be found in **Appendix D.**

4.1 Key Assumptions

Key assumptions utilized in the development of estimated future traffic volumes include:

- Traffic Forecasts were calculated for three years:
  - 2022 Existing
  - 2030 Year of Opening
  - 2050 Design Year

- Future growth rates and traffic forecasts were developed using multiple sources and factors including:
  - Traffic counts collected as part of the project effort in May 2022.
  - Historic AADT traffic data obtained from SCDOT's traffic count website.
  - Results from the South Carolina Statewide Model Version 4 for 2015 and 2045. This model also provided insights into anticipated future freight and truck on the roadway network.
  - Historic and projected population trends.

- Annual growth rates applied to the traffic forecasts varied by facility. Estimated annual growth rates (assuming annual compounding) included:
  - I-95 .....1.6 percent growth per year
  - I-26 .....1.8 percent growth per year
  - U.S. 176, U.S. 178 and SC 210 .....0.5 percent growth per year
  - U.S. 15 .....2.4 percent growth per year

- Detailed analysis of hourly, daily directional traffic flows was analyzed from two permanent count stations.
  - On I-26, station#0020 is located just west of the study area west of the SC 210 interchange.
  - On I-95, station #0056 is located in the study area between I-95 and U.S. 176 north of the I-26 at I-95 interchange.
  - In addition, other count stations were utilized at the key crossroads and other segments on I-26 and I-95.

4.2 Examination of Annual Hourly Traffic Patterns

A detailed examination of the appropriate peak periods for analysis was conducted using historical trends for peak volumes examining 365 days per year. Key findings and assumption were:

- 2019 historical data was utilized to develop a review of the normal annualized patterns of traffic reflecting all 12 months as well as daily flow patterns through the week. 2019 was selected to avoid any Covid-related impacts to traffic flow.
- Both I-26 and I-95 exhibit unique travel patterns reflecting a high-volume rural freeway serving both local, regional, and national travel patterns. Differences from a typical urban travel pattern include:
  - Neither I-26 or I-95 fit a typical urban weekday pattern with a distinct AM and PM peak period. Instead, traffic volumes are relatively high from 7 AM to 9 PM. The highest volumes occur between 12 noon and 5 PM with peaking occurring near 3 PM on both I-26 and I-95.
  - The peak period is not subject to heavy flows in one direction followed by a reverse pattern at a later point in the day. In the peak hour each day, traffic flows peak in both directions on I-26 and I-95.
  - The highest volumes occur on the Friday through Sunday weekend with typical daily volumes being 10 percent higher on these days than on the weekday.
- Based on these observations, this forecast has been developed assuming a single mid-day peak period (approximately 3 PM to 4 PM) with peak flows in both directions on I-95 and I-26.

More detailed analysis was conducted to identify an appropriate peak period based on examining annual flows and the highest hourly volumes over the year. Heavy variations in flow were noted throughout the year – both on weekdays and weekends. Key variations included:

- There is a heavy variation depending upon time of year and holiday travel.
  - On I-95, the highest volume days are before and after Thanksgiving and Christmas holidays.
  - I-26 experiences similar spikes at Thanksgiving and Christmas, but also has increased volumes between March and September likely associated with summer tourism at the coast.

- A review of highest hourly volumes was conducted for the hourly flows on both I-26 and I-95.
  - 2019 data was used to eliminate any Covid-related impacts to traffic flow.
  - Given the data set was based on 2019 data, the percent of hourly traffic was compared to the 2019 AADT to identify an appropriate design hour percentage (k). When an appropriate k-value was determined, it was applied to the 2022 baseline traffic forecast.

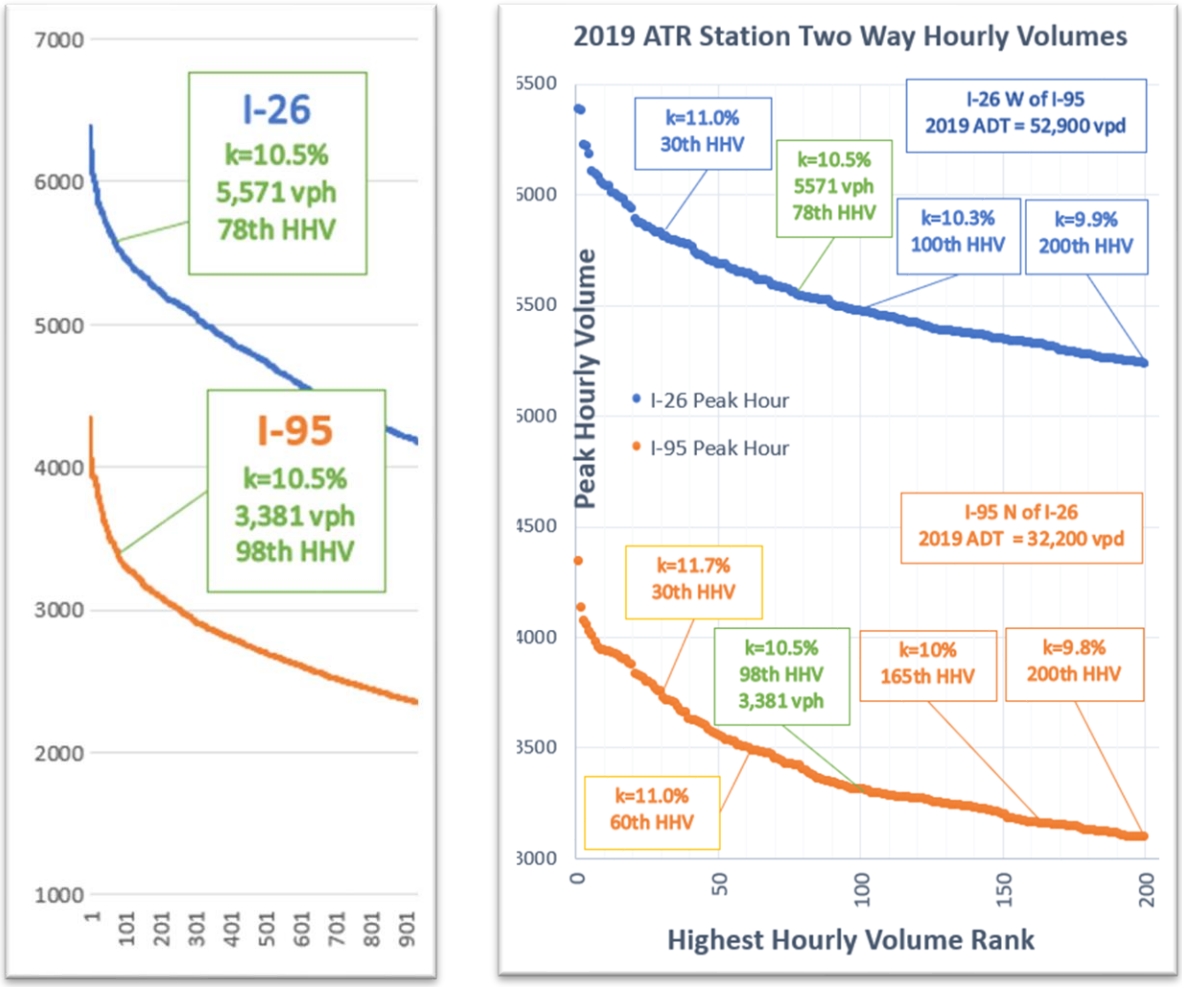
4.3 Identification of Peak Period Volumes

For most projects, AASHTO-recommended practice is to select an hour between the 30th and 100th highest hour of the year for roadway design. This approach allows for a balancing of construction costs for economic efficiency by avoiding over-designing for holidays and other events.

- In determining the k percentages for I-26 and I-95, a review of the highest hourly volume data was conducted, focused on identifying the "knee of the curve" as shown **Figure 4.1**. Selected k percentages include:
  - On I-26, a k-factor of 10.5 percent was selected reflecting the 78th Highest Hourly Volume (HHV).
  - On I-95, a k-factor of 10.5 percent was also selected reflecting the 98th HHV on I-95 (although the I-95 HHV is likely closer to the 150th HHV if all holiday data for 2019 were available).
- Although there is variation in actual counts, the design period reasonably approximates a typical Friday afternoon in the spring for I-26 and a higher volume Friday afternoon in the spring for I-95.

The estimated peak hour volumes developed for this study are presented in **Figure 4.2** (2022 Base Year), **Figure 4.3** (2030), and **Figure 4.4** (2050). The details of the traffic forecasting assumptions and methodologies is detailed in the Appendix D Traffic Forecast Technical Memorandum.

Figure 4.1: Top 200 Highest Hourly Volumes on I-26 and I-95 for 2019



1. The SCDOT 2019 automatic counter data for I-95 north of I-26 did not include weeks of Thanksgiving, Christmas, New Years as well as 3 summer weekends in 2019. After comparison to the complete I-26 data set, it is estimated that approx. 20 of top 150 HHV are missing on I-95.

2. To examine the highest hourly volume, 2019 data was used to get a clean data set without impacts of Covid. The data was used to develop k percentages for application to 2022 and future years.

Figure 4.2: 2022 Design Hour Traffic Volumes

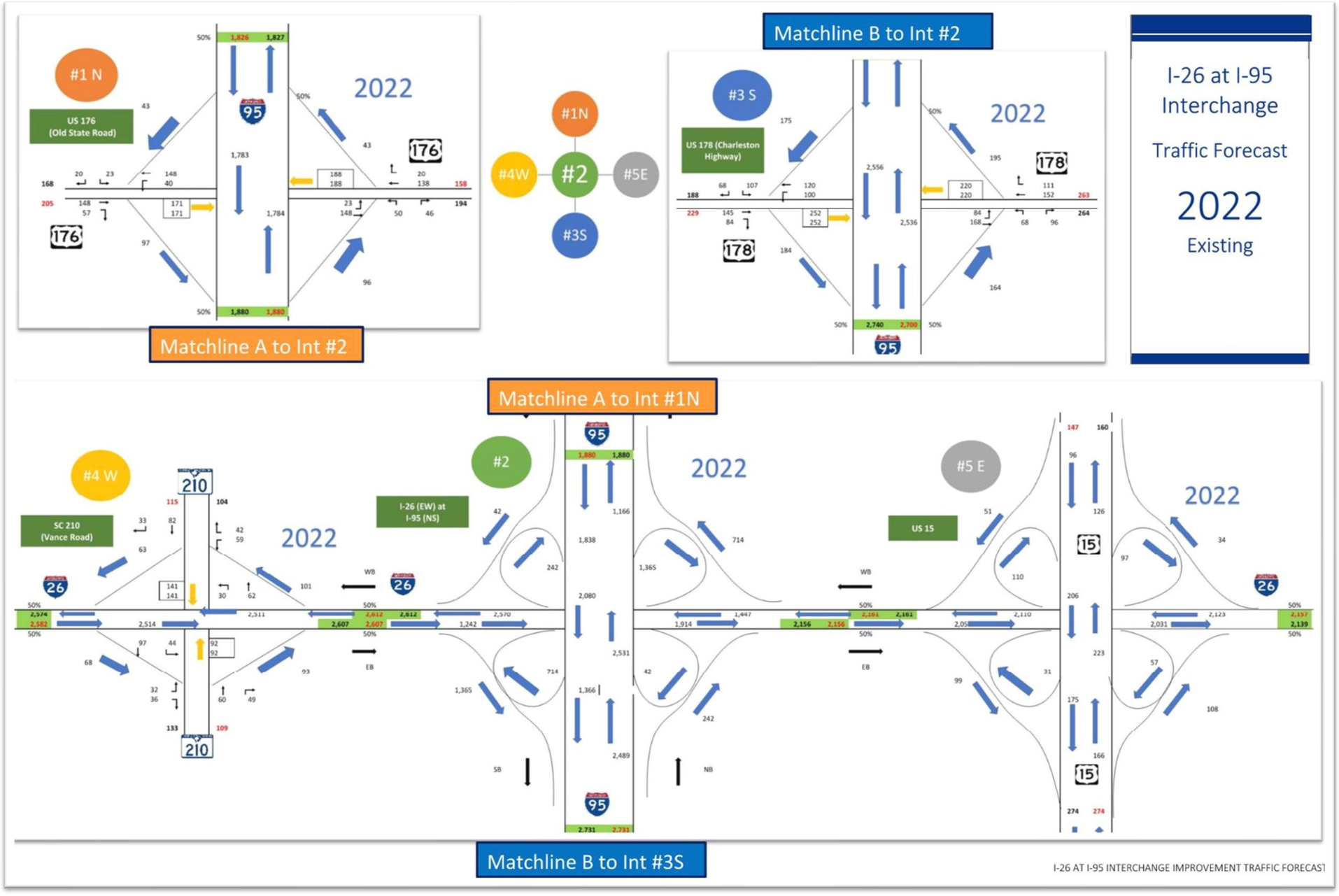


Figure 4.3: 2030 Design Hour Traffic Volumes

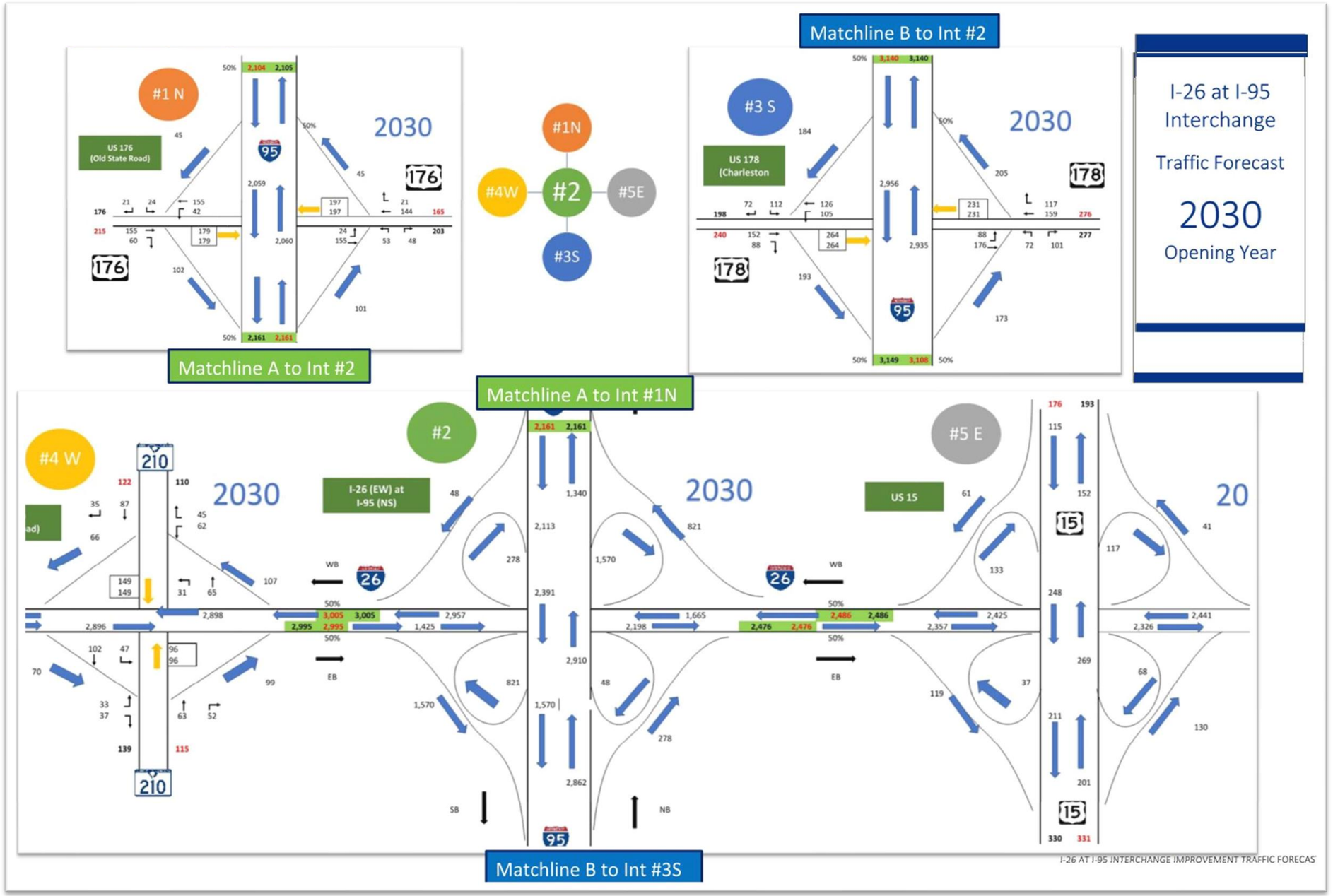
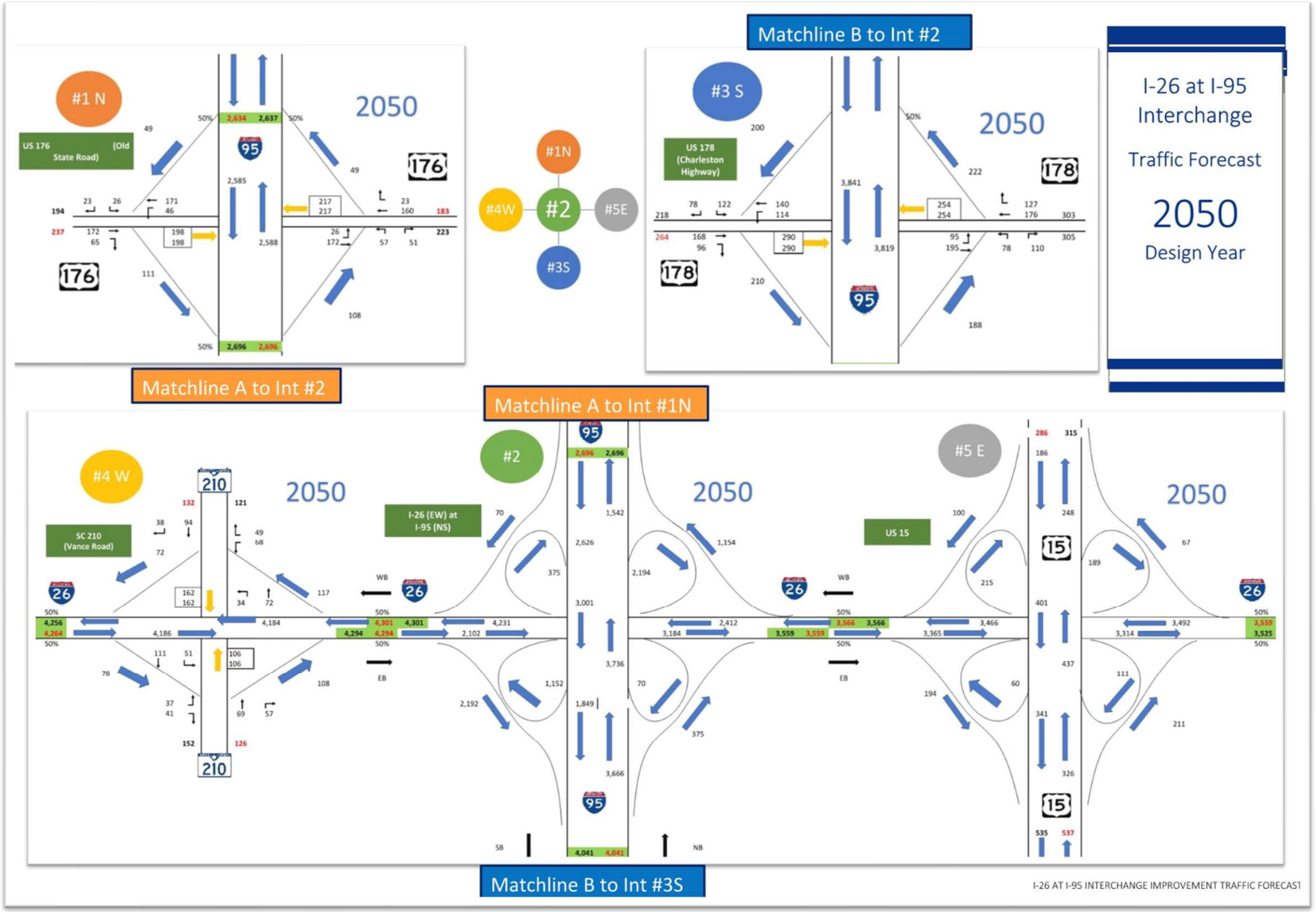


Figure 4.4: 2050 Design Hour Traffic Volumes



5. BUILD ALTERNATIVES

The existing I-26 at I-95 interchange is a full-clover interchange that currently experiences congestion issues that are expected to worsen with anticipated traffic growth. This project will be a full interchange improvement to address the operational deficiencies of the current full cloverleaf configuration. Key elements include removal of the four existing weaving sections (two on I-26 and two on I-95), providing directional ramps for key movements, and improving overall operations.

Three Build alternatives were developed and tested as replacements for the existing full-clover interchange. Primary features of all alternatives include the removal of multiple loop ramps and replacement with flyover movements combined with widening, improvements and realignments of specific ramp segments. Illustrations for each of the Build alternatives are included in **Figure 5.1**, **Figure 5.2** and **Figure 5.3**. Detailed capacity analysis is summarized in Sections 6 and 7.

5.1 Alternative 1: Stacked 4-Level Flyover with Two Loops

The key feature with Alternative 1 (see Figure 5.1) is the replacement of two loops with flyover ramps. The first flyover ramp would be two lanes connecting Interstate 95 northbound to Interstate 26 westbound, replacing the loop ramp in the northeast quadrant. The second flyover ramp would be a single lane connecting Interstate 95 southbound to Interstate 26 eastbound, replacing the loop ramp in the southwest quadrant. The two loop-ramps in the northwest and southeast quadrants will remain operational, albeit with an improved alignment and relocation. The most critical improvement related to the replacement of the two loop ramps is the elimination of the four weaving areas – two on I-95 and two on I-26.

The two loop-ramps that will be replaced with flyover ramps, carry higher traffic volumes than the loop-ramps that will be retained. The new flyover ramps would be higher speed lanes and provide more efficient movement when exiting from one interstate and merging onto the other interstate. In Alternative 1, the two flyovers will cross each other twice in order to keep reconstruction within the existing interchange footprint requiring a stacked four-level interchange design.

Two-lane ramps will be provided for the I-95 northbound to I-26 westbound flyover movement as well as the I-26 eastbound to I-95 southbound movement. Alternative 1 would keep the six remaining ramps as single-lane ramps. Of these ramps, LOS C is expected at the four lowest volume ramps, while LOS D is expected on the ramp from I-26 westbound to I-95 northbound as well as the flyover ramp from I-95 southbound to I-26 eastbound. Detailed capacity analysis is summarized in Sections 6 and 7.

5.2 Alternative 2: Modified Turbine with Two Loops

Similar to Alternative 1, Alternative 2 (see Figure 5.2) replaces the two loops in the northeast and southwest quadrant with flyover ramps. The first flyover ramp would connect Interstate 95 northbound to Interstate 26 westbound with a two-lane section. The second flyover ramp would connect Interstate 95 southbound to Interstate 26 eastbound on a single lane flyover. As in Alternative 1, the two loop-ramps in the northwest and southeast quadrants will remain operational although realignment is needed. The most critical improvement related to the replacement of two loop ramps is the elimination of the four weaving areas – two on I-95 and two on I-26.

The two loop-ramps that will be replaced with flyover ramps, carry higher traffic volumes than the loop-ramps that will be retained. The flyover ramps for Alternative 2 vary from Alternative 1 in that they would be constructed outside the limits of the existing loop ramps utilizing a modified turbine type layout. The primary impact of this treatment is a reduction in the length and complexity of bridges (although more bridges are required) as compared with Alternative 1. Overall, Alternative 1 and 2 have the same traffic patterns and volumes with the primary differences being the alignments, footprint and other design features.

Two-lane ramps will be provided for the I-95 northbound to I-26 westbound flyover movement (LOS D) as well as the I-26 eastbound to I-95 southbound movement. Alternative 2 would keep the six remaining ramps as single-lane ramps. Of these ramps, LOS C or better is expected at the four lowest volume ramps, while LOS D is expected on the ramp from I-26 westbound to I-95 northbound as well as the flyover ramp from I-95 southbound to I-26 eastbound. From a traffic capacity perspective, however, Alternative 1 and Alternative 2 operate very similarly. Detailed capacity analysis is summarized in Sections 6 and 7.

5.3 Alternative 3: Modified Turbine with One Loop

Alternative 3 (see Figure 5.3) is similar to Alternative 2 except that it includes three flyover ramps (instead of two) and eliminates three loop ramps (instead of two). The first flyover ramp would connect Interstate 95 northbound to Interstate 26 westbound, replacing a one loop-ramp with a two-lane flyover. The second flyover ramp would connect Interstate 95 southbound to Interstate 26 eastbound, replacing a one lane loop-ramp with a one lane flyover. Alternative 3 adds a third flyover ramp that would connect Interstate 26 westbound to Interstate 95 southbound, replacing the loop in the northwest quadrant. The fourth loop ramp (serving the lowest volumes) connecting Interstate 26 eastbound to Interstate 95 northbound would remain operational. Similar to Alternatives 1 and 2, Alternative 3 eliminates the four weaving areas within the existing interchange.

The new flyover ramps that would replace the loops would be higher speed lanes and provide more efficient movement when exiting from one interstate and merging onto the other interstate. The flyover ramps for Alternative 3 are similar to Alternative 2 in that they would be constructed outside the limits of the existing loop ramps utilizing a modified turbine type layout (instead of a stacked design of multiple levels). The primary impact of this treatment is a reduction in the length and complexity of bridges (although more bridges are required for Alternative 3 than Alternative 2).

Two-lane ramps will be provided for the I-95 northbound to I-26 westbound flyover movement (LOS D) as well as the I-26 eastbound to I-95 southbound movement (LOS C). Alternative 3 would maintain the six remaining ramps as single-lane ramps. Of these ramps, LOS C or better is expected at the four lowest volume ramps, while LOS D is expected on the ramp from I-26 westbound to I-95 northbound as well as the flyover ramp from I-95 southbound to I-26 eastbound. The capacity results will be examined in detail in the following sections.

Figure 5.1: Alternative 1 Layout

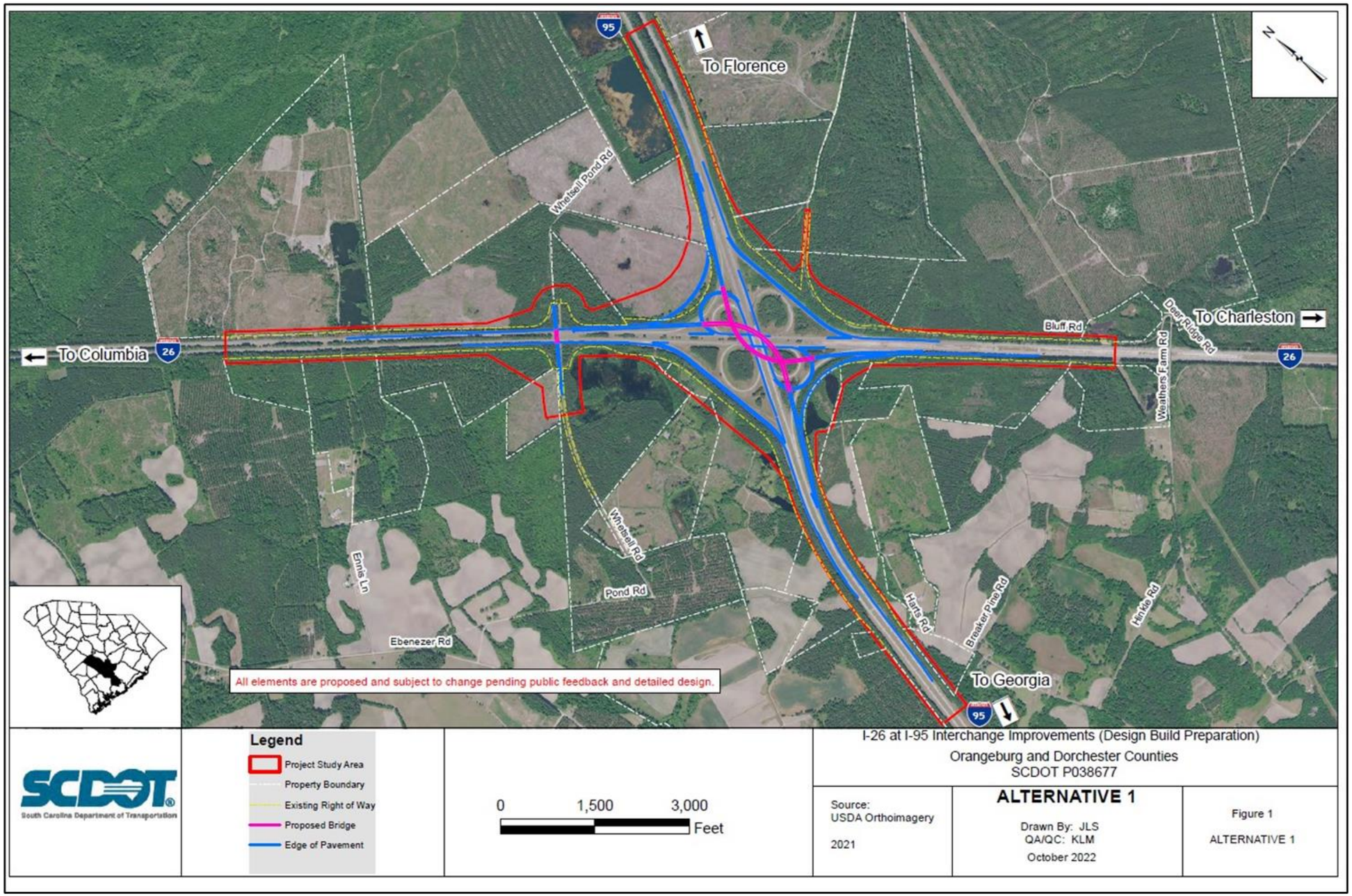


Figure 5.2: Alternative 2 Layout

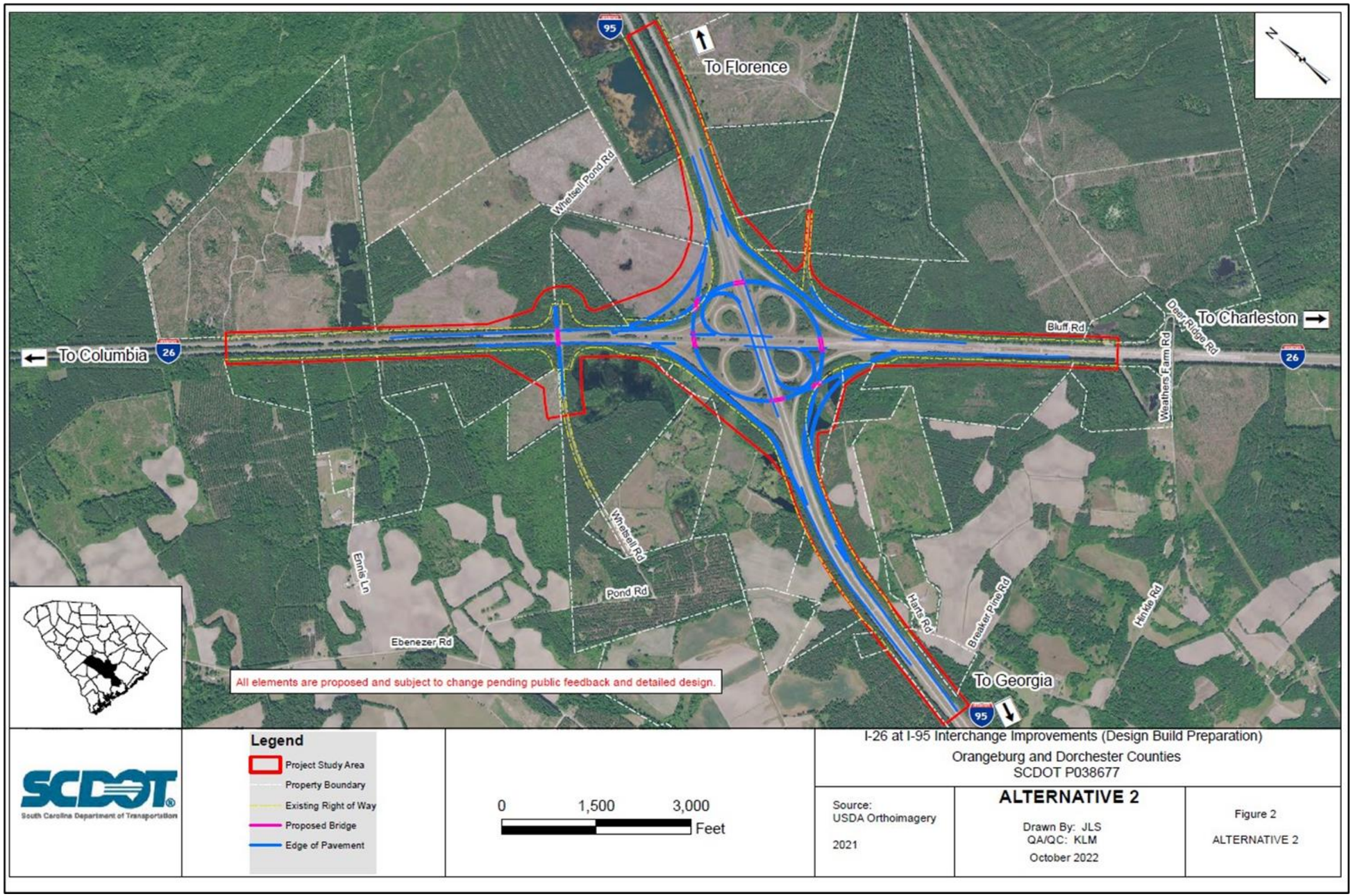
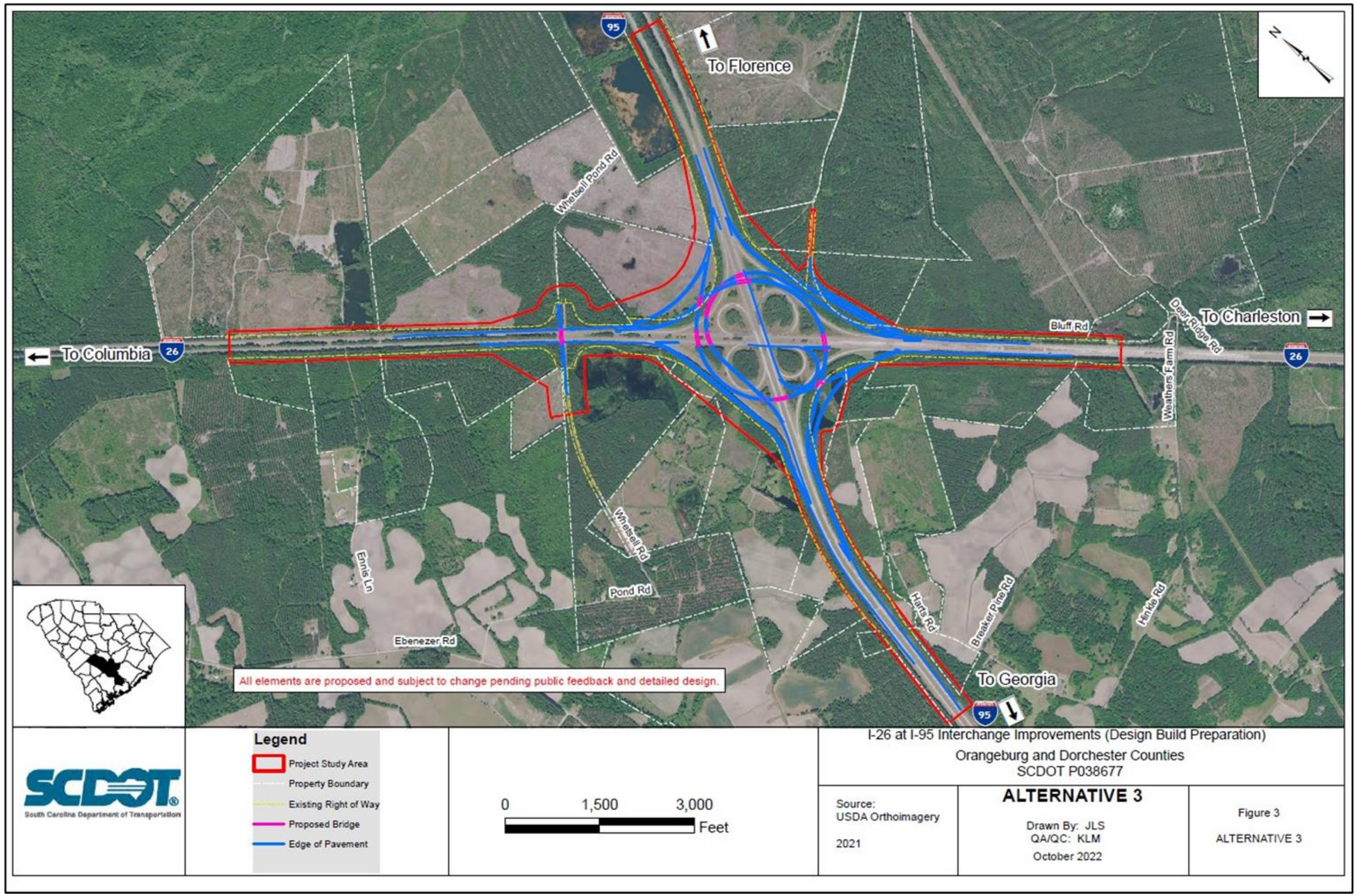


Figure 5.3: Alternative 3 Layout



6. CORRIDOR CAPACITY ANALYSIS - HCS

A series of capacity analyses were performed based on the methodologies and guidelines in the **Highway Capacity Manual (HCM) - 6th Edition**. Various software analysis and simulation packages based on the HCM were used in performing the analyses. These included:

- McTrans HCS 7 (Version 7.9.6)
  - Freeway Segments
  - Ramp Merge/Diverge Areas
- Caliper's TransModeler (version 6.1 Build 8570)
  - Network Simulation
  - Freeway Segments
  - Ramp Merge/Diverge Areas

6.1 Freeway Level of Service Criteria

Table 6.1 shows the HCM LOS criteria for basic freeway segments. LOS F occurs when either the segment density exceeds 45 pc/mi/ln or when the segment v/c ratio exceeds 1.0 (regardless of the segment density). The two are distinguished by color because a v/c > 1.0 indicates flow breakdown.

Table 6.1: HCM Basic Segment LOS Criteria

LOS	Density (pc/mi/ln)
A	< 11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45
F*	v/c > 1.0

Table 6.2 shows the HCM LOS criteria for ramp merge and diverge areas.

Table 6.2: HCM Merge/Diverge LOS Criteria

LOS	Density (pc/mi/ln)
A	< 10
B	> 10 - 20
C	> 20 - 28
D	> 28 - 35
E	> 35
F	v/c > 1.0

Table 6.3 shows the HCM LOS criteria for rural freeway facilities. This is used to describe the overall corridor LOS. LOS F and v/c > 1.0 are distinguished by color because a v/c > 1.0 indicates flow breakdown.

Table 6.3: HCM Freeway Facility LOS Criteria (Rural)

LOS	Density (pc/mi/ln)
A	≤ 6
B	> 6 - 14
C	> 14 - 22
D	> 22 - 29
E	> 29- 39
F	> 39
F*	v/c > 1.0

Table 6.4 shows the HCM LOS criteria for ramp weave areas.

Table 6.4: HCM Weave LOS Criteria

LOS	Density (pc/mi/ln)
A	< 10
B	> 10 - 20
C	> 20 - 28
D	> 28 - 35
E	> 35 - 43
F	> 43

6.2 HCS Freeway Analysis – Existing & No Build

This section presents the peak hour HCS corridor analysis for 2022 existing conditions, 2030 and 2050 under No Build and Build conditions. Based on the design criteria for rural freeways presented in SCDOT's 2021 Roadway Design Manual, Highway Capacity Manual (HCM) LOS C is the preferred minimum LOS for a rural interstate analysis. SCDOT guidance for this project is that a LOS D will be viewed as an acceptable minimum LOS.

Using the projected traffic by the travel demand model analysis, future truck percentages are expected to be higher on I-26 than on I-95. For 2030 peak analysis both I-26 and I-95 expect 22 percent of volumes to be trucks, but by 2050 the truck percentage on I-26 will increase to 28 percent while I-95 will remain at 22 percent. In this section, the truck percentages are shown on the tables below for all segments in existing and future conditions.

The Freeway Facilities module of the 2022 Highway Capacity Software (HCS) was used for the majority of the analysis. This module summarizes LOS with the freeway being divided into separate segments for basic segments (i.e. freeway), merges, diverges and weave segments.

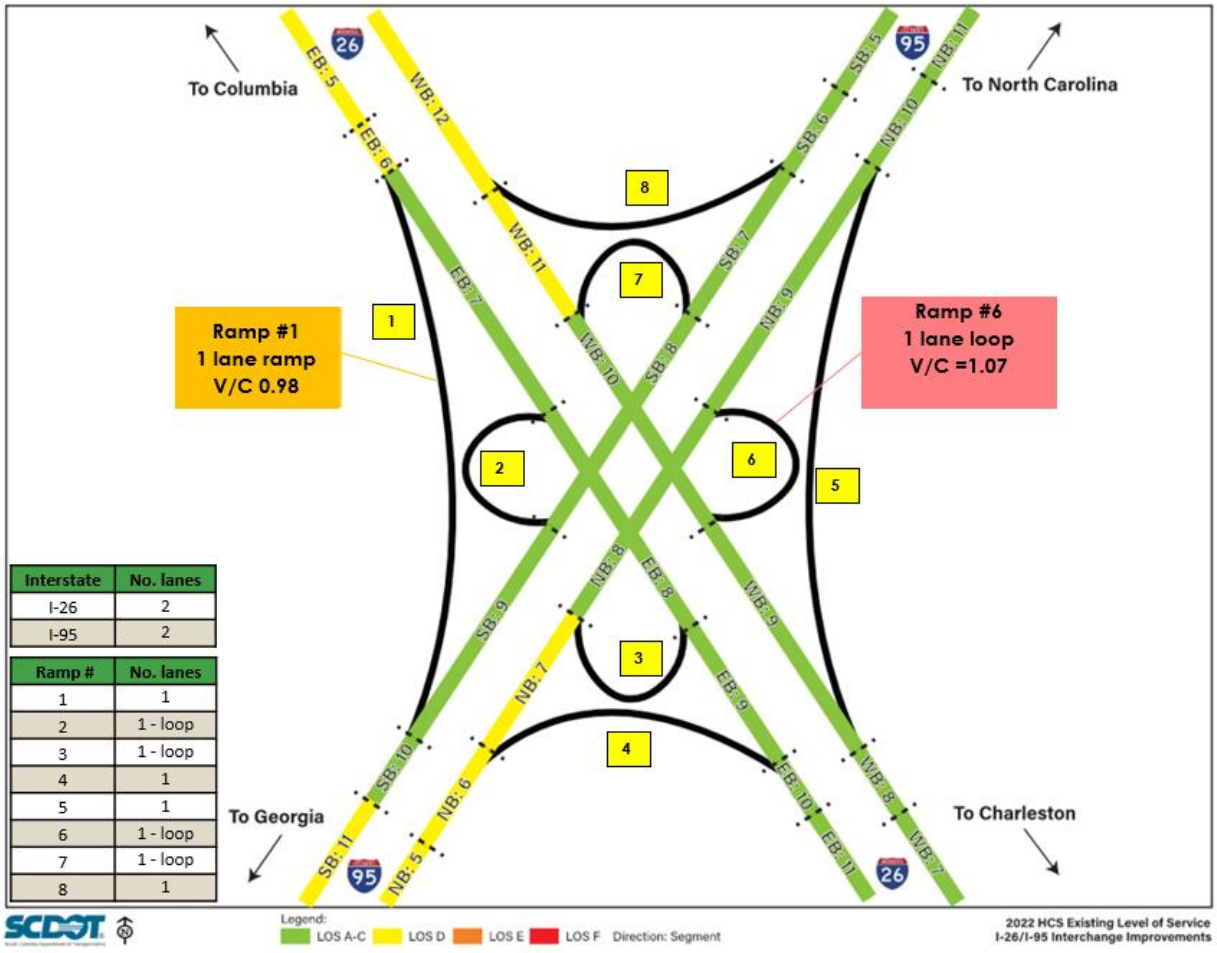
Unfortunately, the latest version of the HCS does not provide a simply defined methodology for estimating ramp roadway capacity. Instead, it assumes that the capacity of a ramp is defined by the critical merge, diverge or weave segment on the ramp. While this is strictly true from an operations standpoint, a simplified volume to capacity ratio was also performed based on ramp capacities from the HCS software. Recognizing that this method does not define a true LOS, the V/C ratios can still be used to provide a basic analysis of the adequacy of a given ramp.

The results indicate that the freeway currently exceeds acceptable LOS conditions in some segments. The planned addition of a travel lane in each direction of I-26 will improve the performance of the interstate compared to the unwidened scenario, but multiple segments still exceed LOS D in both directions. Detailed HCS reports from the Freeway segment analysis and the V/C ramp analysis are available in **Appendix E**.

6.2.1 2022 Existing Conditions

A visual representation of the estimated 2022 Existing conditions LOS is shown in **Figure 6.1**. This includes both a summary of ramp capacity thresholds based on V/C ratios and a formal HCS Freeway Facility analysis. Ramp LOS and density are also examined in the TransModeler analysis included in Chapter 7.

Figure 6.1: HCS Estimated 2022 Existing LOS & Critical V/C Ramps



Ramp V/C Analysis

Since the current HCS methodology does not provide a method to report ramp LOS, a volume to capacity analysis was performed to identify if and when ramps may need to be considered for widening. In performing this analysis, forecasted ramp volumes and ramp capacities were converted into passenger car per hour equivalents taking into account truck percentages as reported in the HCS Freeway analysis for the merge, diverge and weave analyses. These volumes were then placed into a spreadsheet analysis to develop a V/C ratio.

Although a V/C ratio is not utilized to determine LOS, it does provide a general measure to identify if and when a ramp is reaching near capacity and could require

widening or other improvements. This can be especially useful when developing interchange alternatives and concepts. **Table 6.5** illustrates the key thresholds identified for ramp operations in this study. As noted, these thresholds are used to present context, but do not reflect official HCM LOS analysis. The ramp V/C analysis for 2022 existing conditions is summarized in **Table 6.6**.

Table 6.5: V/C Ramp Analysis Thresholds

Capacity Status	V/C Ratio
Substantially Under Capacity	<0.30
Under Capacity	0.30 - 0.60
Stable Flow but Nearing Capacity	0.60 - 0.80
Unstable Flow/ At or Near Capacity	0.80 - 1.00
Over Capacity	1.00 - 1.20
Substantially Over Capacity	> 1.20

Table 6.6: 2022 Existing V/C Ramp Analysis

Movement/ Ramp #	Movement	# Lanes	Ramp Type	Volume (pcph)	Capacity (pcph)	V/C	Capacity
1	I-26 EB to I-95 SB	1	Ramp	1,841	1,878	0.98	Unstable Flow At/ Near Capacity
2	I-95 SB to I-26 EB	1	Loop	924	1,784	0.52	Under
3	I-26 EB to I-95 NB	1	Loop	53	1,784	0.03	Substantially Under
4	I-95 NB to I-26 EB	1	Ramp	313	1,878	0.17	Substantially Under
5	I-26 WB to I-95 NB	1	Ramp	916	1,878	0.49	Under
6	I-95 NB to I-26 WB	1	Loop	1,918	1,784	1.07	Over
7	I-26 WB to I-95 SB	1	Loop	313	1,784	0.18	Substantially Under
8	I-95 SB to I-26 WB	1	Ramp	59	1,878	0.03	Substantially Under

Freeway Facility HCS Analysis

The results of the 2022 Existing conditions indicate that I-26 eastbound and westbound directions are currently operating at an acceptable LOS threshold. Only the segments east of the I-26 and I-95 interchange show LOS D, and the majority of the segments operate at LOS C or better. On I-95, all segments are operating at LOS D or better. The segments south of the interchange are expected to have a higher density especially at the merge from I-26 eastbound and diverge to the westbound direction.

Table 6.7 and **Table 6.8** show the capacity analysis results for 2022 peak conditions for I-26 eastbound and westbound directions. Note that segments west and east of the I-26 at I-95 interchange are shown in grey. Also note that Corridor LOS is provided by the HCS Freeway Facilities module to represent an overall LOS for the entire section. It can be substantially impacted by a single section of roadway, however, and is not intended to determine whether operations are acceptable.

The key segments pertaining to the I-26 at I-95 interchange are shown with color shading for the LOS as identified in Table 6.1 through Table 6.4.

Table 6.7: 2022 Existing Conditions HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	2	2582	24%	D	28.1
2	I-26 Off-Ramp to SC 210	Diverge	2	2582	24%	D	31.3
			1	68	27%		30.2
3	Between SC 210 Ramps	Basic	2	2514	24%	D	27.0
4	I-26 On-Ramp from SC 210	Merge	2	2514	24%	C	30.5
			1	93	14%		27.5
5	Between SC 210 and I-95	Basic	2	2607	23%	D	28.1
6	I-26 Off-Ramp to I-95	Diverge	2	2607	23%	D	33.7
			1	1365	24%		32.1
7	Between I-95 Ramps	Basic	2	1242	22%	B	12.2
8	Between I-95 Ramps	Weaving	3	1242	21%	B	15.4
			1	42	17%		15.4
			1	714	19%		15.4
9	Between I-95 Ramps	Basic	2	1914	21%	C	18.8
10	I-26 On-Ramp from I-95	Merge	2	1914	21%	C	24.0
			1	242	28%		22.4
11	Between I-95 and U.S. 15	Basic	2	2156	22%	C	25.5
12	I-26 Off-Ramp to U.S. 15	Diverge	2	2156	22%	C	21.5
			1	99	28%		23.7
13	Between U.S. 15 Ramps	Basic	2	2057	22%	C	20.4
14	Between U.S. 15 Ramps	Weaving	3	2000	22%	B	14.8
			1	31	11%		
15	Between U.S. 15 Ramps	Basic	2	2031	22%	C	20.1
16	I-26 On-Ramp from U.S. 16	Merge	2	2031	22%	C	24.0
			1	108	20%		22.3
17	East of U.S. 15	Basic	2	2139	21%	C	21.2
					Corridor	D	23.3

Table 6.8: 2022 Existing Conditions HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	2	2157	21%	C	21.4
2	I-26 Off-Ramp to U.S. 15	Diverge	2	2157	21%	C	23.4
			1	34	11%		24.5
3	Between U.S. 15 Ramps	Basic	2	2123	21%	C	21.0
4	I-26 On-Ramp from SC 210	Merge	2	2013	22%	B	16.4
			1	97	38%		16.4
5	Between U.S. 15 Ramps	Basic	2	2110	22%	C	20.7
6	I-26 On-Ramp from U.S. 15	Merge	2	2110	22%	C	24.1
			1	51	17%		22.7
7	Between U.S. 15 and I-95	Basic	2	2161	22%	C	21.6
8	I-26 Off-Ramp to I-95	Diverge	2	2161	22%	C	27.4
			1	714	18%		26.3
9	Between I-95 Ramps	Basic	2	1447	24%	B	14.5
10	Between I-95 Ramps	Weaving	3	1447	24%	C	27.5
			1	242	19%		27.5
			1	1365	19%		27.5
11	Between I-95 Ramps	Basic	2	2560	27%	D	28.7
12	I-26 On-Ramp from I-95	Merge	2	2560	27%	D	31.4
			1	42	30%		29.5
13	Between SC 210 and I-95	Basic	2	2602	27%	D	29.5
14	I-26 Off-Ramp to SC 210	Diverge	2	2602	27%	D	29.8
			1	101	20%		31.1
15	Between SC 210 Ramps	Basic	2	2501	27%	D	27.7
16	I-26 On-Ramp from SC 210	Merge	2	2501	27%	C	30.9
			1	63	19%		27.6
17	West of SC 210	Basic	2	2564	27%	D	28.8
					Corridor	D	25.3

Table 6.9 and **Table 6.10** show the capacity analysis results for 2022 peak conditions on I-95 northbound and southbound.

Table 6.9: 2022 Existing Conditions HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	2700	26%	D	30.6
2	I-95 Off-Ramp to U.S. 178	Diverge	2	2700	26%	D	33.1
			1	164	23%		34.0
3	Between U.S. 178 Ramps	Basic	2	2536	26%	D	27.7
4	I-95 On-Ramp from U.S. 178	Merge	2	2536	26%	D	33.1
			1	195	39%		29.5
5	Between U.S. 178 and I-26	Basic	2	2731	27%	D	31.7
6	I-95 Off-Ramp to I-26 EB	Diverge	2	2731	27%	D	34.9
			1	242	28%		34.6
7	Between I-26 Ramps	Basic	2	2489	27%	D	27.3
8	Between I-26 Cloverleaf Ramps	Weaving	1	42	29%	C	24.1
			3	2531	27%		
			1	1365	29%		
9	Between I-26 Ramps	Basic	2	1166	24%	B	11.5
10	I-95 On-Ramp from I-26 WB	Merge	2	1166	24%	B	20.7
			1	714	18%		18.6
11	Between I-26 and U.S. 176	Basic	2	1880	22%	C	18.3
12	I-95 Off-Ramp to U.S. 176	Diverge	2	1880	22%	B	22.2
			1	96	17%		18.5
13	Between U.S. 176 Ramps	Basic	2	1784	22%	B	17.4
14	I-95 On-Ramp from U.S. 176	Merge	2	1784	22%	B	20.2
			1	43	20%		19.4
15	North of U.S. 176	Basic	2	1827	22%	B	17.8
					Corridor	D	23.4

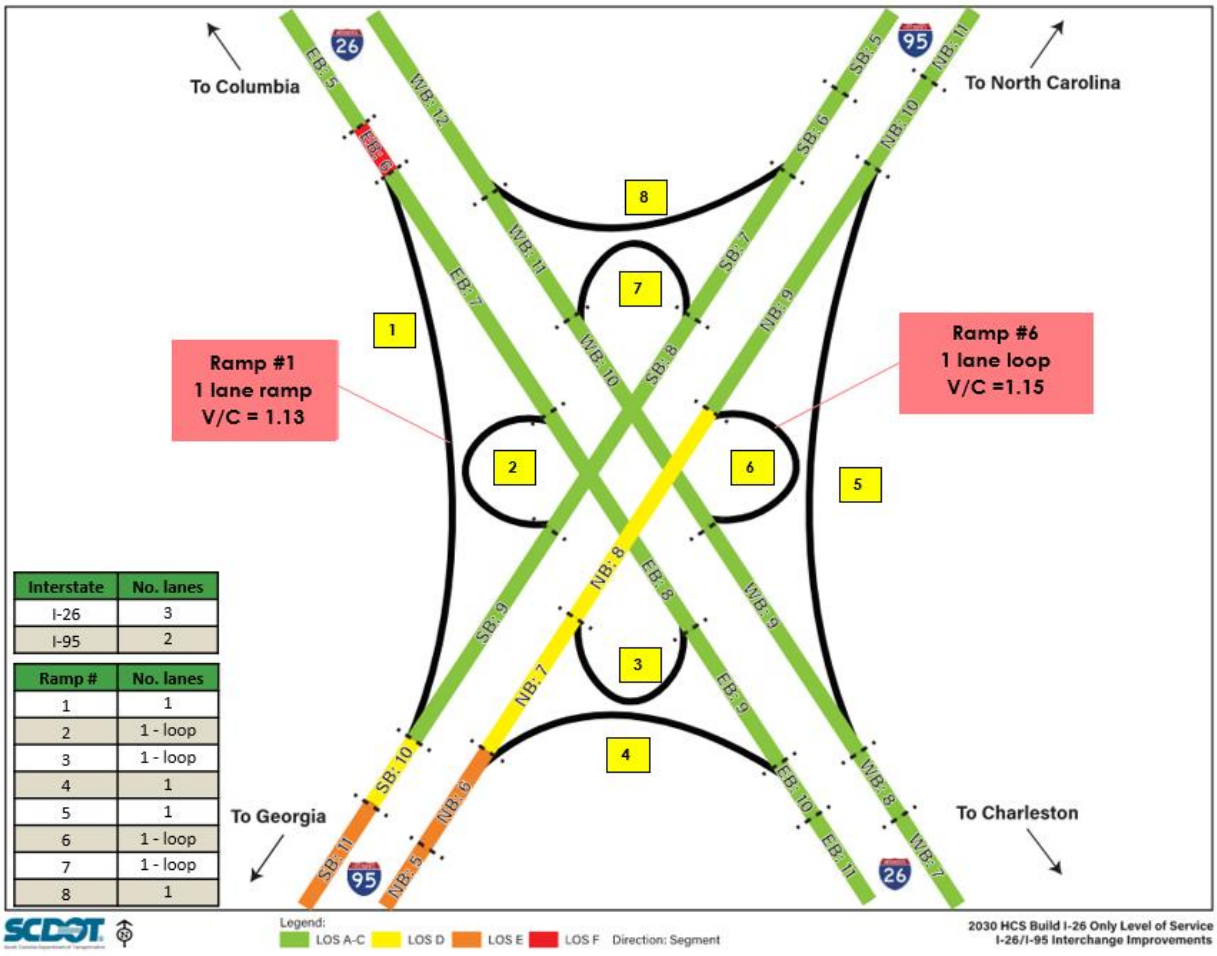
Table 6.10: 2022 Existing Conditions HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	1826	22%	B	17.8
2	I-95 Off-Ramp to U.S. 176	Diverge	2	1826	22%	C	21.5
			1	43	19%		22.5
3	Between U.S. 176 Ramps	Basic	2	1783	22%	B	17.4
4	I-95 On-Ramp from U.S. 176	Merge	2	1783	22%	B	20.6
			1	97	17%		18.6
5	Between U.S. 176 and I-26	Basic	2	1880	22%	C	18.3
6	I-95 Off-Ramp to I-26 WB	Diverge	2	1880	22%	C	22.8
			1	42	30%		24.2
7	Between I-26 Ramps	Basic	2	1838	22%	B	17.9
8	Between I-26 Cloverleaf Ramps	Weaving	1	242	19%	B	16.6
			3	2080	22%		
			1	714	19%		
9	Between I-26 Ramps	Basic	2	1366	22%	B	13.2
10	I-95 On-Ramp from I-26 EB	Merge	2	1366	22%	C	31.3
			1	1365	24%		26.7
11	Between I-26 and U.S. 178	Basic	2	2731	23%	D	30.0
12	I-95 Off-Ramp to U.S. 178	Diverge	2	2731	23%	D	32.7
			1	175	31%		33.4
13	Between U.S. 176 Ramps	Basic	2	2556	23%	D	27.1
14	I-95 On-Ramp from U.S. 176	Merge	2	2556	23%	C	31.2
			1	184	19%		27.5
15	South of U.S. 178	Basic	2	2740	22%	D	29.8
					Corridor	D	22.5

6.2.2 2030 No Build Conditions

A visual representation of the estimated 2030 Year of Opening LOS analysis is shown in **Figure 6.2**. This includes both a summary of ramp capacity thresholds based on V/C ratios at critical links and a formal HCS Freeway Facility analysis. As stated previously, the V/C analysis is intended to provide additional information as part of the alternative development process but is not a formal HCS criteria. It can also be indicative of where a ramp junction may be subject to queuing that could impact operations on adjacent links.

Figure 6.2: HCS Estimated 2030 No Build LOS & Critical V/C Ramps



Ramp V/C Analysis

Since the current HCS methodology does not provide a method to report ramp LOS, a volume to capacity analysis was performed in order to identify if and when ramps may need to be considered for widening. The ramp V/C analysis for 2030 No Build conditions is summarized in **Table 6.11**.

Table 6.11: 2030 No Build V/C Ramp Analysis

Movement/ Ramp #	Movement	# Lanes	Ramp Type	Volume (pcph)	Capacity (pcph)	V/C	Capacity
1	I-26 EB to I-95 SB	1	Ramp	2,117	1,878	1.13	Over
2	I-95 SB to I-26 EB	1	Loop	1,062	1,784	0.60	Under
3	I-26 EB to I-95 NB	1	Loop	61	1,784	0.03	Substantially Under
4	I-95 NB to I-26 EB	1	Ramp	387	1,878	0.21	Substantially Under
5	I-26 WB to I-95 NB	1	Ramp	1,054	1,878	0.56	Under
6	I-95 NB to I-26 WB	1	Loop	2,053	1,784	1.15	Over
7	I-26 WB to I-95 SB	1	Loop	360	1,784	0.20	Substantially Under
8	I-95 SB to I-26 WB	1	Ramp	68	1,878	0.04	Substantially Under

Freeway Facility HCS Analysis

The results of the 2030 No Build conditions indicate that I-26 eastbound and westbound direction are expected to operate at an acceptable LOS. The diverge segment from I-26 eastbound to I-95 southbound exceeds capacity showing LOS F despite the No Build assumption of a six lane I-26. This is the result of the existing one-lane ramp from I-26 eastbound to I-95 southbound that carries a high volume of vehicles. The congestion on the one lane ramp facility also results in LOS F corridor capacity based on the HCS analysis methods. The westbound direction shows acceptable LOS.

As previously explained, corridor LOS is provided by the HCS Freeway Facilities module to represent an overall LOS for the entire section. It can be substantially impacted by a single section of roadway, however, and is not intended to determine whether operations are acceptable. Nevertheless, for freeway corridors that have a LOS E or LOS F operation, some explanation is provided as a footnote for each table.

On I-95, most segments are operating at LOS D or better. However, the segments south of the interchange shows LOS E, at the southbound merge segment from I-26 eastbound and at the northbound diverge to the I-26 eastbound. It is not shown in Figure 6.2, but is shown in **Table 6.14**, but note that I-95 northbound has an overall corridor LOS F due to the volume on the I-95 northbound to I-26 westbound loop ramp operating at overcapacity conditions.

Table 6.12 and **Table 6.13** show the capacity analysis results for the 2030 peak No Build condition for I-26 eastbound and westbound direction.

Table 6.12: 2030 No Build HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	2966	24%	C	19.9
2	I-26 Off-Ramp to SC 210	Diverge	3	2966	24%	C	22.1
			1	70	27%		23.1
3	Between SC 210 Ramps	Basic	3	2896	24%	C	19.4
4	I-26 On-Ramp from SC 210	Merge	3	2896	24%	B	22.0
			1	99	14%		19.4
5	Between SC 210 and I-95	Basic	3	2995	23%	C	20.1
6	I-26 Off-Ramp to I-95	Diverge	3	2995	23%	F	45.0
			1	1570	24%		29.6
7	Between I-95 Ramps	Basic	3	1425	22%	A	9.4
8	Between I-95 Ramps	Weaving	4	1425	22%	B	13.5
			1	48	17%		13.5
			1	821	19%		13.5
9	Between I-95 Ramps	Basic	3	2198	21%	B	14.4
10	I-26 On-Ramp from I-95	Merge	3	2198	21%	B	17.9
			1	278	28%		16.7
11	Between I-95 and U.S. 15	Basic	3	2476	22%	B	16.3
12	I-26 Off-Ramp to U.S. 15	Diverge	3	2476	22%	B	17.2
			1	119	28%		16.4
13	Between U.S. 15 Ramps	Basic	3	2357	22%	B	15.5
14	Between U.S. 15 Ramps	Weaving	4	2289	22%	B	12.7
			1	37	11%		
15	Between U.S. 15 Ramps	Basic	3	2326	22%	B	15.3
16	I-26 On-Ramp from U.S. 16	Merge	3	2326	22%	C	17.6
			1	130	20%		16.0
17	East of U.S. 15	Basic	3	2456	21%	C	16.1
					Corridor	D	18.0

Note: LOS F operations occur on Segment 6 despite widening of I-26 to 6 lanes because the No Build conditions assumes that Ramp #1 (I-26 EB to I-95 SB) requires widening to two lanes. As a result, queuing and poor operations may occur onto I-26 EB upstream of the diverge that is not reflected in the HCS methodology.

Table 6.13: 2030 No Build HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	2482	21%	B	16.2
2	I-26 Off-Ramp to U.S. 15	Diverge	3	2482	21%	B	17.0
			1	41	11%		19.2
3	Between U.S. 15 Ramps	Basic	3	2441	21%	B	15.9
4	I-26 On-Ramp from SC 210	Merge	3	2308	22%	B	14.1
			1	117	38%		14.1
5	Between U.S. 15 Ramps	Basic	3	2425	22%	B	15.6
6	I-26 On-Ramp from U.S. 15	Merge	3	2425	22%	B	17.7
			1	61	17%		16.0
7	Between U.S. 15 and I-95	Basic	3	2486	22%	B	16.3
8	I-26 Off-Ramp to I-95	Diverge	3	2486	22%	C	19.1
			1	821	18%		22.8
9	Between I-95 Ramps	Basic	3	1665	24%	B	11.1
10	Between I-95 Ramps	Weaving	4	1665	24%	C	22.0
			1	278	19%		22.0
			1	1570	29%		22.0
11	Between I-95 Ramps	Basic	3	2742	27%	C	18.8
12	I-26 On-Ramp from I-95	Merge	3	2742	27%	B	21.1
			1	48	30%		19.6
13	Between SC 210 and I-95	Basic	3	2790	27%	C	19.1
14	I-26 Off-Ramp to SC 210	Diverge	3	2790	27%	C	21.3
			1	107	20%		22.3
15	Between SC 210 Ramps	Basic	3	2683	27%	C	18.4
16	I-26 On-Ramp from SC 210	Merge	3	2683	27%	C	20.6
			1	66	19%		18.1
17	West of SC 210	Basic	3	2749	27%	D	18.8
					Corridor	F	17.9

Note: HCS reports LOS F operations for the overall corridor (although no segment is worse than LOS D) due to the HCS methodology for weave analysis. HCS calculates the weaving LOS using volumes that do not exceed the loop ramps on either end. In this case, Ramp #6 (the highest volume loop from I-95 NB to I-26 WB) volumes exceed the loop capacity and the methodology analyzes the weave with a lower constrained volume. The corridor is reported at LOS F, however, because the demand to enter I-26 westbound from the loop is not being served. As a result, queuing and poor operations may occur onto I-26 WB upstream of the weave that is not reflected in the HCS methodology except in the corridor LOS. TransModeler analysis is required.

Table 6.14 and **Table 6.15**, show the capacity analysis results for 2030 peak conditions on I-95 northbound and southbound.

Table 6.14: 2030 No Build HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	3108	26%	E	40.1
2	I-95 Off-Ramp to U.S. 178	Diverge	2	3108	26%	E	38.1
			1	173	23%		38.8
3	Between U.S. 178 Ramps	Basic	2	2935	26%	E	35.6
4	I-95 On-Ramp from U.S. 178	Merge	2	2935	26%	E	40.4
			1	205	39%		33.9
5	Between U.S. 178 and I-26	Basic	2	3140	27%	E	41.8
6	I-95 Off-Ramp to I-26 EB	Diverge	2	3140	27%	E	40.2
			1	278	28%		39.5
7	Between I-26 Ramps	Basic	2	2862	27%	D	34.5
8	Between I-26 Cloverleaf Ramps	Weaving	1	48	17%	D	28.9
			3	2910	27%		
			1	1570	29%		
9	Between I-26 Ramps	Basic	2	1340	24%	B	13.3
10	I-95 On-Ramp from I-26 WB	Merge	2	1340	24%	C	24.0
			1	821	18%		21.4
11	Between I-26 and U.S. 176	Basic	2	2161	22%	C	21.4
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2161	22%	C	25.5
			1	101	17%		21.7
13	Between U.S. 176 Ramps	Basic	2	2060	22%	C	20.3
14	I-95 On-Ramp from U.S. 176	Merge	2	2060	22%	C	23.4
			1	45	20%		22.3
15	North of U.S. 176	Basic	2	2105	22%	C	20.8
					Corridor	F	28.7

Note: HCS reports LOS F operations for the overall corridor (although no segment is worse than LOS E) due to the HCS methodology for weave analysis. HCS calculates the weaving LOS using volumes that do not exceed the loop ramps on either end. In this case, Ramp #6 (the highest volume loop from I-95 NB to I-26 WB) volumes exceed the loop capacity and the methodology analyzes the weave with a lower constrained volume. On I-95 NB, the inability of the loop to handle the true demand will result in substantial queuing upstream as vehicles will queue through the weave and further down obstructing I-95 NB traffic which is reflected in the corridor being reported at LOS F. TransModeler analysis is required.

Table 6.15: 2030 No Build HCM Capacity Analysis Results (I-95 Southbound)

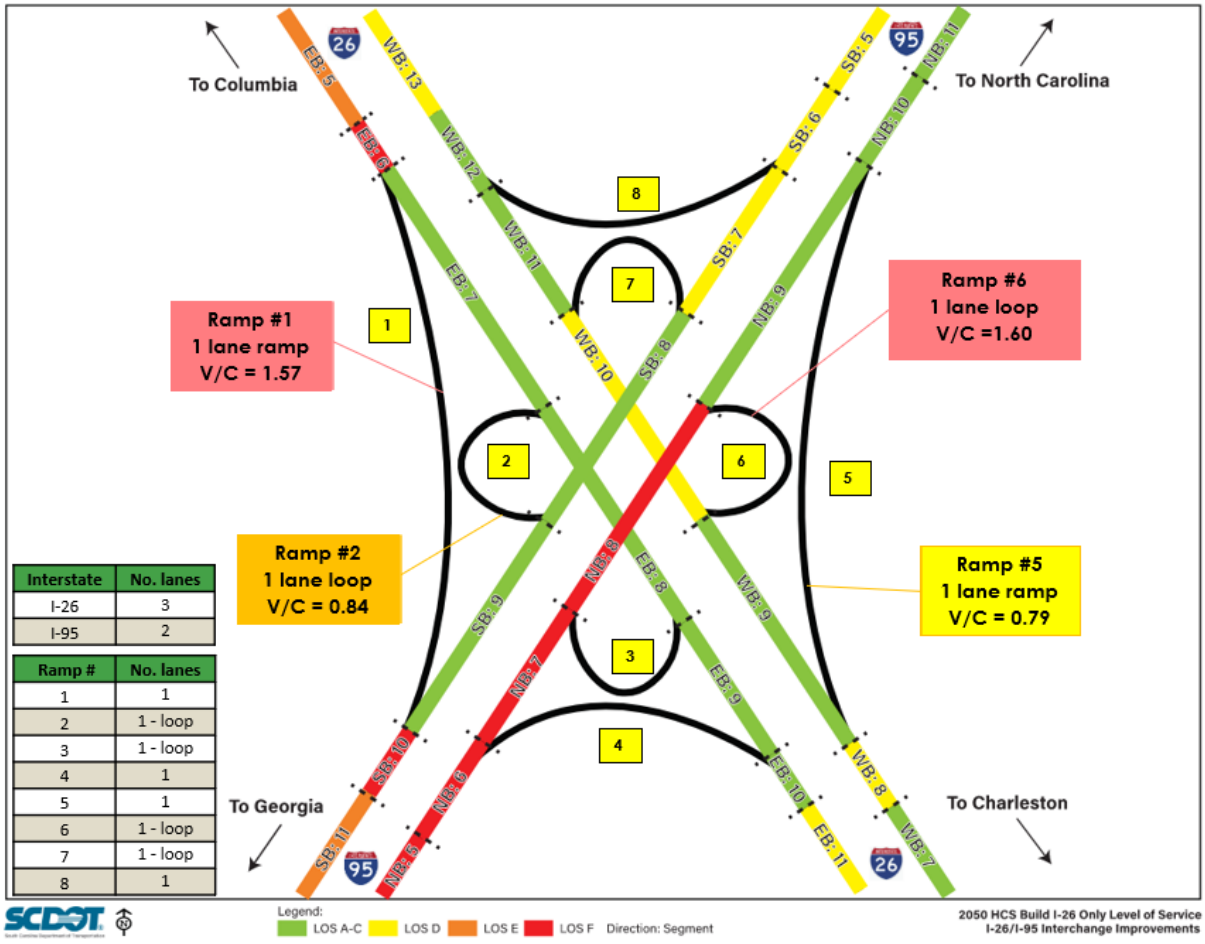
Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2104	22%	C	20.8
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2104	22%	C	24.8
			1	45	19%		25.6
3	Between U.S. 176 Ramps	Basic	2	2059	22%	C	20.3
4	I-95 On-Ramp from U.S. 176	Merge	2	2059	22%	C	23.9
			1	102	17%		21.5
5	Between U.S. 176 and I-26	Basic	2	2161	22%	C	21.4
6	I-95 Off-Ramp to I-26 WB	Diverge	2	2161	22%	C	26.2
			1	48	30%		27.4
7	Between I-26 Ramps	Basic	2	2113	22%	C	20.9
8	Between I-26 Cloverleaf Ramps	Weaving	1	278	19%	B	19.8
			3	2391	22%		
			1	821	19%		
9	Between I-26 Ramps	Basic	2	1570	23%	B	15.4
10	I-95 On-Ramp from I-26 EB	Merge	2	1570	23%	D	36.1
			1	1570	24%		29.9
11	Between I-26 and U.S. 178	Basic	2	3140	23%	E	36.2
12	I-95 Off-Ramp to U.S. 178	Diverge	2	3140	23%	E	37.4
			1	184	31%		36.9
13	Between U.S. 178 Ramps	Basic	2	2956	23%	D	32.2
14	I-95 On-Ramp from U.S. 178	Merge	2	2956	23%	D	36.6
			1	193	19%		30.6
15	South of U.S. 178	Basic	2	3149	22%	E	36.4
					Corridor	D	26.5

Note: HCS reports LOS D operations for the corridor with an unacceptable LOS E south of the merge on I-95 SB. This indicates a capacity constraint in the future with the existing four lane I-95 typical section. No improvements are currently planned for I-95 south of I-26. TransModeler analysis is needed to examine potential impacts to the I-26 at I-95 interchange.

6.2.3 2050 No Build Conditions

A visual representation of the estimated 2050 No Build conditions LOS is shown in **Figure 6.3**. This includes both a summary of ramp capacity thresholds based on V/C ratios at critical links and a formal HCS Freeway Facility analysis.

Figure 6.3: HCS Estimated 2050 No Build Conditions LOS



Ramp V/C Analysis

Since the current HCS methodology does not provide a method to report ramp LOS, a volume to capacity analysis was performed in order to identify if and when ramps may need to be considered for widening. The ramp V/C analysis for 2050 No Build conditions is summarized in **Table 6.16**.

Table 6.16: 2050 No Build V/C Ramp Analysis

Movement/ Ramp #	Movement	# Lanes	Ramp Type	Volume (pcph)	Capacity (pcph)	V/C	Capacity
1	I-26 EB to I-95 SB	1	Ramp	2,956	1,878	1.57	Substantially Over
2	I-95 SB to I-26 EB	1	Loop	1,491	1,784	0.85	Unstable Flow/ At or Near Capacity
3	I-26 EB to I-95 NB	1	Loop	61	1,784	0.05	Substantially Under
4	I-95 NB to I-26 EB	1	Ramp	522	1,878	0.28	Substantially Under
5	I-26 WB to I-95 NB	1	Ramp	1,481	1,878	0.79	Stable Flow/ Nearing Capacity
6	I-95 NB to I-26 WB	1	Loop	2,053	1,784	1.60	Substantially Over
7	I-26 WB to I-95 SB	1	Loop	485	1,784	0.27	Substantially Under
8	I-95 SB to I-26 WB	1	Ramp	99	1,878	0.05	Substantially Under

Freeway Facility HCS Analysis

The results of the 2050 No Build conditions are summarized below:

I-26 eastbound and westbound directions are expected to operate at an acceptable LOS except for the diverge segment from I-26 eastbound to I-95 southbound which exceeds capacity showing LOS F, primarily due to the existing one lane ramp. The westbound direction shows all segments meeting the LOS criteria. HCS also indicated overcapacity conditions on the ramps where ramp capacity on the diverge to I-95 southbound and merge to I-95 northbound exceeded capacity.

As previously explained, corridor LOS is provided by the HCS Freeway Facilities module to represent an overall LOS for the entire section. It can be substantially impacted by a single section of roadway, however, and is not intended to determine whether operations are acceptable. For freeway corridors with multiple poorly operating segments, LOS E or F may be appropriate. For this project, corridors that have a LOS E or LOS F corridor operation are explained with a footnote.

On I-95 most of the segments are operating at capacity or exceeding the acceptable LOS. Only the segments north of the interchange show LOS D and above. The merge segment from I-26 eastbound and diverge to the westbound direction show LOS F with volume exceeding capacity at the ramps. Additionally, Segment 7 and 8 on I-95 northbound shows LOS F at the cloverleaf ramps.

Table 6.17 and **Table 6.18** show the capacity analysis results for the 2050 No Build peak condition for I-26 eastbound and westbound.

Table 6.17: 2050 No Build HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	4264	29%	E	35.3
2	I-26 Off-Ramp to SC 210	Diverge	3	4264	29%	D	33.2
			1	78	27%		31.8
3	Between SC 210 Ramps	Basic	3	4186	29%	D	34.1
4	I-26 On-Ramp from SC 210	Merge	3	4186	29%	D	34.4
			1	108	14%		28.7
5	Between SC 210 and I-95	Basic	3	4294	28%	E	35.6
6	I-26 Off-Ramp to I-95 SB	Diverge	3	4294	28%	F	45.0
			1	2192	24%		40.0
7	Between I-95 Ramps	Basic	3	2102	33%	B	15.1
8	Between I-95 Cloverleaf Ramps	Weaving	1	1152	17%	C	22.5
			3	3254	28%		
			1	70	19%		
9	Between I-95 Ramps	Basic	3	3184	28%	C	22.6
10	I-26 On-Ramp from I-95 NB	Merge	3	3184	28%	C	27.5
			1	375	28%		25.0
11	Between I-95 and U.S. 15	Basic	3	3559	28%	D	26.2
12	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	28%	C	26.1
			1	194	28%		24.4
13	Between U.S. 15 Ramps	Basic	3	3365	28%	C	24.2
14	Between U.S. 15 Ramps	Weaving	1	111	21%	B	20.0
			3	3365	28%		
			2	60	11%		
15	Between U.S. 15 Ramps	Basic	3	3314	28%	C	23.7
16	I-26 On-Ramp from U.S. 16	Merge	3	3314	28%	C	27.2
			1	211	21%		24.0
17	East of U.S. 15	Basic	2	3525	27%	C	25.6
					Corridor	F	29.2

Note: LOS F operations occur on Segment 6 despite widening of I-26 to 6 lanes because the 2050 No Build conditions require Ramp #1 (I-26 EB to I-95 SB) to be widened to two lanes. As a result of having a one lane ramp, queuing and poor operations will occur onto I-26 EB upstream of the diverge resulting in LOS F for the overall corridor despite acceptable operations at other junctions. TransModeler analysis is recommended.

Table 6.18: 2050 No Build HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	3559	27%	C	25.7
2	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	27%	C	25.6
			1	67	5%		27.1
3	Between U.S. 15 Ramps	Basic	3	3492	27%	C	25.0
4	Between U.S. 15 Ramps	Weaving	1	215	22%	C	22.7
			3	3277	27%	C	
			1	189	38%		
5	Between U.S. 15 Ramps	Basic	3	3466	28%	C	24.8
6	I-26 On-Ramp from U.S. 15	Merge	3	3466	28%	C	27.3
			1	100	17%		23.9
7	Between U.S. 15 and I-95	Basic	3	3566	28%	C	26.0
8	I-26 Off-Ramp to I-95 NB	Diverge	3	3566	28%	D	29.9
			1	1154	18%		31.4
9	Between I-95 Ramps	Basic	3	2412	33%	B	17.2
10	Between I-95 Cloverleaf Ramps	Weaving	1	2194	29%	D	29.2
			3	4606	31%		
			1	375	19%		
11	Between I-95 Ramps	Basic	3	4231	32%	C	25.3
12	I-26 On-Ramp from I-95 SB	Merge	3	4231	32%	C	27.5
			1	70	30%		24.8
13	Between I-95 and SC 210	Basic	3	4301	32%	D	26.1
14	I-26 Off-Ramp to SC 210	Diverge	3	4301	32%	C	27.4
			1	117	20%		27.5
15	Between SC 210 Ramps	Basic	3	4184	32%	C	24.9
16	I-26 On-Ramp from SC 210	Merge	3	4184	32%	C	27.1
			1	72	19%		23.2
17	West of SC 210	Basic	3	4256	32%	C	25.6
					Corridor	F	25.9

Note: HCS reports LOS F operations for the overall corridor (although no segment is worse than LOS D) due to the HCS methodology for weave analysis. HCS calculates the weaving LOS using volumes that do not exceed the loop ramps on either end. In this case, Ramp #6 (the highest volume loop from I-95 NB to I-26 WB) volumes far exceed the loop capacity and the methodology analyzes the weave with a lower constrained volume. The corridor is reported at LOS F, however, because the demand to enter I-26 westbound from the loop is not being served. As a result, queuing and poor operations will occur onto I-26 WB upstream of the weave that is not reflected in the HCS methodology except in the corridor LOS. TransModeler analysis is required.

Table 6.19 and **Table 6.20**, show the capacity analysis results for 2050 No Build peak conditions on I-95 northbound and southbound.

Table 6.19: 2050 No Build HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	4007	27%	F	56.9
2	I-95 Off-Ramp to U.S. 178	Diverge	2	4007	27%	F	36.8
			1	188	23%		37.5
3	Between U.S. 178 Ramps	Basic	2	3819	27%	F	55.0
4	I-95 On-Ramp from U.S. 178	Merge	2	3819	27%	F	37.2
			1	222	39%		32.2
5	Between U.S. 178 and I-26	Basic	2	4041	27%	F	46.1
6	I-95 Off-Ramp to I-26 EB	Diverge	2	4041	27%	F	54.4
			1	375	28%		50.2
7	Between I-26 Ramps	Basic	2	3666	27%	F	74.7
8	Between I-26 Cloverleaf Ramps	Weaving	1	70	17%	F	23.7
			3	3736	27%		
			1	2194	29%		
9	Between I-26 Ramps	Basic	2	1542	25%	A	2.7
10	I-95 On-Ramp from I-26 WB	Merge	2	1542	25%	B	15.0
			1	1154	18%		13.3
11	Between I-26 and U.S. 176	Basic	2	2696	22%	B	13.5
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2696	22%	B	15.1
			1	108	17%		13.0
13	Between U.S. 176 Ramps	Basic	2	2588	22%	B	12.5
14	I-95 On-Ramp from U.S. 176	Merge	2	2588	22%	B	14.5
			1	49	20%		14.4
15	North of U.S. 176	Basic	2	2637	22%	B	13.0
					Corridor	F	27.1

Note: HCS reports LOS F operations for the overall corridor with all I-95 northbound segments located south of I-26 northbound weave operating at LOS F. TransModeler analysis is required.

Table 6.20: 2050 No Build HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2634	22%	D	27.9
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2634	22%	D	31.0
			1	49	19%		31.7
3	Between U.S. 176 Ramps	Basic	2	2585	22%	D	27.2
4	I-95 On-Ramp from U.S. 176	Merge	2	2585	22%	C	30.7
			1	111	17%		27.0
5	Between U.S. 176 and I-26	Basic	2	2696	22%	D	28.9
6	I-95 Off-Ramp to I-26 WB	Diverge	2	2696	22%	D	32.6
			1	70	30%		33.5
7	Between I-26 Ramps	Basic	2	2626	22%	D	27.6
8	Between I-26 Cloverleaf Ramps	Weaving	1	375	19%	C	27.0
			3	3001	22%		
			1	1152	19%		
9	Between I-26 Ramps	Basic	2	1849	23%	C	18.1
10	I-95 On-Ramp from I-26 WB	Merge	2	1849	23%	F	40.7
			1	2192	24%		32.5
11	Between I-26 and U.S. 178	Basic	2	4041	23%	E	43.3
12	I-95 Off-Ramp to U.S. 178	Diverge	2	4041	23%	F	39.4
			1	200	31%		40.0
13	Between U.S. 178 Ramps	Basic	2	3841	23%	E	37.5
14	I-95 On-Ramp from U.S. 178	Merge	3	3841	23%	D	41.2
			2	210	19%		33.3
15	South of U.S. 178	Basic	2	4051	23%	E	43.0
					Corridor	F	25.2

Note: HCS reports LOS F operations for the I-95 southbound corridor with an unacceptable LOS F at the Segment 10 merge and LOS E and F operations on I-95 to the south. No improvements are currently planned for I-95 south of I-26. TransModeler analysis is needed to examine potential impacts to the I-26 at I-95 interchange.

6.3 HCS Freeway Analysis - Build Alternatives

The Build conditions presents analysis results for three proposed interchange alternatives to replace the current interchange at I-26 and I-95. Primary features of all alternatives include the removal of the four primary weave areas between the existing four loop ramps as well as widening, improvements and realignments of specific ramp segments.

- Alternative 1: Stacked 4-Level Flyover with Two Loops.
- Alternative 2: Modified Turbine with Two Loops
- Alternative 3: Modified Turbine with One Loop

Each of these Build alternatives are described and illustrated in Section 5. The following section outlines the proposed operations for all three alternatives in both 2030 and 2050.

6.3.1 2050 Ramp Capacity Analysis – All Alternatives

One key initial analysis element for each Build alternative is the treatment of the ramp movements and identification of ramp widening needs. This analysis was conducted using V/C analysis of the No Build ramps based on planning level ramp capacity methods. The analysis conducted for the 2050 No Build was utilized to develop an initial estimate of the number of lanes required for future traffic volumes. These improvements were identified based on the 2050 No Build ramp analysis in Table 6.16.

The identified 2050 laneage requirements for the analysis was assumed, tested and verified as applicable as part of the more detailed HCS Freeway (Section 6.3) and ultimately TransModeler analysis (Section 7).

Recommended number of lanes on each ramp for the Build alternatives is included in Table 6.21. Note that for Ramp #2 and Ramp #5, a single lane is proposed as it meets the minimum acceptable LOS D (although consideration was given to providing LOS C with two lane ramps). Alternatives were developed using these configurations; therefore, no additional V/C analysis of ramps was completed for the HCS Alternative analysis.

Table 6.21: Recommended Future Ramp Lanes based on V/C Analysis

Ramp #	Movement	# Lanes No Build	Ramp Type	2050 No Build V/C	2050 No Build Capacity	# Lanes Needed	V/C with Ramp Widened	Recommended Ramp Type
1	I-26 EB to I-95 SB	1	Ramp	1.57	Substantially Over	2	0.78	Directional
2	I-95 SB to I-26 EB	1	Loop	0.85	Unstable Flow/ At or Near Capacity	1 for LOS D* (2 for LOS C)	NA	Directional Flyover
3	I-26 EB to I-95 NB	1	Loop	0.05	Substantially Under	1	NA	Loop
4	I-95 NB to I-26 EB	1	Ramp	0.28	Substantially Under	1	NA	Typical ramp
5	I-26 WB to I-95 NB	1	Ramp	0.79	Stable Flow/ Nearing Capacity	1 for LOS D* (2 for LOS C)	NA	Directional
6	I-95 NB to I-26 WB	1	Loop	1.60	Substantially Over	2	0.76	Directional Flyover
7	I-26 WB to I-95 SB	1	Loop	0.27	Substantially Under	1	NA	Loop
8	I-95 SB to I-26 WB	1	Ramp	0.05	Substantially Under	1	NA	Typical ramp

Notes:
TransModeler analysis required to verify queuing (or metering) on ramps and how it may impact design requirements.
**LOS D operation in 2050 identified as acceptable for this project. Therefore, a single lane ramp has been utilized in the proposed alternatives for Ramps 2 and 6. Two lane ramp shown for information only.*

A freeway facility HCS analysis has been conducted for each Alternative under 2030 and 2050 conditions. The key information is the LOS given for each segment whether it is a basic freeway, merge, or diverge segment. As in the No Build analysis, corridor LOS is provided by HCS to represent an overall LOS for the entire section but is not intended to determine whether operations are acceptable. Unlike the No Build, LOS E or F only appear in 2050 under the Build alternatives. Footnote explanations of overall corridor LOS E or F are provided.

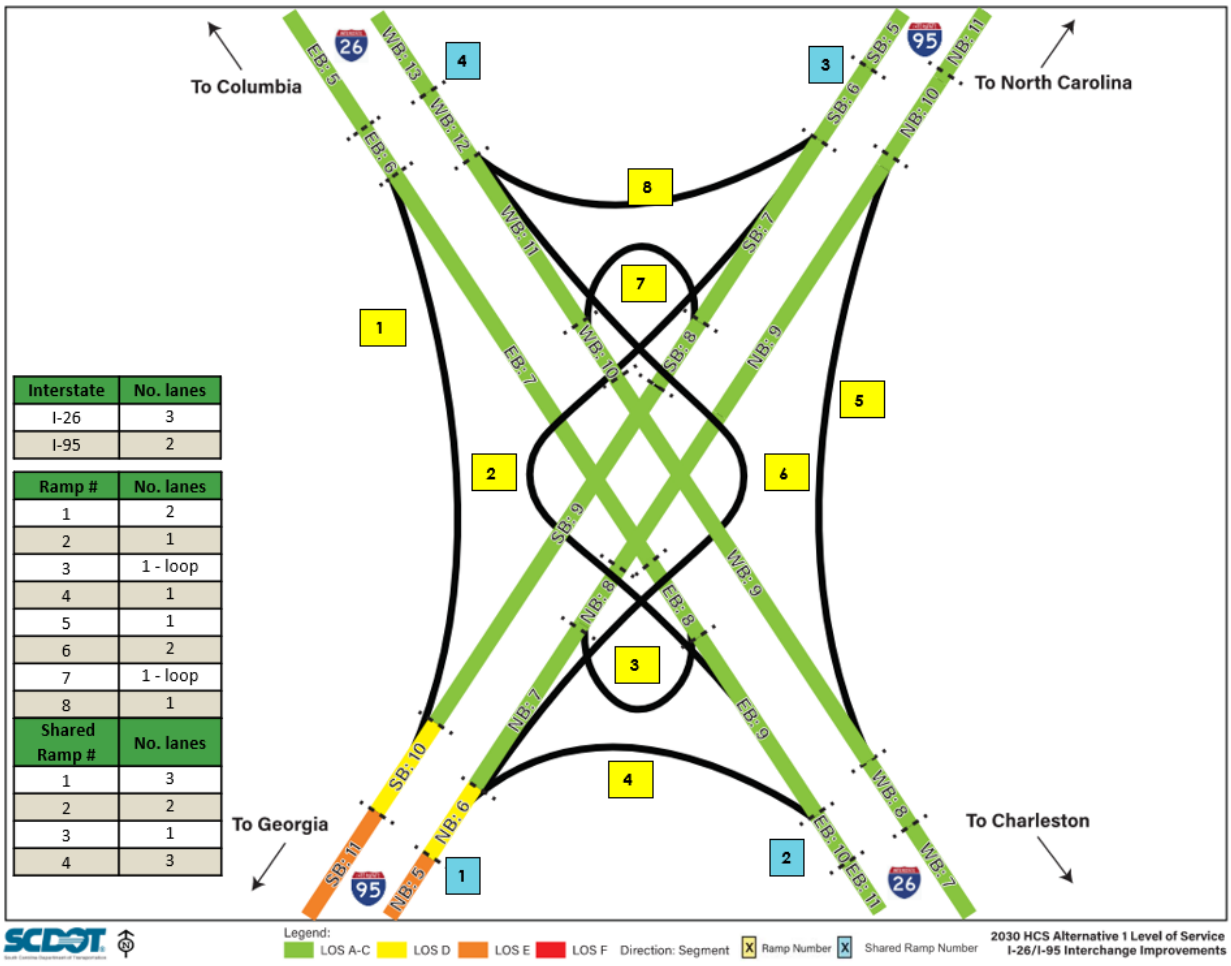
6.3.2 2030 Build Alternative 1

Build Alternative 1 is a Stacked 4-Level Flyover interchange with two loops as detailed in Section 5.1. The results of the 2030 Build Alternative 1 conditions indicate that I-26 eastbound and westbound direction operate at an acceptable LOS. The diverge segment from I-26 eastbound to I-95 southbound improves to LOS B from LOS F in the No Build. The westbound direction shows an improvement in multiple segments. The oversaturation conditions on ramp are reduced making the facility LOS C. A more detailed report is shown in the tables below.

On I-95 most of the segments are operating at the acceptable LOS threshold. However, the two-lane diverge shows LOS D on the northbound direction. The merge segment on the southbound direction from I-26 eastbound also shows LOS D. The alternative improves the merge sections between the loops for the 2030 traffic volumes. Additional segment density and LOS are shown in the tables below.

A visual representation of the estimated 2030 Build Alternative 1 LOS is shown in **Figure 6.4.**

Figure 6.4: HCS Estimated 2030 Build Alternative 1 LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1 - loop
8	1

Shared Ramp #	No. lanes
1	3
2	2
3	1
4	3

Table 6.22 and **Table 6.23** present capacity analysis results for Alternative 1 2030 Build conditions on I-26 eastbound and westbound.

Table 6.22: 2030 Build Alternative 1 HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	2966	24%	C	19.7
2	I-26 Off-Ramp to SC 210	Diverge	3	2966	24%	C	21.9
			1	70	27%		23.1
3	Between SC 210 Ramps	Basic	3	2896	24%	C	19.2
4	I-26 On-Ramp from SC 210	Merge	3	2896	24%	B	21.8
			1	99	14%		19.4
5	Between SC 210 and I-95	Basic	3	2995	23%	C	19.8
6	I-26 Off-Ramp to I-95 SB	Diverge	3	2995	23%	B	22.2
			2	1570	24%		16.3
7	Between I-95 Ramps	Basic	3	1425	22%	A	9.2
8	I-26 Off-Ramp Loop to I-95 NB	Diverge	3	1425	22%	B	10.4
			1	48	17%		11.5
9	Between I-95 Ramps	Basic	3	1377	22%	A	8.5
10	I-26 On-Ramp from I-95 NB	Merge	3	1377	22%	B	16.3
			2	1099	21%		14.7
11	Between I-95 and U.S. 15	Basic	3	2476	22%	B	16.0
12	I-26 Off-Ramp to U.S. 15	Diverge	3	2476	22%	C	16.9
			1	119	28%		20.3
13	Between U.S. 15 Ramps	Basic	3	2357	22%	B	15.3
14	Between U.S. 15 Ramps	Weaving	1	68	21%	B	13.2
			4	2289	22%		
			1	37	11%		
15	Between U.S. 15 Ramps	Basic	3	2326	22%	B	15.1
16	I-26 On-Ramp from U.S. 15	Merge	3	2326	22%	B	17.3
			1	130	20%		16.0
17	East of U.S. 15	Basic	3	2456	21%	B	15.8
					Corridor	C	17.3

Table 6.23: 2030 Build Alternative 1 HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	2482	21%	B	16.1
2	I-26 Off-Ramp to U.S. 15	Diverge	3	2482	21%	B	16.9
			1	41	11%		19.2
3	Between U.S. 15 Ramps	Basic	3	2441	21%	B	15.8
4	Between U.S. 15 Ramps	Weaving	1	117	38%	B	14.1
			4	2308	22%		
			1	133	22%		
5	Between U.S. 15 Ramps	Basic	3	2425	22%	B	15.8
6	I-26 On-Ramp from U.S. 15	Merge	3	2425	22%	B	17.6
			1	61	17%		16.0
7	Between U.S. 15 and I-95	Basic	3	2486	22%	B	16.2
8	I-26 Off-Ramp to I-95 NB	Diverge	3	2486	22%	C	18.2
			1	821	18%		22.8
9	Between I-95 Ramps	Basic	3	1665	24%	B	11.1
10	I-26 Off-Ramp Loop to I-95 SB	Diverge	4	1665	24%	B	12.6
			1	278	19%		14.1
11	Between I-95 Ramps	Basic	3	1387	18%	A	8.8
12	I-26 On-Ramp from I-95	Merge	3	1387	18%	C	21.9
			2	1618	29%		20.7
13	Between I-95 & SC 210	Basic	3	3005	27%	C	20.7
14	I-26 Off-Ramp to SC 210	Diverge	3	3005	27%	C	22.9
			1	107	20%		23.8
15	Between SC 210 Ramps	Basic	3	2898	27%	C	19.9
16	I-26 On-Ramp from SC 210	Merge	3	2898	27%	B	22.3
			1	66	19%		19.5
17	West of SC 210	Basic	3	2964	27%	C	20.4
					Corridor	C	17.5

Table 6.24 and **Table 6.25** present capacity analysis results for Alternative 1 2030 Build conditions on I-95 northbound and southbound.

Table 6.24: 2030 Build Alternative 1 HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	3108	26%	E	40.1
2	I-95 Off-Ramp to U.S. 178	Diverge	2	3108	26%	E	38.1
			1	173	23%		38.8
3	Between U.S. 178 Ramps	Basic	2	2935	26%	E	36.2
4	I-95 On-Ramp from U.S. 178	Merge	2	2935	26%	D	40.4
			1	205	39%		33.9
5	Between U.S. 178 and I-26	Basic	2	3140	27%	E	41.8
6	I-95 Off-Ramp to I-26	Diverge	2	3140	27%	D	39.4
			2	1848	29%		28.1
7	Between I-26 Ramps	Basic	2	1292	24%	B	12.8
8	I-95 On-Ramp Loop from I-26 EB	Merge	2	1292	24%	B	14.6
			1	48	17%		11.9
9	Between I-26 Ramps	Basic	2	1340	24%	B	13.3
10	I-95 On-Ramp from I-26 WB	Merge	2	1340	24%	C	23.7
			1	821	18%		21.4
11	Between I-26 and U.S. 176	Basic	2	2161	22%	C	21.4
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2161	22%	C	25.5
			1	101	17%		26.4
13	Between U.S. 176 Ramps	Basic	2	2060	22%	C	20.3
14	I-95 On-Ramp from U.S. 176	Merge	3	2060	22%	C	23.4
			2	45	20%		22.3
15	North of U.S. 176	Basic	2	2105	22%	C	20.8
					Corridor	D	27.4

Table 6.25: 2030 Build Alternative 1 HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2104	22%	C	20.8
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2104	22%	C	24.8
			1	45	19%		25.6
3	Between U.S. 176 Ramps	Basic	2	2059	22%	C	20.3
4	I-95 On-Ramp from U.S. 176	Merge	2	2059	22%	C	23.9
			1	102	17%		21.5
5	Between U.S. 176 and I-26	Basic	2	2161	22%	C	21.4
6	I-95 Off-Ramp to I-26	Diverge	2	2161	22%	C	24.4
			1	869	20%		25.4
7	Between I-26 Ramps	Basic	2	1292	24%	B	12.8
8	I-95 On-Ramp Loop from I-26 WB	Merge	2	1292	24%	B	17.1
			1	278	19%		14.1
9	Between I-26 Ramps	Basic	2	1570	23%	B	15.4
10	I-95 On-Ramp from I-26 EB	Merge	2	1570	23%	D	37.2
			2	1570	24%		28.1
11	Between I-26 and U.S. 178	Basic	2	3140	23%	E	38.9
12	I-95 Off-Ramp to U.S. 178	Diverge	2	3140	23%	E	37.6
			1	184	31%		38.1
13	Between U.S. 178 Ramps	Basic	2	2956	23%	D	34.5
14	I-95 On-Ramp from U.S. 178	Merge	3	2956	23%	D	38.3
			2	193	19%		31.8
15	South of U.S. 178	Basic	2	3149	23%	E	39.1
					Corridor	D	27.4

6.3.3 2030 Build Alternative 2

Build Alternative 2 is a Modified Turbine interchange with two loops as detailed in Section 5.2. The results of the 2030 Build Alternative 2 conditions indicate that I-26 eastbound and westbound direction operate at an acceptable LOS. The diverge segment from I-26 eastbound to I-95 southbound improves to LOS B from LOS F in the no build like alternative 1. The westbound direction shows an improvement in multiple segments and the oversaturation conditions are reduced making the facility LOS C. A more detailed report is shown in the tables below.

On I-95 most of the segments are operating at the acceptable LOS threshold. However, the two-lane diverge shows LOS D on the northbound direction. The merge segment on the southbound direction from I-26 eastbound still shows LOS D. The alternative improves the merge sections between the loops for the 2030 traffic volumes. Additional segment density and LOS are shown in the tables below.

A visual representation of the estimated 2030 Build Alternative 2 LOS is shown in **Figure 6.5.**

Figure 6.5: HCS Estimated 2030 Build Alternative 2 LOS

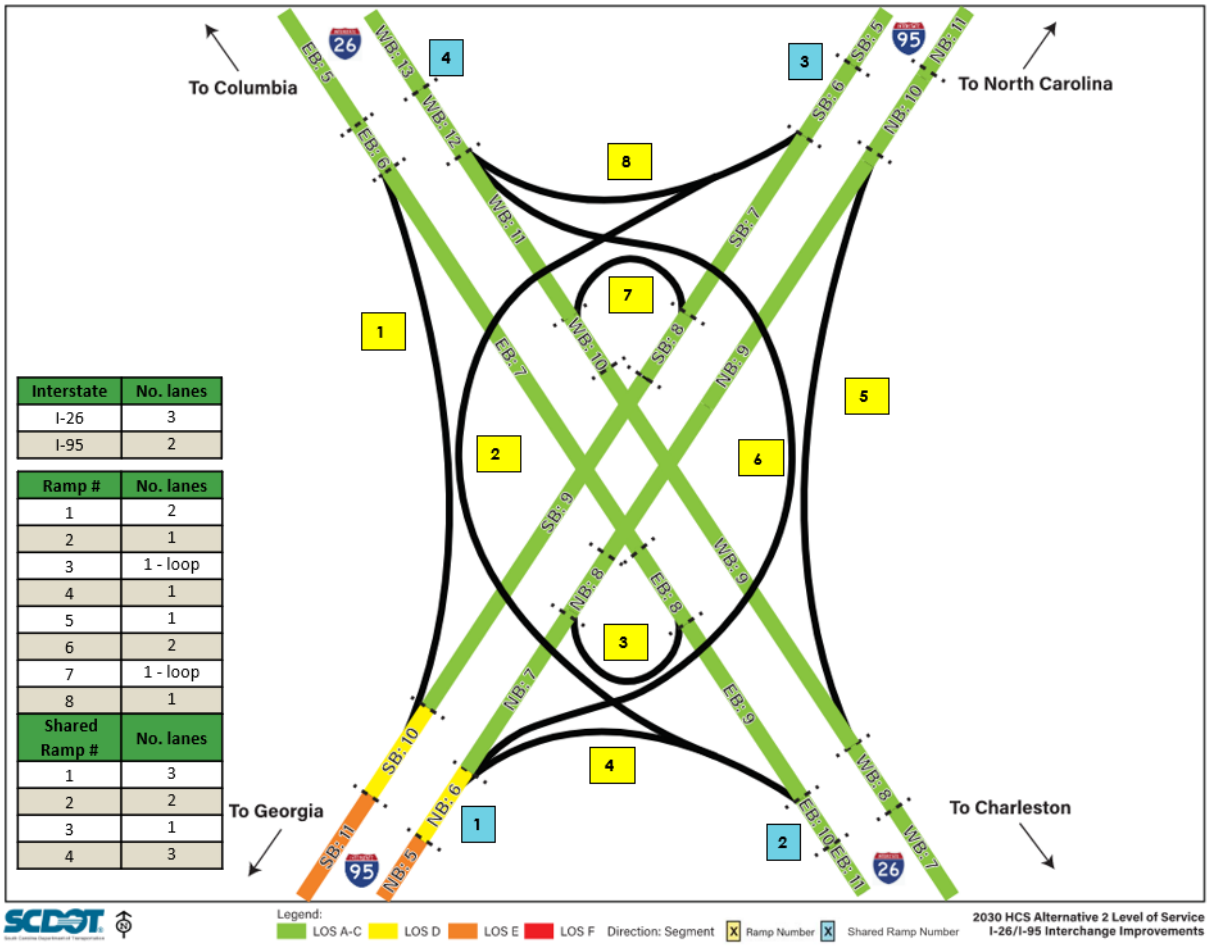


Table 6.26 and **Table 6.27** present capacity analysis results for Alternative 2 2030 Build conditions on I-26 eastbound and westbound.

Table 6.26: 2030 Build Alternative 2 HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	2966	24%	C	19.7
2	I-26 Off-Ramp to SC 210	Diverge	3	2966	24%	C	21.9
			1	70	27%		23.1
3	Between SC 210 Ramps	Basic	3	2896	24%	C	19.2
4	I-26 On-Ramp from SC 210	Merge	3	2896	24%	B	21.8
			1	99	14%		19.4
5	Between SC 210 and I-95	Basic	3	2995	23%	C	19.8
6	I-26 EB Off-Ramp to I-95 SB	Diverge	3	2995	23%	B	22.2
			2	1570	24%		16.3
7	Between I-95 Ramps	Basic	3	1425	22%	A	9.2
8	I-26 Off-Ramp Loop to I-95	Diverge	3	1425	22%	B	10.4
			1	48	17%		11.5
9	Between I-95 Ramps	Basic	3	1377	22%	A	8.5
10	I-26 On-Ramp from I-95	Merge	3	1377	22%	B	16.3
			2	1099	21%		14.7
11	Between I-95 and U.S. 15	Basic	3	2476	22%	B	16.0
12	I-26 Off-Ramp to U.S. 15	Diverge	3	2476	22%	C	16.9
			1	119	28%		20.3
13	Between U.S. 15 Ramps	Basic	3	2357	22%	B	15.3
14	Between U.S. 15 Ramps	Weaving	4	2357	22%	B	12.5
			1	37	11%		
15	Between U.S. 15 Ramps	Basic	3	2326	22%	B	15.1
16	I-26 On-Ramp from U.S. 16	Merge	3	2326	22%	B	17.4
			1	130	20%		16.0
17	East of U.S. 15	Basic	3	2456	21%	B	15.8
					Corridor	C	17.3

Table 6.27: 2030 Build Alternative 2 HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	2482	21%	B	16.0
2	I-26 Off-Ramp to U.S. 15	Diverge	3	2482	21%	B	16.8
			1	41	11%		19.2
3	Between U.S. 15 Ramps	Basic	3	2441	21%	B	15.7
4	Between U.S. 15 Loops	Weaving	1	117	38%	B	14.0
			4	2308	22%		
			1	133	22%		
5	Between U.S. 15 Ramps	Basic	3	2425	22%	B	15.7
6	I-26 On-Ramp from U.S. 15	Merge	3	2425	22%	B	17.5
			1	61	17%		16.0
7	Between U.S. 15 and I-95	Basic	3	2486	22%	B	16.1
8	I-26 WB Off-Ramp to I-95 NB	Diverge	3	2486	22%	C	19.4
			1	821	18%		21.9
9	Between I-95 Ramps	Basic	3	1665	24%	A	11.0
10	I-26 Off-Ramp Loop to I-95 SB	Diverge	3	1665	24%	B	12.5
			1	278	19%		14.1
11	Between I-95 Ramps	Basic	3	1387	18%	A	8.7
12	I-26 On-Ramp from I-95	Merge	3	1387	18%	C	21.8
			2	1618	29%		20.7
13	Between I-95 & SC 210	Basic	3	3005	27%	C	20.6
14	I-26 Off-Ramp to SC 210	Diverge	3	3005	27%	C	21.4
			1	107	20%		23.8
15	Between SC 210 Ramps	Basic	3	2898	27%	C	19.8
16	I-26 On-Ramp from SC 210	Merge	3	2898	27%	B	22.1
			1	66	19%		19.5
17	West of SC 210	Basic	3	2964	27%	C	20.3
					Corridor	C	17.6

Table 6.28 and **Table 6.29** present capacity analysis results for Alternative 2 2030 Build conditions on I-95 northbound and southbound.

Table 6.28: 2030 Build Alternative 2 HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	3108	26%	E	40.1
2	I-95 Off-Ramp to U.S. 178	Diverge	2	3108	26%	E	38.1
			1	173	23%		38.8
3	Between U.S. 178 Ramps	Basic	2	2935	26%	E	35.6
4	I-95 On-Ramp from U.S. 178	Merge	2	2935	26%	E	40.4
			1	205	39%		33.9
5	Between U.S. 178 and I-26	Basic	2	3140	27%	E	41.8
6	I-95 Off-Ramp to I-26	Diverge	2	3140	27%	D	39.3
			2	1848	29%		28.1
7	Between I-26 Ramps	Basic	2	1292	24%	B	12.8
8	I-95 On-Ramp Loop from I-26 EB	Merge	2	1292	24%	B	14.6
			1	48	17%		11.9
9	Between I-26 Ramps	Basic	2	1340	24%	B	13.3
10	I-95 On-Ramp from I-26 WB	Merge	2	1340	24%	C	23.7
			1	821	18%		21.4
11	Between I-26 and U.S. 176	Basic	2	2161	22%	C	21.4
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2161	22%	C	25.5
			1	101	17%		26.4
13	Between U.S. 176 Ramps	Basic	2	2060	22%	C	20.3
14	I-95 On-Ramp from U.S. 176	Merge	3	2060	22%	C	23.4
			2	45	20%		22.3
15	North of U.S. 176	Basic	2	2105	22%	C	20.8
					Corridor	D	27.4

Table 6.29: 2030 Build Alternative 2 HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2104	22%	C	20.8
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2104	22%	C	24.8
			1	45	19%	C	25.6
3	Between U.S. 176 Ramps	Basic	2	2059	22%	C	20.3
4	I-95 On-Ramp from U.S. 176	Merge	2	2059	22%	C	23.9
			1	102	17%	C	21.5
5	Between U.S. 176 and I-26	Basic	2	2161	22%	C	21.4
6	I-95 Off-Ramp to I-26	Diverge	2	2161	22%	C	24.4
			1	869	20%		25.4
7	Between I-26 Ramps	Basic	2	1292	24%	B	12.8
8	I-95 On-Ramp Loop from I-26 WB	Merge	2	1292	24%	B	17.1
			1	278	19%		14.1
9	Between I-26 Ramps	Basic	2	1570	23%	B	15.4
10	I-95 On-Ramp from I-26 EB	Merge	2	1570	23%	D	37.2
			2	1570	24%		28.1
11	Between I-26 and U.S. 178	Basic	2	3140	23%	E	38.9
12	I-95 Off-Ramp to U.S. 178	Diverge	2	3140	23%	E	37.6
			1	184	31%		38.1
13	Between U.S. 178 Ramps	Basic	2	2956	23%	D	34.5
14	I-95 On-Ramp from U.S. 178	Merge	3	2956	23%	D	38.3
			2	193	19%		31.8
15	South of U.S. 178	Basic	2	3149	23%	E	39.1
					Corridor	D	27.4

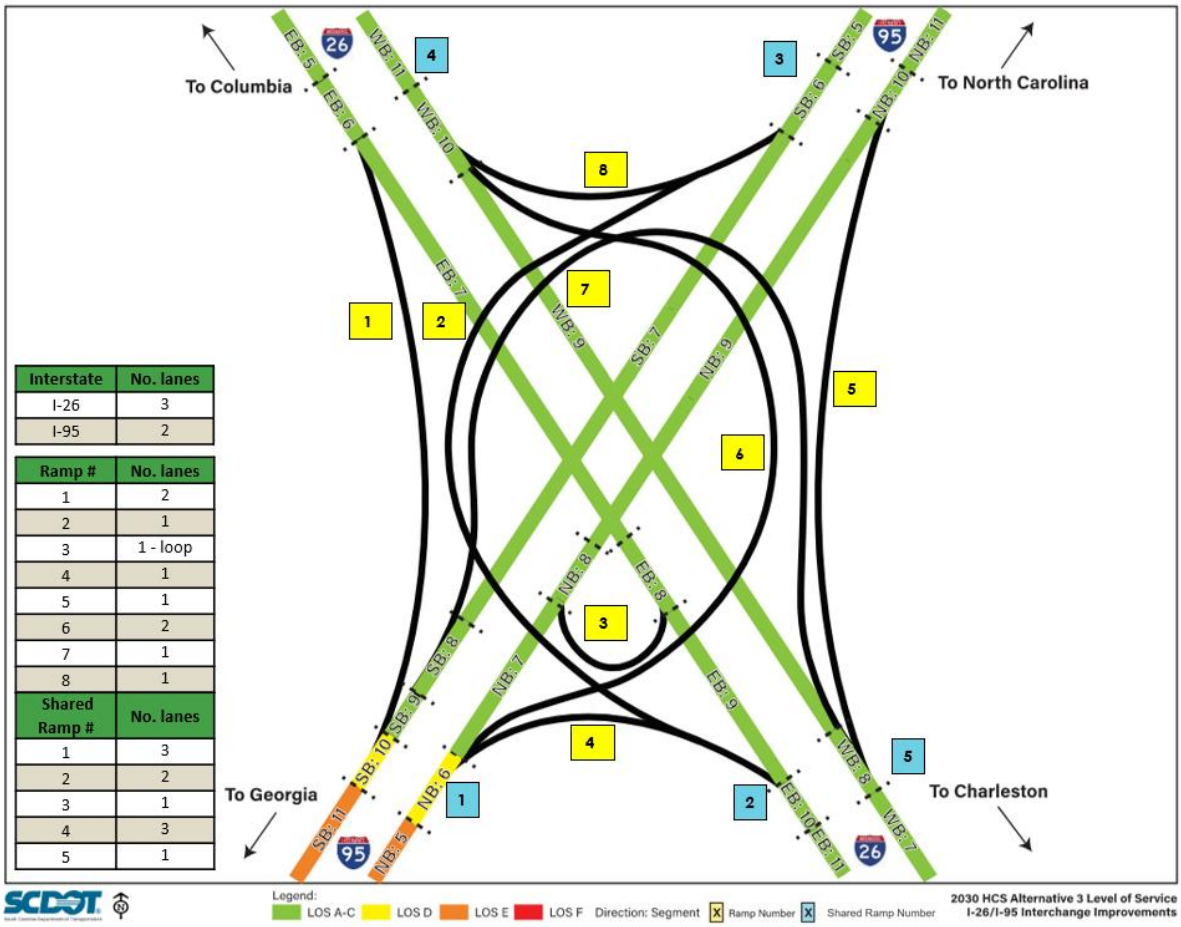
6.3.4 2030 Build Alternative 3

Build Alternative 3 is a Modified Turbine interchange with one loop ramp as detailed in Section 5.3. The results of the 2030 Build Alternative 3 conditions indicate that I-26 eastbound and westbound direction operate at an acceptable LOS. The diverge segment from I-26 eastbound to I-95 southbound improves to LOS B from LOS F in the no build much like alternative 1 and 2. The westbound direction shows an improvement in multiple segments. The oversaturation ramp conditions are also reduced making the facility LOS C.

On I-95 most of the segments are operating at the acceptable LOS threshold. However, the two-lane diverge shows LOS D on the northbound direction. The merge segment on the southbound direction from I-26 eastbound still shows LOS D. The alternative improves the merge sections between the loops for the 2030 traffic volumes. Additional segment density and LOS are shown in the tables below.

A visual representation of the estimated 2030 Build Alternative 3 LOS is shown in **Figure 6.6.**

Figure 6.6: HCS Estimated 2030 Build Alternative 3 LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1
8	1
Shared Ramp #	**No. lanes**
1	3
2	2
3	1
4	3
5	1

Table 6.30 and **Table 6.31** present capacity analysis results for Alternative 3 2030 Build conditions on I-26 eastbound and westbound.

Table 6.30: 2030 Build Alternative 3 HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	2966	24%	C	35.0
2	I-26 Off-Ramp to SC 210	Diverge	3	2966	24%	C	32.8
			1	70	27%		31.8
3	Between SC 210 Ramps	Basic	3	2896	24%	C	33.9
4	I-26 On-Ramp from SC 210	Merge	3	2896	24%	C	34.0
			1	99	14%		28.7
5	Between SC 210 and I-95	Basic	3	2995	23%	C	35.0
6	I-26 Off-Ramp to I-95 SB	Diverge	3	2995	23%	B	34.2
			2	1570	24%		27.9
7	Between I-95 Ramps	Basic	3	1425	22%	A	14.9
8	I-26 Off-Ramp Loop to I-95 NB	Diverge	3	1425	22%	B	16.0
			1	48	17%		17.3
9	Between I-95 Ramps	Basic	3	1377	22%	A	13.8
10	I-26 On-Ramp from I-95 NB	Merge	3	1377	22%	B	25.7
			2	1099	21%		23.7
11	Between I-95 and U.S. 15	Basic	3	2476	22%	B	25.8
12	I-26 Off-Ramp to U.S. 15	Diverge	3	2476	22%	C	25.7
			1	119	28%		28.3
13	Between U.S. 15 Ramps	Basic	3	2357	22%	B	23.9
14	Between U.S. 15 Ramps	Weaving	4	2357	22%	B	19.6
			1	37	11%		
15	Between U.S. 15 Ramps	Basic	3	2326	22%	B	23.4
16	I-26 On-Ramp from U.S. 16	Merge	3	2326	22%	B	26.7
			1	130	20%		23.9
17	East of U.S. 15	Basic	3	2456	21%	B	25.2
					Corridor	C	28.7

Table 6.31: 2030 Build Alternative 3 HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	2482	21%	B	16.0
2	I-26 Off-Ramp to U.S. 15	Diverge	3	2482	21%	B	17.1
			1	41	11%		19.2
3	Between U.S. 15 Ramps	Basic	3	2441	21%	B	15.7
4	Between U.S. 15 Ramps	Weaving	4	2308	38%	B	14.0
			1	133	22%		
5	Between U.S. 15 Ramps	Basic	3	2425	22%	B	15.7
6	I-26 On-Ramp from U.S. 15	Merge	3	2425	22%	B	17.5
			1	61	17%		16.0
7	Between U.S. 15 and I-95	Basic	3	2486	22%	B	16.1
8	I-26 Off-Ramp to I-95	Diverge	3	2486	22%	C	18.4
			1	1099	18%		22.8
9	Between I-95 Ramps	Basic	3	1387	25%	A	9.2
10	I-26 On-Ramp from I-95	Merge	3	1387	25%	C	22.4
			2	1618	29%		21.2
11	Between I-95 & SC 210	Basic	3	3005	27%	C	20.6
12	I-26 Off-Ramp to SC 210	Diverge	3	3005	27%	C	22.8
			1	107	20%		23.8
13	Between SC 210 Ramps	Basic	3	2898	27%	C	19.8
14	I-26 On-Ramp from SC 210	Merge	3	2898	27%	B	22.1
			1	66	19%		19.5
15	West of SC 210	Basic	3	2964	27%	C	20.3
					Corridor	C	17.3

Table 6.32 and **Table 6.33** present capacity analysis results for Alternative 3 2030 Build conditions on I-95 northbound and southbound.

Table 6.32: 2030 Build Alternative 3 HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	3108	26%	E	40.1
2	I-95 Off-Ramp to U.S. 178	Diverge	2	3108	26%	E	38.1
			1	173	23%		38.8
3	Between U.S. 178 Ramps	Basic	2	2935	26%	E	35.6
4	I-95 On-Ramp from U.S. 178	Merge	2	2935	26%	E	40.4
			1	205	39%		33.9
5	Between U.S. 178 and I-26	Basic	2	3140	27%	E	41.8
6	I-95 Off-Ramp to I-26	Diverge	2	3140	27%	D	39.3
			1	1848	29%		28.1
7	Between I-26 Ramps	Basic	2	1292	24%	B	12.8
8	I-95 On-Ramp Loop from I-26 EB	Merge	2	1292	24%	B	14.6
			1	48	17%		11.9
9	Between I-26 Ramps	Basic	2	1340	24%	B	13.3
10	I-95 On-Ramp from I-26 WB	Merge	2	1340	24%	C	23.7
			1	821	18%		21.4
11	Between I-26 and U.S. 176	Basic	2	2161	22%	C	21.4
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2161	22%	C	25.5
			1	101	17%		26.4
13	Between U.S. 176 Ramps	Basic	2	2060	22%	C	20.3
14	I-95 On-Ramp from U.S. 176	Merge	3	2060	22%	C	23.4
			2	45	20%		22.3
15	North of U.S. 176	Basic	2	2105	22%	C	20.8
					Corridor	D	27.4

Table 6.33: 2030 Build Alternative 3 HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2104	22%	C	20.8
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2104	22%	C	24.8
			1	45	19%		25.6
3	Between U.S. 176 Ramps	Basic	2	2059	22%	C	20.3
4	I-95 On-Ramp from U.S. 176	Merge	2	2059	22%	C	23.9
			1	102	17%		21.5
5	Between U.S. 176 and I-26	Basic	2	2161	22%	C	21.4
6	I-95 Off-Ramp to I-26	Diverge	2	2161	22%	C	24.4
			1	869	20%		25.4
7	Between I-26 Ramps	Basic	2	1292	24%	B	12.8
8	I-95 On-Ramp from I-26 WB	Merge	2	1292	24%	B	17.5
			1	278	19%		18.1
9	Between I-26 Ramps	Basic	2	1570	23%	B	15.4
10	I-95 On-Ramp from I-26 EB	Merge	2	1570	23%	D	37.2
			2	1570	24%		28.1
11	Between I-26 and U.S. 178	Basic	2	3140	23%	E	38.9
12	I-95 Off-Ramp to U.S. 178	Diverge	2	3140	23%	E	34.6
			1	184	31%		38.1
13	Between U.S. 176 Ramps	Basic	2	2956	23%	D	34.5
14	I-95 On-Ramp from U.S. 176	Merge	3	2956	23%	D	37.8
			2	193	19%		31.8
15	South of U.S. 178	Basic	2	3149	23%	E	39.1
					Corridor	D	27.5

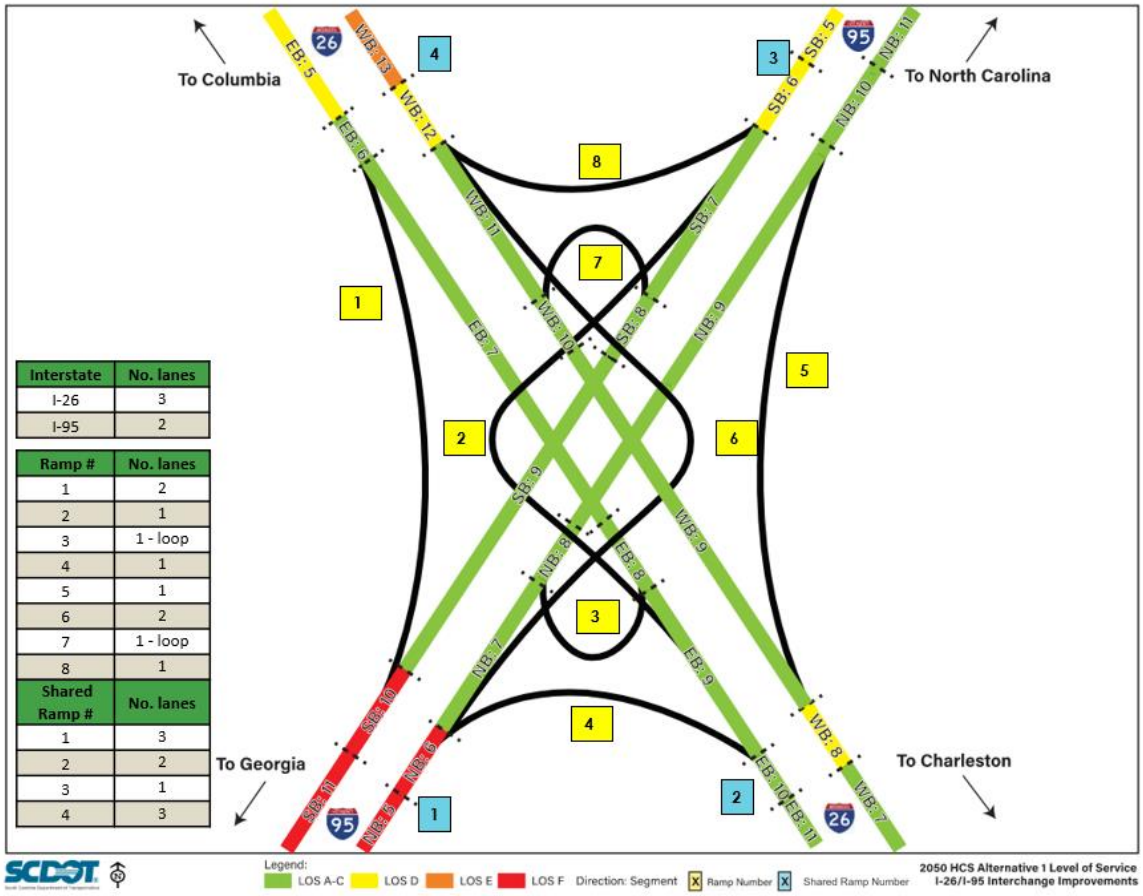
6.3.5 2050 Build Alternative 1

Build Alternative 1 is a Stacked 4-Level Flyover interchange with two loops as detailed in Section 5.1. The results of the 2050 Build Alternative 1 conditions indicate that I-26 eastbound and westbound direction operate at an acceptable LOS except westbound Segment 13. The diverge segment from I-26 eastbound to I-95 southbound improves to LOS C with a two-lane ramp. The westbound direction shows an improvement in multiple sections but the diverge to I-95 northbound and merge segment from I-95 northbound/southbound show LOS D (although widening the ramp to two lanes would result in LOS C).

On I-95 southbound most of the segments are operating at the acceptable LOS. However, the shared ramp serving to split the ramps to both I-26 westbound and I-26 eastbound shows LOS D. South of the interchange, both the two-lane merge segment from I-26 eastbound to I-95 southbound and the I-95 northbound diverge indicate LOS F operations with volumes exceeding capacity at the ramps. Additional segment density and LOS are shown in the tables below.

The estimated 2050 Build Alternative 1 LOS is shown in **Figure 6.7.**

Figure 6.7: HCS Estimated 2050 Build Alternative 1 LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1 - loop
8	1

Shared Ramp #	No. lanes
1	3
2	2
3	1
4	3

Table 6.34 and **Table 6.35** present capacity analysis results for Alternative 1 2050 Build conditions on I-26 eastbound and westbound.

Table 6.34: 2050 Build Alternative 1 HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	4264	29%	D	35.0
2	I-26 Off-Ramp to SC 210	Diverge	3	4264	29%	D	32.8
			1	78	27%		31.8
3	Between SC 210 Ramps	Basic	3	4186	29%	D	33.9
4	I-26 On-Ramp from SC 210	Merge	3	4186	29%	D	34.0
			1	108	14%		28.7
5	Between SC 210 and I-95	Basic	3	4294	28%	D	35.0
6	I-26 Off-Ramp to I-95 SB	Diverge	3	4294	28%	C	34.2
			2	2192	24%		27.9
7	Between I-95 Ramps	Basic	3	2102	33%	B	14.9
8	I-26 Off-Ramp Loop to I-95 NB	Diverge	3	2102	33%	B	16.0
			1	70	17%		17.3
9	Between I-95 Ramps	Basic	3	2032	33%	B	13.8
10	I-26 On-Ramp from I-95 NB	Merge	3	2032	33%	C	25.7
			2	1527	21%		23.7
11	Between I-95 and U.S. 15	Basic	3	3559	28%	C	25.8
12	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	28%	D	25.7
			1	194	28%		28.3
13	Between U.S. 15 Ramps	Basic	3	3365	28%	C	23.9
14	Between U.S. 15 Ramps	Weaving	1	111	21%	B	19.6
			4	3365	28%		
			1	60	11%		
15	Between U.S. 15 Ramps	Basic	3	3425	28%	C	23.4
16	I-26 On-Ramp from U.S. 16	Merge	3	3425	28%	C	26.7
			1	111	21%		23.9
17	East of U.S. 15	Basic	3	3524	11%	C	25.2
Corridor						D	28.7

Table 6.35: 2050 Build Alternative 1 HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	3559	27%	C	25.6
2	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	27%	C	25.6
			1	67	5%		27.1
3	Between U.S. 15 Ramps	Basic	3	3492	27%	C	25.0
4	Between U.S. 15 Ramps	Weaving	1	189	22%	D	22.7
			4	3681	27%		
			1	215	38%		
5	Between U.S. 15 Ramps	Basic	3	3466	28%	C	25.0
6	I-26 On-Ramp from U.S. 15	Merge	3	3466	28%	C	27.3
			1	100	17%		23.9
7	Between U.S. 15 and I-95	Basic	3	3566	28%	C	26.0
8	I-26 Off-Ramp to I-95 NB	Diverge	3	3566	28%	D	27.6
			1	1154	18%		31.4
9	Between I-95 Ramps	Basic	3	2412	33%	B	17.2
10	I-26 Off-Ramp Loop to I-95 SB	Diverge	4	2412	33%	C	19.4
			1	375	19%		20.8
11	Between I-95 Ramps	Basic	3	2037	31%	B	14.3
12	I-26 On-Ramp from I-95	Merge	3	2037	31%	D	38.6
			2	2264	29%		32.5
13	Between I-95 & SC 210	Basic	3	4301	32%	E	37.4
14	I-26 Off-Ramp to SC 210	Diverge	3	4301	32%	D	34.2
			1	117	20%		32.5
15	Between SC 210 Ramps	Basic	3	4184	32%	E	35.5
16	I-26 On-Ramp from SC 210	Merge	3	4184	32%	D	34.9
			1	72	19%		28.9
17	West of SC 210	Basic	3	4256	32%	E	36.6
					Corridor	E	29.8

Note: HCS reports LOS E operations for the overall corridor (reflecting the worst LOS on a specific segment). The corridor is reported at LOS E primarily due to the westbound merge of the ramp from I-95 in Segment 13. Despite the planned widening to six-lanes, queuing and poor operations will occur onto I-26 WB. TransModeler analysis is required to examine merge improvements.

Table 6.36 and **Table 6.37**, present capacity analysis results for Alternative 1 2050 Build conditions on I-95 northbound and southbound.

Table 6.36: 2050 Build Alternative 1 HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	4007	27%	F	56.8
2	I-95 Off-Ramp to U.S. 178	Diverge	2	4007	27%	F	36.8
			1	188	23%		37.5
3	Between U.S. 178 Ramps	Basic	2	3819	27%	F	55.0
4	I-95 On-Ramp from U.S. 178	Merge	2	3819	27%	F	37.4
			1	222	39%		32.2
5	Between U.S. 178 and I-26	Basic	2	4041	27%	F	37.2
6	I-95 Off-Ramp to I-26	Diverge	2	4041	27%	F	39.0
			2	2569	29%		26.1
7	Between I-26 Ramps	Basic	2	1472	25%	A	3.7
8	I-95 On-Ramp Loop from I-26 EB	Merge	2	1472	25%	A	4.8
			1	70	17%		2.4
9	Between I-26 Ramps	Basic	2	1542	25%	A	4.4
10	I-95 On-Ramp from I-26 WB	Merge	2	1542	25%	B	16.9
			1	1154	18%		15.1
11	Between I-26 and U.S. 176	Basic	2	2696	22%	B	15.2
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2696	22%	B	18.5
			1	108	17%		19.6
13	Between U.S. 176 Ramps	Basic	2	2588	22%	B	14.2
14	I-95 On-Ramp from U.S. 176	Merge	3	2588	22%	B	16.6
			2	49	20%		16.1
15	North of U.S. 176	Basic	2	2637	22%	B	14.7
					Corridor	F	23.5

Note: HCS reports LOS F operations for the overall corridor with all I-95 northbound segments from the southern model limit to the I-26 northbound diverge weave operating at LOS F. TransModeler analysis is required. Key issue is inadequate capacity on I-95 south of the I-26 interchange in 2050.

Table 6.37: 2050 Build Alternative 1 HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2634	22%	D	28.0
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2634	22%	D	31.1
			1	49	19%		31.7
3	Between U.S. 176 Ramps	Basic	2	2585	22%	D	27.2
4	I-95 On-Ramp from U.S. 176	Merge	2	2585	22%	C	30.8
			1	111	17%		27.0
5	Between U.S. 176 and I-26	Basic	2	2696	22%	D	28.9
6	I-95 Off-Ramp to I-26	Diverge	2	2696	22%	D	31.0
			1	1222	20%		31.4
7	Between I-26 Ramps	Basic	2	1474	24%	B	14.5
8	I-95 On-Ramp Loop from I-26 WB	Merge	2	1474	24%	B	20.2
			1	375	19%		16.8
9	Between I-26 Ramps	Basic	2	1849	23%	C	18.1
10	I-95 On-Ramp from I-26 EB	Merge	2	1849	23%	F	39.9
			2	2192	24%		29.1
11	Between I-26 and U.S. 178	Basic	2	4041	23%	F	43.3
12	I-95 Off-Ramp to U.S. 178	Diverge	2	4041	23%	F	39.5
			1	200	31%		39.9
13	Between U.S. 176 Ramps	Basic	2	3841	23%	F	37.5
14	I-95 On-Ramp from U.S. 176	Merge	3	3841	23%	F	41.2
			2	210	19%		33.3
15	South of U.S. 178	Basic	2	4051	23%	F	43.0
					Corridor	F	32.7

Note: HCS reports LOS F operations for the I-95 southbound corridor with an unacceptable LOS F at the Segment 10 merge and LOS E and F operations on I-95 to the south. No improvements are currently planned for I-95 south of I-26. TransModeler analysis is needed to examine potential impacts to the I-26 at I-95 interchange.

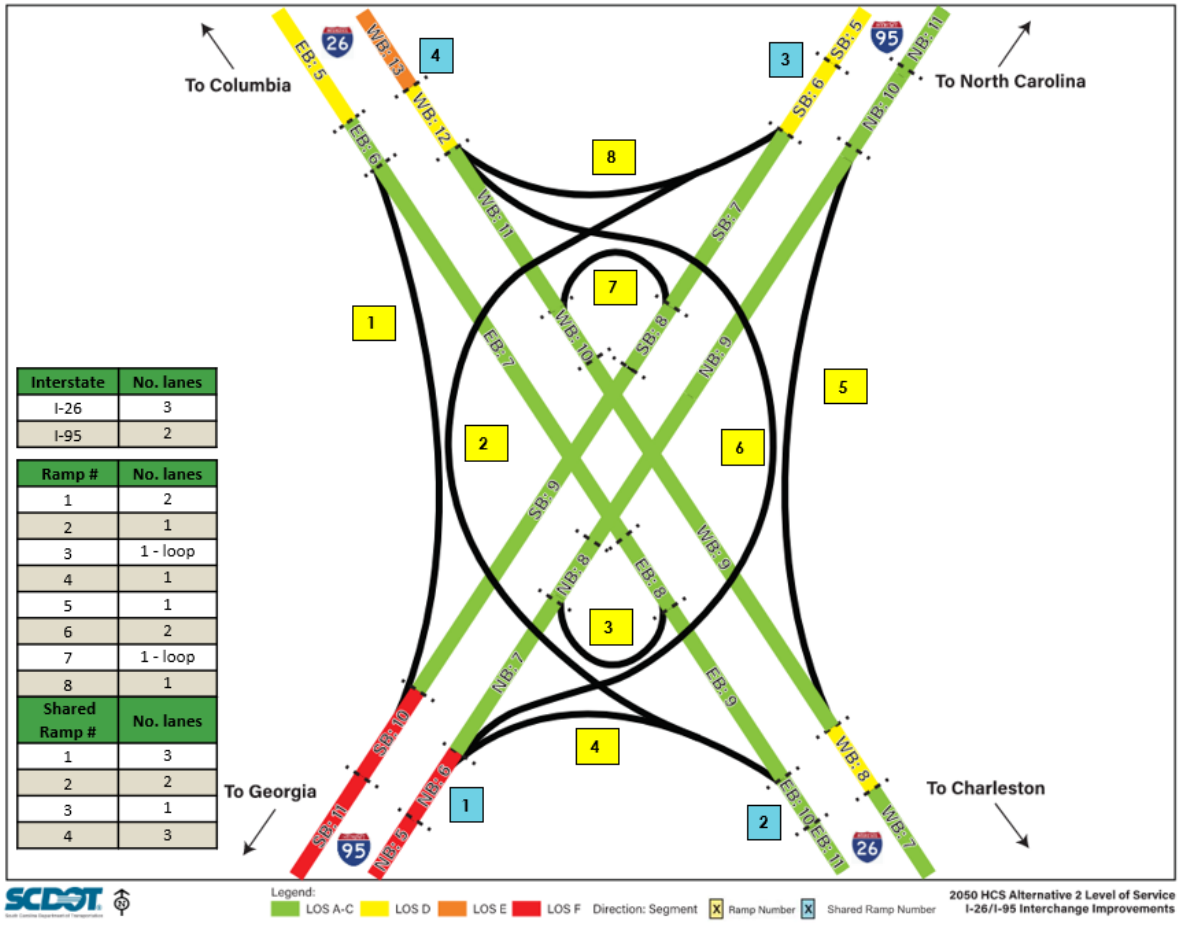
6.3.6 2050 Build Alternative 2

Build Alternative 2 is a Modified Turbine interchange with two loops as detailed in Section 5.2. The results of the 2050 Build Alternative 2 conditions indicate that I-26 eastbound and westbound direction operate at an acceptable LOS except westbound Segment 13. Like alternative 1, the diverge segment from I-26 eastbound to I-95 southbound (Segment EB 6) improves to LOS C. The westbound direction shows an improvement in multiple sections but the diverge to I-95 northbound and merge segment from I-95 northbound/southbound show LOS D. A more detailed report is shown in the tables below.

On I-95 southbound most of the segments are operating at an acceptable LOS. However, the shared ramp on I-95 southbound shows LOS D. The merge segment from I-26 eastbound and diverge segment to the westbound direction show LOS F with volume exceeding capacity at the ramps. Additional segment density and LOS are shown in the tables below.

A visual representation of the estimated 2050 Build Alternative 2 LOS is shown in **Figure 6.8.**

Figure 6.8: HCS Estimated 2050 Build Alternative 2 LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1 - loop
8	1
Shared Ramp #	**No. lanes**
1	3
2	2
3	1
4	3

Table 6.38 and **Table 6.39** present capacity analysis results for Alternative 2 2050 Build conditions on I-26 eastbound and westbound.

Table 6.38: 2050 Build Alternative 2 HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	4264	29%	D	35.0
2	I-26 Off-Ramp to SC 210	Diverge	3	4264	29%	D	32.8
			1	78	27%		31.8
3	Between SC 210 Ramps	Basic	3	4186	29%	D	33.9
4	I-26 On-Ramp from SC 210	Merge	3	4186	29%	D	34.0
			1	108	14%		28.7
5	Between SC 210 and I-95	Basic	3	4294	28%	D	35.0
6	I-26 EB Off-Ramp to I-95 SB	Diverge	3	4294	28%	C	34.2
			2	2192	24%		27.9
7	Between I-95 Ramps	Basic	3	2102	33%	B	14.9
8	I-26 Off-Ramp Loop to I-95	Diverge	3	2102	33%	B	16.0
			1	70	17%		17.3
9	Between I-95 Ramps	Basic	3	2032	33%	B	13.8
10	I-26 On-Ramp from I-95	Merge	3	2032	33%	C	25.7
			2	1527	21%		23.7
11	Between I-95 and U.S. 15	Basic	3	3559	28%	C	25.8
12	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	28%	D	25.7
			1	194	28%		28.3
13	Between U.S. 15 Ramps	Basic	3	3365	28%	C	23.9
14	Between U.S. 15 Ramps	Weaving	4	3365	28%	B	19.6
			1	60	11%		
15	Between U.S. 15 Ramps	Basic	3	3425	28%	C	23.4
16	I-26 On-Ramp from U.S. 16	Merge	3	3425	28%	C	26.7
			1	111	21%		23.9
17	East of U.S. 15	Basic	3	3314	11%	C	25.2
					Corridor	D	28.7

Table 6.39: 2050 Build Alternative 2 HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	3559	27%	C	25.5
2	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	27%	C	25.4
			1	67	5%		27.1
3	Between U.S. 15 Ramps	Basic	3	3492	27%	C	24.9
4	Between U.S. 15 Loops	Weaving	1	215	22%	D	22.5
			4	3277	27%		
			1	189	38%		
5	Between U.S. 15 Ramps	Basic	3	3466	28%	C	24.9
6	I-26 On-Ramp from U.S. 15	Merge	3	3466	28%	C	27.1
			1	100	17%		23.9
7	Between U.S. 15 and I-95	Basic	3	3566	28%	C	25.8
8	I-26 WB Off-Ramp to I-95 NB	Diverge	3	3566	28%	D	29.4
			1	1154	18%		30.5
9	Between I-95 Ramps	Basic	3	2412	33%	B	17.0
10	I-26 Off-Ramp Loop to I-95 SB	Diverge	3	2412	33%	C	19.3
			1	375	19%		20.8
11	Between I-95 Ramps	Basic	3	2037	31%	B	14.2
12	I-26 On-Ramp from I-95	Merge	3	2037	31%	D	38.3
			2	2264	29%		32.5
13	Between I-95 & SC 210	Basic	3	4301	32%	E	37.2
14	I-26 Off-Ramp to SC 210	Diverge	3	4301	32%	D	32.2
			1	117	20%		32.5
15	Between SC 210 Ramps	Basic	3	4184	32%	E	35..3
16	I-26 On-Ramp from SC 210	Merge	3	4184	32%	D	34.6
			1	72	19%		28.9
17	West of SC 210	Basic	3	4256	32%	E	36.5
					Corridor	E	29.8

Note: HCS reports LOS E operations for the overall corridor (reflecting the worst LOS on a specific segment). The corridor is reported at LOS E primarily due to the westbound merge of the ramp from I-95 in Segment 13. Despite the planned widening to six-lanes, queuing and poor operations will occur onto I-26 WB. TransModeler analysis is required to examine merge improvements.

Table 6.40 and **Table 6.41** present capacity analysis results for Alternative 2 2050 Build conditions on I-95 northbound and southbound.

Table 6.40: 2050 Build Alternative 2 HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	4007	27%	F	56.8
2	I-95 Off-Ramp to U.S. 178	Diverge	2	4007	27%	F	36.8
			1	188	23%		37.5
3	Between U.S. 178 Ramps	Basic	2	3819	27%	F	55.0
4	I-95 On-Ramp from U.S. 178	Merge	2	3819	27%	F	37.4
			1	222	39%		32.2
5	Between U.S. 178 and I-26	Basic	2	4041	27%	F	37.2
6	I-95 Off-Ramp to I-26	Diverge	2	4041	27%	F	38.9
			2	2569	28%		26.1
7	Between I-26 Ramps	Basic	2	1472	24%	A	3.9
8	I-95 On-Ramp Loop from I-26 EB	Merge	2	1472	24%	A	5.0
			1	70	17%		2.7
9	Between I-26 Ramps	Basic	2	1542	24%	A	4.6
10	I-95 On-Ramp from I-26 WB	Merge	2	1542	24%	B	17.2
			1	1154	18%		15.3
11	Between I-26 and U.S. 176	Basic	2	2696	22%	B	15.4
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2696	22%	B	18.8
			1	108	17%		19.9
13	Between U.S. 176 Ramps	Basic	2	2588	22%	B	14.5
14	I-95 On-Ramp from U.S. 176	Merge	3	2588	22%	B	16.8
			2	49	20%		16.4
15	North of U.S. 176	Basic	2	2637	22%	B	14.9
					Corridor	F*	23.6

Note: HCS reports LOS F operations for the overall corridor with all I-95 northbound segments from the southern model limit to the I-26 northbound diverge weave operating at LOS F. TransModeler analysis is required. Key issue is inadequate capacity on I-95 south of the I-26 interchange in 2050.

Table 6.41: 2050 Build Alternative 2 HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2634	27%	D	28.0
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2634	27%	D	31.0
			1	49	23%		31.7
3	Between U.S. 176 Ramps	Basic	2	2585	27%	D	27.2
4	I-95 On-Ramp from U.S. 176	Merge	2	2585	27%	C	30.8
			1	111	39%		27.0
5	Between U.S. 176 and I-26	Basic	2	2696	27%	D	28.9
6	I-95 Off-Ramp to I-26	Diverge	2	2696	27%	D	31.0
			1	1222	28%		31.4
7	Between I-26 Ramps	Basic	2	1474	27%	B	14.5
8	I-95 On-Ramp Loop from I-26 WB	Merge	2	1474	27%	B	20.2
			1	375	29%		16.8
9	Between I-26 Ramps	Basic	2	1849	25%	B	18.1
10	I-95 On-Ramp from I-26 EB	Merge	2	1849	25%	F	39.9
			2	2192	18%		29.1
11	Between I-26 and U.S. 178	Basic	2	4041	22%	F	43.3
12	I-95 Off-Ramp to U.S. 178	Diverge	2	4041	22%	F	39.5
			1	200	17%		39.9
13	Between U.S. 176 Ramps	Basic	2	3841	22%	F	37.5
14	I-95 On-Ramp from U.S. 176	Merge	3	3841	22%	F	41.2
			2	210	20%		33.3
15	South of U.S. 178	Basic	2	4051	22%	F	43.0
					Corridor	F*	32.7

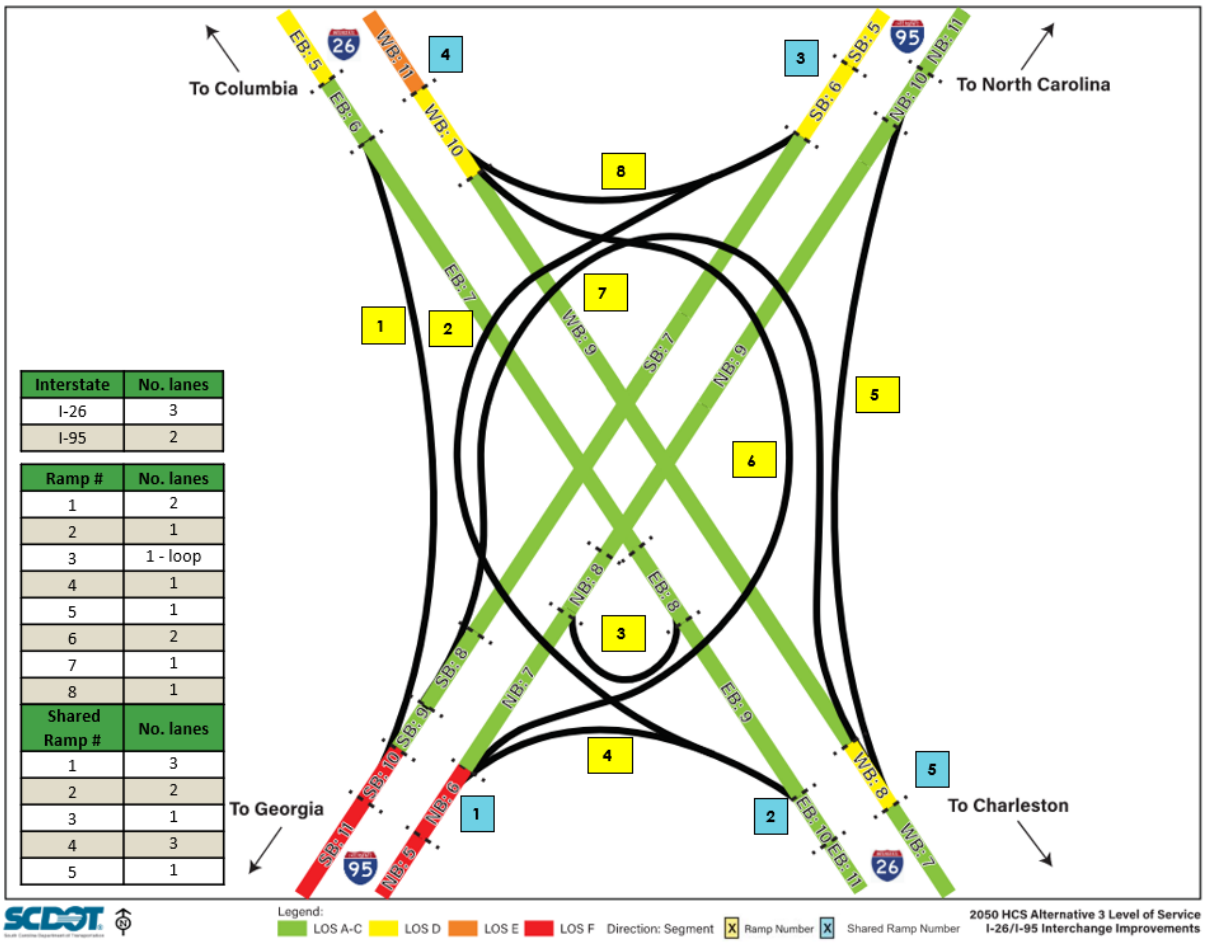
Note: HCS reports LOS F operations for the I-95 southbound corridor with an unacceptable LOS F at the Segment 10 merge and LOS E and F operations on I-95 to the south. No improvements are currently planned for I-95 south of I-26. TransModeler analysis is needed to examine potential impacts to the I-26 at I-95 interchange.

6.3.7 2050 Build Alternative 3

Build Alternative 3 is a Modified Turbine interchange with one loop ramp as detailed in Section 5.3. The results of the 2050 Build Alternative 3 conditions indicate that I-26 eastbound and westbound direction operate at an acceptable LOS except westbound Segment 13. The diverge segment from I-26 eastbound to I-95 southbound (Segment EB 6) improves to LOS C in this alternative. The westbound direction shows an improvement in multiple sections but the diverge to I-95 northbound and merge segment from I-95 northbound/southbound show LOS D. A more detailed report is shown in the tables below.

On I-95 southbound most of the segments are operating at an acceptable LOS. However, the shared ramp shows LOS D. The merge segment from I-26 eastbound and diverge segment to the westbound direction show LOS F with volume exceeding capacity at the ramps. Additional segment density and LOS are shown in the tables below. A visual representation of the estimated 2050 Build Alternative 3 LOS is shown in **Figure 6.9.**

Figure 6.9: HCS Estimated 2050 Build Alternative 3 LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1
8	1

Shared Ramp #	No. lanes
1	3
2	2
3	1
4	3
5	1

Table 6.42 and **Table 6.43** present capacity analysis results for Alternative 3 2050 Build conditions on I-26 eastbound and westbound.

Table 6.42: 2050 Build Alternative 3 HCM Capacity Analysis Results (I-26 Eastbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	West of SC 210	Basic	3	4264	29%	D	35.0
2	I-26 Off-Ramp to SC 210	Diverge	3	4264	29%	D	32.8
			1	78	27%		31.8
3	Between SC 210 Ramps	Basic	3	4186	29%	D	33.9
4	I-26 On-Ramp from SC 210	Merge	3	4186	29%	D	34.0
			1	108	14%		28.7
5	Between SC 210 and I-95	Basic	3	4294	28%	D	35.0
6	I-26 Off-Ramp to I-95 SB	Diverge	3	4294	28%	C	34.2
			2	2192	24%		27.9
7	Between I-95 Ramps	Basic	3	2102	33%	B	14.9
8	I-26 Off-Ramp Loop to I-95 NB	Diverge	3	2102	33%	B	16.0
			1	70	17%		17.3
9	Between I-95 Ramps	Basic	3	2032	33%	B	13.8
10	I-26 On-Ramp from I-95 NB	Merge	3	2032	33%	C	25.7
			2	1527	21%		23.7
11	Between I-95 and U.S. 15	Basic	3	3559	28%	C	25.8
12	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	28%	D	25.7
			1	194	28%		28.3
13	Between U.S. 15 Ramps	Basic	3	3365	28%	C	23.9
14	Between U.S. 15 Ramps	Weaving	4	3365	28%	B	19.6
			1	60	11%		
15	Between U.S. 15 Ramps	Basic	3	3425	28%	C	23.4
16	I-26 On-Ramp from U.S. 16	Merge	3	3425	28%	C	26.7
			1	111	21%		23.9
17	East of U.S. 15	Basic	3	3314	11%	C	25.2
					Corridor	D	28.7

Table 6.43: 2050 Build Alternative 3 HCM Capacity Analysis Results (I-26 Westbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	East of U.S. 15	Basic	3	3559	27%	C	25.5
2	I-26 Off-Ramp to U.S. 15	Diverge	3	3559	27%	C	25.9
			1	67	5%		27.1
3	Between U.S. 15 Ramps	Basic	3	3492	27%	C	24.9
4	Between U.S. 15 Ramps	Weaving	4	3277	27%	C	22.5
			1	189	38%		
5	Between U.S. 15 Ramps	Basic	3	3466	28%	C	24.9
6	I-26 On-Ramp from U.S. 15	Merge	3	3466	28%	C	27.1
			1	100	17%		23.9
7	Between U.S. 15 and I-95	Basic	3	3566	28%	C	25.8
8	I-26 Off-Ramp to I-95	Diverge	3	3566	28%	D	28.0
			1	1529	18%		31.7
9	Between I-95 Ramps	Basic	3	2037	35%	B	14.6
10	I-26 On-Ramp from I-95	Merge	3	2037	35%	D	39.1
			2	2264	29%		32.8
11	Between I-95 & SC 210	Basic	3	4301	32%	E	37.2
12	I-26 Off-Ramp to SC 210	Diverge	3	4301	32%	D	34.0
			1	117	20%		32.5
13	Between SC 210 Ramps	Basic	3	4184	32%	E	35.3
14	I-26 On-Ramp from SC 210	Merge	3	4184	32%	D	34.6
			1	72	19%		28.9
15	West of SC 210	Basic	3	4256	32%	E	36.5
					Corridor	E	29.3

Note: HCS reports LOS E operations for the overall corridor (reflecting the worst LOS on a specific segment). The corridor is reported at LOS E primarily due to the westbound merge of the ramp from I-95 in Segment 13. Despite the planned widening to six-lanes, queuing and poor operations will occur onto I-26 WB. TransModeler analysis is required to examine merge improvements.

Table 6.44 and **Table 6.45**, present capacity analysis results for Alternative 3 2050 Build conditions on I-95 northbound and southbound.

Table 6.44: 2050 Build Alternative 3 HCM Capacity Analysis Results (I-95 Northbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	South of U.S. 178	Basic	2	4007	27%	F	56.8
2	I-95 Off-Ramp to U.S. 178	Diverge	2	4007	27%	F	36.8
			1	188	23%		37.5
3	Between U.S. 178 Ramps	Basic	2	3819	27%	F	55.0
4	I-95 On-Ramp from U.S. 178	Merge	2	3819	27%	F	37.4
			1	222	39%		32.2
5	Between U.S. 178 and I-26	Basic	2	4041	27%	F	37.2
6	I-95 Off-Ramp to I-26	Diverge	2	4041	27%	F	38.9
			1	2569	28%		26.1
7	Between I-26 Ramps	Basic	2	1472	24%	A	3.9
8	I-95 On-Ramp Loop from I-26 EB	Merge	2	1472	24%	A	5.0
			1	70	17%		2.7
9	Between I-26 Ramps	Basic	2	1542	24%	A	4.6
10	I-95 On-Ramp from I-26 WB	Merge	2	1542	24%	B	17.2
			1	1154	18%		15.3
11	Between I-26 and U.S. 176	Basic	2	2696	22%	B	15.4
12	I-95 Off-Ramp to U.S. 176	Diverge	2	2696	22%	C	18.8
			1	108	17%		19.9
13	Between U.S. 176 Ramps	Basic	2	2588	22%	B	14.5
14	I-95 On-Ramp from U.S. 176	Merge	3	2588	22%	B	16.8
			2	49	20%		16.4
15	North of U.S. 176	Basic	2	2637	22%	B	14.9
					Corridor	F*	23.6

Note: HCS reports LOS F operations for the overall corridor with all I-95 northbound segments from the southern model limit to the I-26 northbound diverge weave operating at LOS F. TransModeler analysis is required. Key issue is inadequate capacity on I-95 south of the I-26 interchange in 2050.

Table 6.45: 2050 Build Alternative 3 HCM Capacity Analysis Results (I-95 Southbound)

Segment No.	Segment Name	Type	# of Lanes	Volume (pc/hr)	HV%	LOS	Density (pc/mi/ln)
1	North of U.S. 176	Basic	2	2634	27%	D	28.0
2	I-95 Off-Ramp to U.S. 176	Diverge	2	2634	27%	D	31.1
			1	49	23%		31.7
3	Between U.S. 176 Ramps	Basic	2	2585	27%	D	27.2
4	I-95 On-Ramp from U.S. 176	Merge	2	2585	27%	C	30.8
			1	111	39%		27.0
5	Between U.S. 176 and I-26	Basic	2	2696	27%	D	28.9
6	I-95 Off-Ramp to I-26	Diverge	2	2696	27%	D	31.0
			1	1222	28%		31.4
7	Between I-26 Ramps	Basic	2	1474	27%	B	14.5
8	I-95 On-Ramp from I-26 WB	Merge	2	1474	27%	C	20.6
			1	375	29%		20.9
9	Between I-26 Ramps	Basic	2	1849	25%	C	18.1
10	I-95 On-Ramp from I-26 EB	Merge	2	1849	25%	F	39.9
			2	2192	18%		29.1
11	Between I-26 and U.S. 178	Basic	2	4041	22%	F	43.3
12	I-95 Off-Ramp to U.S. 178	Diverge	2	4041	22%	F	36.3
			1	200	17%		39.9
13	Between U.S. 176 Ramps	Basic	2	3841	22%	F	37.5
14	I-95 On-Ramp from U.S. 176	Merge	3	3841	22%	F	40.6
			2	210	20%		33.3
15	South of U.S. 178	Basic	2	4051	22%	F	43.0
					Corridor	F*	32.9

Note: HCS reports LOS F operations for the I-95 southbound corridor with an unacceptable LOS F at the Segment 10 merge and LOS E and F operations on I-95 to the south. No improvements are currently planned for I-95 south of I-26. TransModeler analysis is needed to examine potential impacts to the I-26 at I-95 interchange.

7. INITIAL TRANSMODELER ANALYSIS

Macroscopic tools such as HCS are limited in their ability to model congested corridors where queueing impacts performance, so TransModeler was also used to analyze future conditions in the study corridor. Microscopic models like TransModeler simulate dynamic conditions and include additional parameters such as driver behavior and can be a better indicator of field conditions.

7.1 Calibration and Lane Adjustments for Initial Testing

The 2022 existing conditions TransModeler model was calibrated to documented volume and travel speed conditions using FHWA criteria. This model is intended to establish baseline traffic conditions, in the form of quantifiable performance measures for both the existing and future year No Build conditions. **Table 7.1** shows a summary of the 2022 existing conditions model meeting all targets and confirms calibration. The calibration is described in detail in the TransModeler calibration memo in **Appendix F.**

Table 7.1: 2022 Existing Conditions Calibration Criteria

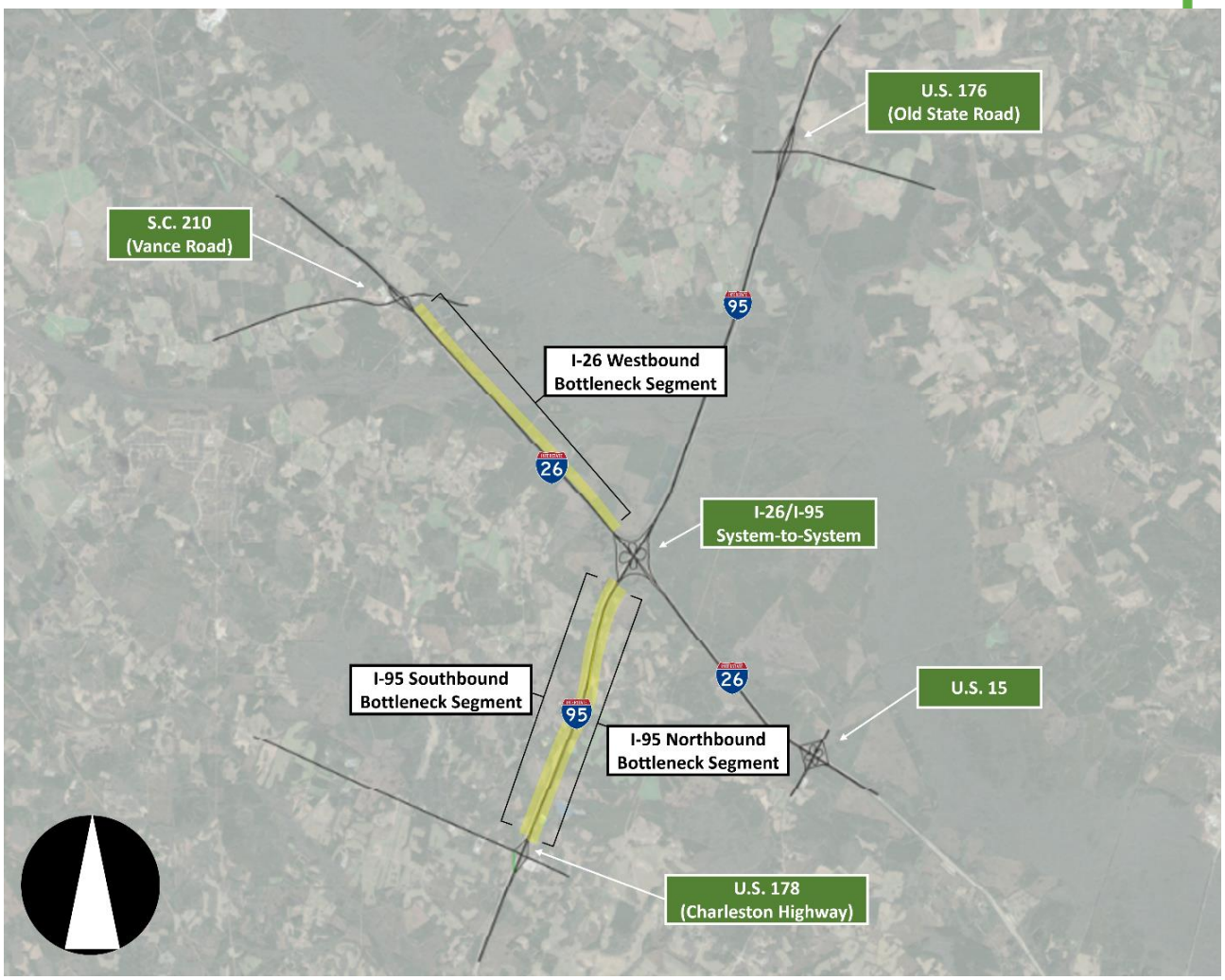
FHWA Calibration Criteria	Metric	Met?
Sum of all link flows	1%	Met
Within 15%, for 700 veh/h < Flow < 2700 veh/h	100%	Met
Within 100 veh/h, for Flow < 700 veh/h	100%	Met
Within 400 veh/h, for Flow > 2700 veh/h	100%	Met
GEH Statistic < 5 for Individual Link Flows	100%	Met
Travel speeds with a difference of 15% for greater than 85% of the cases	100%	Met

7.1.1 I-26 and I-95 Mainline Capacity Observations

The existing model scenario assumes existing geometry. Future year scenarios consist of one additional lane in each direction of I-26. Initial analysis of 2050 conditions with one additional lane in each direction of I-26 indicated flow constraints at three locations adjacent to the I-26 at I-95 system interchange. **Figure 7.1** illustrates the constraints identified at three bottleneck locations.

- I-95 Southbound – South of the I-26 at I-95 system interchange (north of U.S. 178)
- I-95 Northbound - South of the I-26 at I-95 system interchange (north of U.S. 178)
- I-26 Westbound – West of the I-26 at I-95 system interchange (east of S.C. 210) (even with the planned 6-lane widening of I-26)

Figure 7.1: I-26 and I-95 Mainline Bottleneck Segments in TransModeler



This impacts the ability to evaluate the proposed interchange alternatives because the full estimated volume is not represented. For this reason, interstate improvements were added to the model to allow for a more accurate and unconstrained analysis of the interchange alternatives. The flow constraints and related model adjustments are described in more detail below. They are illustrated using Alternative 2.

Figure 7.2 shows congestion on the I-26 eastbound to I-95 southbound ramp. This congestion queues on I-26 eastbound to the S.C. 210 interchange, due to the bottleneck on I-95 southbound south of the system interchange.

Figure 7.2: TransModeler Alternative 2 (No Additional Widening)

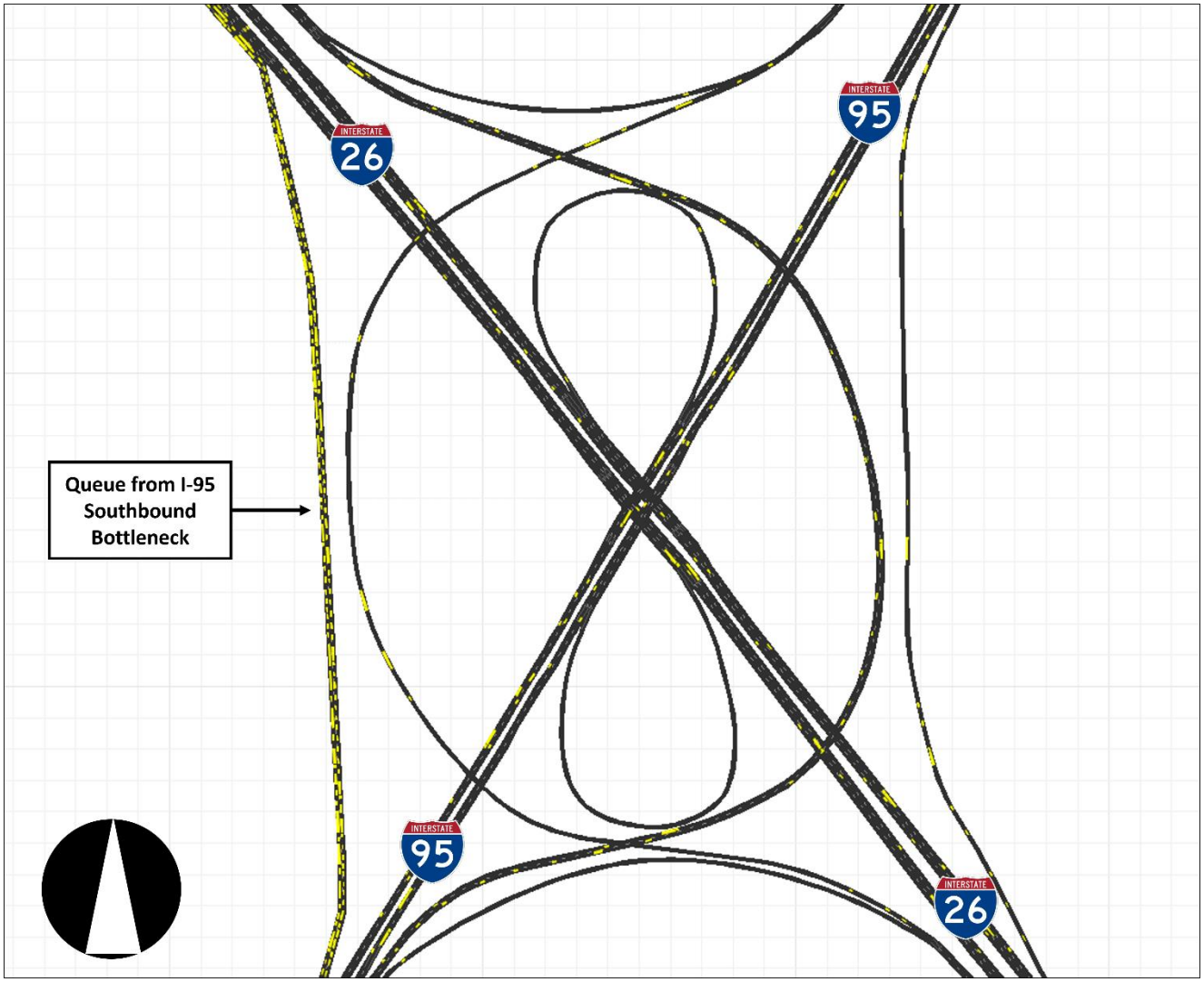


Figure 7.3 shows the bottlenecks on I-95 northbound and southbound south of the system interchange. To alleviate this congestion, auxiliary lanes were added to create a 6-lane section between U.S. 178 and the system interchange.

Figure 7.3: TransModeler Alternative 2 (No Additional Widening)

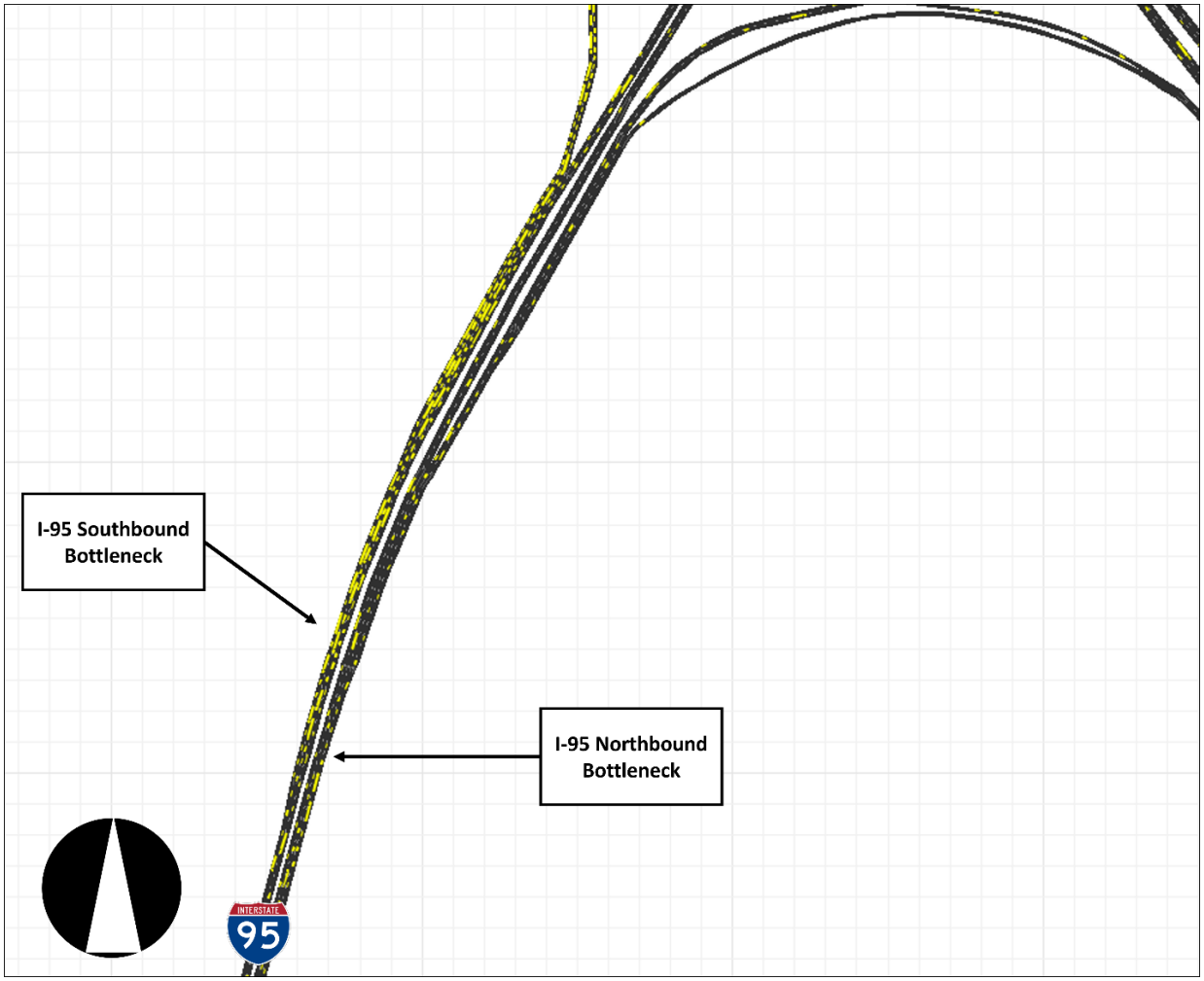


Figure 7.4 shows that once auxiliary lanes were added to the I-95 southbound segment, the volume was able to flow more freely, which then highlighted congestion on the I-95 northbound to I-26 westbound fly-over ramp. This congestion queues on I-26 westbound from the S.C. 210 interchange, due to the bottleneck on I-26 westbound west of the system interchange. **Figure 7.5** shows the I-26 westbound bottleneck west of the system interchange. To alleviate the I-26 westbound congestion, an auxiliary lane was added in the westbound direction only to create a 7-lane section between S.C. 210 and the system interchange.

Figure 7.4: TransModeler Alternative 2 (I-95 Additional Widening)

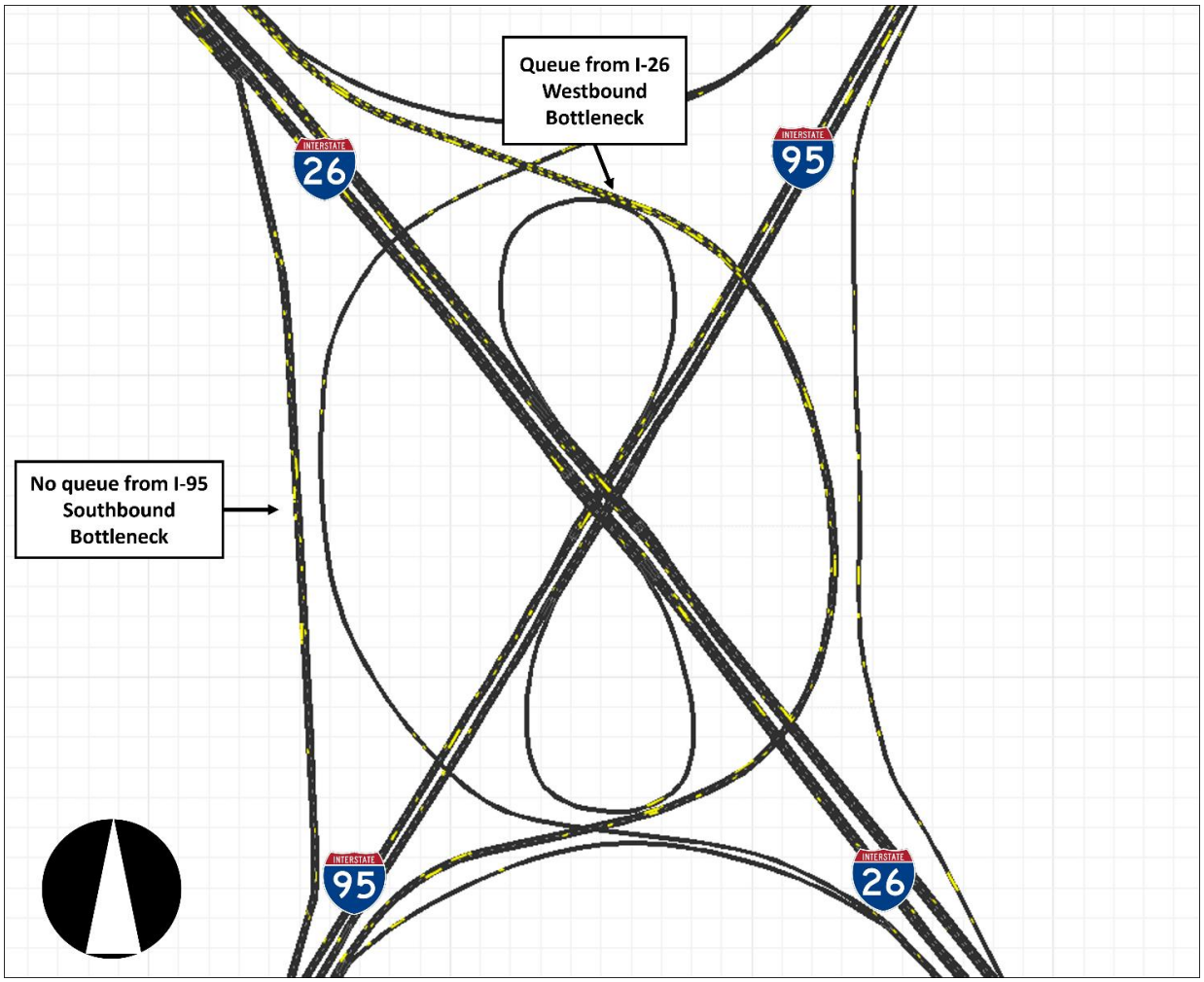


Figure 7.5: TransModeler Alternative 2 (I-26 Additional Widening)

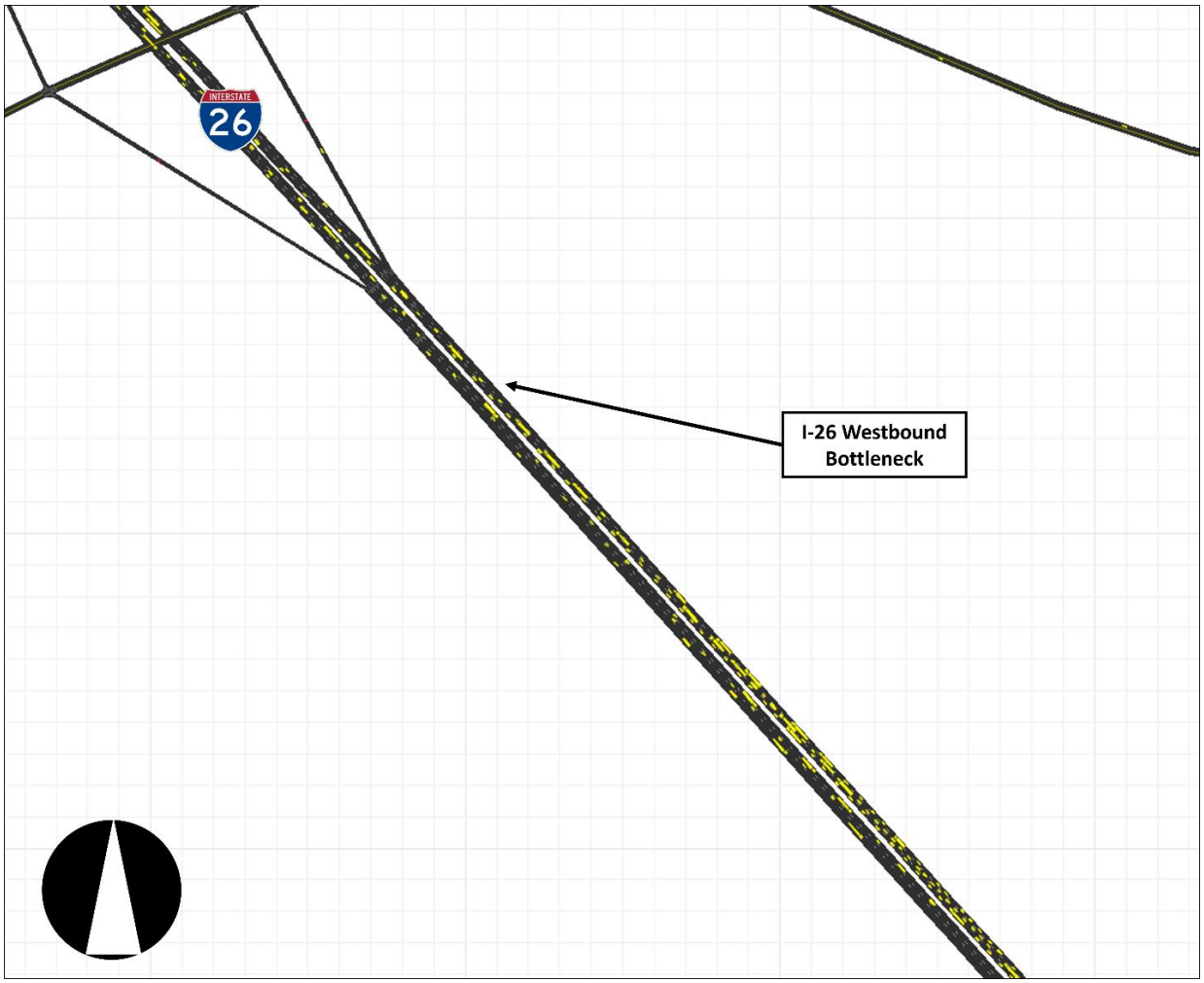
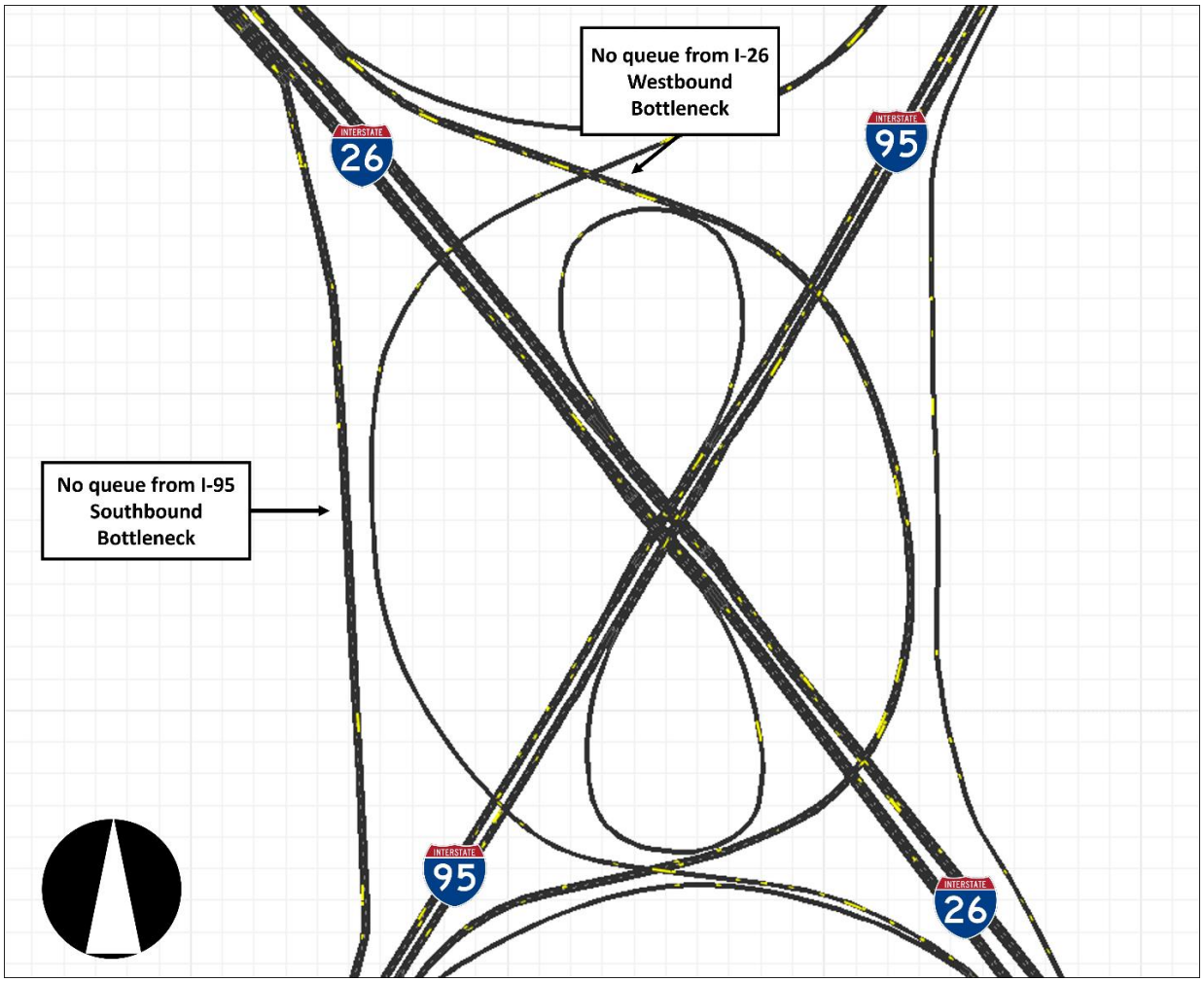


Figure 7.6 shows that, adding auxiliary lanes to these specific segments alleviates congestion so that entering and exiting volume can flow freely through the system interchange. This ensures the model results will reflect anticipated interchange operations if no downstream queueing backs into the interchanges. These widening tests are only intended for modeling and analysis purposes – widening on I-95 to the south is not being proposed as part of this study. Instead, the objective is to identify a preferred merge treatment.

Figure 7.6: TransModeler Alternative 2 (I-95 and I-26 Additional Widening)



7.1.2 TransModeler Analysis Assumptions for Initial Analysis with Additional Freeway Lanes

Based on this process, it was determined that the baseline comparison for the evaluation of alternatives would include theoretical capacity on I-95 south of the interchange (in addition to the planned future widening of I-26 to six-lanes). Therefore, the Section 7.4 TransModeler analysis of alternatives included the following assumptions as part of the analysis to determine the preferred merge treatments onto both I-95 southbound and I-26 westbound. These merge treatments movements need additional analysis due to poor LOS results from HCS (Section 6.2) as well as queuing identified in TransModeler that extends back from the key merges into the I-26 at I-95 interchange resulting in congested interchange operations and ramp queuing caused by downstream merges.

- **I-95 Southbound – Auxiliary lane from I-26 Eastbound On-Ramp to U.S. 178 Off-Ramp.** Figure 7.2 illustrates the ramp queuing issue that this modeling assumption is intended to address. Figure 7.3 illustrates that the cause of the ramp queuing is not the interchange itself but the two-lane section on I-95. By providing an extra southbound lane in the TransModeler analysis, an iterative analysis of options can occur to evaluate long term impacts and to identify an optimum design if widening does not occur. The assumed lane also allows for a test of whether the interchange operates effectively if or when the I-95 bottleneck is addressed.

- **I-95 Northbound - Auxiliary lane from U.S. 178 On-Ramp to I-26 Eastbound Off-Ramp.** The purpose of this extra lane is to test the true demand on the interchange ramps, merges and diverges with all I-95 northbound traffic being able to reach the interchange without metering of northbound flow. Figure 7.3 illustrates the northbound bottleneck on I-95 that restricts traffic volumes from reaching the I-26 at I-95 interchange. A review of the model simulations illustrates the effect of testing the model with constrained or metered traffic flow.

  – Figure 7.2 shows no congestion on the proposed flyover from I-95 northbound to I-26 westbound. The “uncongested” operations, however, actually reflect the processing of lower traffic volumes due to the I-95 northbound bottleneck.

  – Figure 7.4 illustrates ramp queuing on the same proposed flyover if the I-95 northbound bottleneck were not occurring. By testing the theoretical scenario with an extra northbound lane on I-95, the inadequacy of the I-26 westbound merge is identified. Adding the extra lane from a modeling perspective assures that the interchange is tested with the identified design volumes.

- **I-26 Westbound – Auxiliary lane from I-95 Southbound On-Ramp to S.C. 210 Off-Ramp.** As identified in the I-26 northbound discussion, queuing is shown at this merge even with the proposed widening to six lanes. By testing an additional I-26 westbound lane an iterative analysis can be conducted on shorter merges to identify the length of merge needed to best serve the interchange without overdesigning the corridor.

The TransModeler analysis will focus on identifying a preferred alternative from a traffic perspective. Chapter 8 will then include an iterative analysis of the key merge items noted above to determine a preferred merging treatment for I-95 southbound and I-26 westbound. Based on the initial TransModeler analysis (Chapter 7) and the refined merge analysis (Chapter 8), a preferred alternative will be identified for analysis as part of the IMR comparison of the No Build and preferred alternative. This final TransModeler analysis for the IMR comparison is presented in Chapter 9.

7.1.3 Corridor Freeway Analysis Summary with Additional Freeway Lanes

The following section presents the peak hour TransModeler corridor analysis for 2022 existing conditions, and 2030 and 2050 under No Build and Build conditions. Future year no build and build results reflect the future widening of I-26 to 6-lanes and the three widening assumptions introduced in the previous section:

Note that the widening of I-95 is included in this comparison analysis to test the interchange itself assuming that there are no restrictions on either the I-26 or I-95 approaches or departures. Applying this methodology prevents over design of the interchange, while also allowing for a fair comparison between alternatives. Chapter 8 provides a more detailed iterative TransModeler analysis with the unwidened sections of I-95 to identify a preferred interchange laneage and to identify an appropriate interchange design recognizing that no project has been identified for widening of I-95.

Table 7.2, **Table 7.3**, **Table 7.4**, and **Table 7.5** summarize freeway capacity analysis for the I-26 corridor in the eastbound and westbound directions, respectively, and the I-95 corridor in the northbound and southbound directions, respectively. LOS C is again used as the preferred LOS threshold with LOS D as the minimum acceptable operations. TransModeler output for the corridor freeway analysis are provided in **Appendix G**.

Table 7.2 and Table 7.3 summarize freeway capacity analysis for the I-26 corridor in the eastbound and westbound directions, respectively. The results indicate that the capacity improvement at the I-26 eastbound to I-95 southbound ramp will improve the freeway to acceptable LOS. Removing the I-26 at I-95 System weave and associated ramps on I-26 westbound will improve the freeway to acceptable LOS. Additionally, it is noted that unacceptable LOS occurs in the future year Build

conditions on I-95 northbound, south of U.S. 178 and on I-95 southbound, north of U.S. 176. The U.S. 176 and U.S. 178 interchanges were included in the study due to its location to the I-26 at I-95 System interchange and remains outside of the scope of this project's improvement analysis.

It is also noted that some I-26 segments appear to degrade from 2050 No Build to the 2050 Build scenarios. This is misleading because bottlenecks within the No Build system result in not all traffic being processed through the interchange in the peak hour. For example, Segments 12-17 along I-26 eastbound have lower density and corresponding better LOS in 2050 No Build due to the bottleneck at the I-26 eastbound diverge to I-95 southbound, which allows less volume to travel along I-26 eastbound than compared to the build scenarios. The same occurs along I-26 westbound for segments 14-17. These segments have a lower density and better LOS in 2050 No Build due to another bottleneck at I-95 northbound at the system-to-system weave, which allows less volume to travel to I-26 westbound. Nevertheless, the Build scenario represents an overall improvement in operations compared with the No Build.

Table 7.4 and Table 7.5 summarize freeway capacity analysis for the I-95 corridor in the northbound and southbound directions, respectively. Removing the I-26 at I-95 System weave and associated ramps on I-95 northbound and southbound directions will improve the freeway to acceptable LOS. Additionally, it is noted that unacceptable LOS occurs in the future year Build conditions on I-26 eastbound and westbound, west of S.C. 210. The S.C. 210 interchange was included in the study due to its location to the I-26 at I-95 System interchange and remains outside of the scope of this project's improvement analysis.

It is also noted that some I-95 segments appear to degrade from 2050 No Build to the 2050 Build scenarios. As with the I-26 observations, this is due to bottlenecks in the No Build network restricting flow from being processed through the interchange resulting in lower volumes being processed. For example, Segments 12-15 along I-95 northbound have lower density and corresponding better LOS in 2050 No Build due to the previously mentioned bottleneck at I-95 northbound at the system-to-system weave, which allows less volume to travel along I-95 northbound. The same occurs along I-95 southbound for segments 12-15. These segments have a lower density and better LOS in 2050 No Build due to the previously mentioned bottleneck at the I-26 eastbound diverge to I-95 southbound, which allows less volume to travel to I-95 southbound than compared to the build scenarios.

Overall, however, the Build Alternatives provide improved operations on both I-26 and I-95. In all instances with a reduced density in the No Build, the density reduction is the result of a significant bottleneck causing delays and queuing on upstream freeway and ramp approaches. Also note that for the No Build roadway sections serving restricted or reduced volumes in the peak period, it is expected that peak period congestion will be pushed from the peak hours to adjacent hours resulting in more hours of congestion per day as queues build and dissipate.

Table 7.2: TransModeler Freeway Segment Density Results: I-26 Eastbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS															
			2022 Existing		2030 No Build		2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 No Build		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
					7-lanes on I-26 + 6-lanes on I-95**															
1	West of S.C. 210	Basic	18.1	C	18.0	B	18.1	C	18.1	C	18.2	C	65.1	F	27.3	D	28.8	D	26.3	D
2	Off-Ramp to S.C. 210	Diverge	23.4	C	15.7	B	14.9	B	14.8	B	14.9	B	42.3	E	21.3	C	22.3	C	20.3	C
3	Between S.C. 210 Ramps	Basic	23.9	C	17.8	B	17.7	B	17.7	B	17.9	B	88.3	F	26.0	C	25.5	C	25.6	C
4	On-Ramp from S.C. 210	Merge	23.2	C	14.9	B	14.2	B	14.0	B	14.6	B	90.9	E	20.3	C	20.8	C	20.9	C
5	West of I-26/I-95 System Interchange	Basic	24.6	C	18.9	C	18.3	C	18.4	C	18.3	C	110.6	F	25.6	C	25.4	C	25.7	C
6	Off-Ramp to I-95 SB	Diverge	36.7	E	26.3	C	12.2	B	11.5	B	11.6	B	29.7***	D	16.6	B	15.2	B	15.7	B
7	Between Ramps	Basic	12.3	B	8.6	A	8.3	A	8.5	A	9.0	A	10.6***	A	13.1	B	13.5	B	13.4	B
8	I-26 at I-95 System Weave*	Weave	11.9	B	11.8	B	5.5	A	5.3	A	5.0	A	14.8***	B	8.5	A	8.5	A	8.3	A
9	Between Ramps	Basic	18.9	C	13.8	B	8.4	A	8.6	A	8.5	A	17.2***	B	13.1	B	13.0	B	13.2	B
10	On-Ramp from I-95 NB	Merge	18.1	B	13.0	B	11.1	B	11.2	B	11.3	B	15.6***	B	16.5	B	16.3	B	16.5	B
11	East of I-26/I-95 System Interchange	Basic	19.7	C	15.0	B	11.5	B	11.0	B	11.7	B	17.8***	B	17.7	B	17.2	B	18.1	C
12	Off-Ramp to U.S. 15 SB	Diverge	18.8	B	11.8	B	11.3	B	11.7	B	11.3	B	13.6***	B	16.6	B	16.4	B	16.7	B
13	Between Ramps	Basic	17.0	B	14.2	B	14.5	B	13.8	B	14.1	B	17.2***	B	21.1	C	21.1	C	21.4	C
14	Weave to/from U.S. 15	Weave	8.4	A	4.8	A	5.9	A	5.1	A	6.4	A	5.9***	A	8.5	A	9.4	A	9.0	A
15	Between Ramps	Basic	20.4	C	14.3	B	14.0	B	13.9	B	14.4	B	16.9***	B	21.6	C	20.7	C	21.0	C
16	On-Ramp from U.S. 15 NB	Merge	19.0	B	11.9	B	13.1	B	12.7	B	13.0	B	14.9***	B	18.6	B	19.2	B	19.9	B
17	East of U.S. 15	Basic	19.8	C	14.9	B	15.0	B	15.4	B	14.8	B	17.9***	B	22.2	C	22.0	C	22.1	C

**In all 2030 and 2050 Build Alternatives the weave segment is removed. This segment is replaced by a diverge segment, which is the off-ramp to I-95 Northbound.*
*** See TransModeler analysis assumptions as discussed in Section 7.1.2.*
**** For 2050, the No Build has substantial queuing and restricted flow at Link 5 which is a bottleneck. For this reason, densities on downstream links are lower than the Build alternatives based on the TransModeler simulation analysis. Nevertheless, the Build alternatives all represent an improvement in I-26 eastbound flow, serves higher volumes, and maintain LOS C or better operations.*

Table 7.3: TransModeler Freeway Segment Density Results: I-26 Westbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS																	
			2022 Existing		2030 No Build		2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 No Build		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
					7-lanes on I-26 + 6-lanes on I-95**															
1	East of U.S. 15	Basic	19.6	C	15.0	B	15.0	B	14.9	B	14.9	B	22.8	C	22.7	C	22.4	C	22.7	C
2	Off-Ramp to U.S. 15 NB	Diverge	13.0	B	11.5	B	11.4	B	10.9	B	11.5	B	17.1	B	17.5	B	17.3	B	17.5	B
3	Between Ramps	Basic	19.2	C	14.7	B	14.8	B	14.9	B	14.8	B	22.6	C	22.4	C	22.2	C	22.7	C
4	Weave to/from U.S. 15	Weave	9.4	A	7.2	A	7.0	A	6.9	A	6.7	A	10.8	B	10.8	B	10.2	B	10.7	B
5	Between Ramps	Basic	19.4	C	14.8	B	14.5	B	14.9	B	14.2	B	21.5	C	22.2	C	21.8	C	21.9	C
6	On-Ramp from U.S. 15 SB	Merge	19.3	B	13.4	B	12.3	B	11.9	B	14.1	B	18.9	B	17.9	B	18.0	B	21.0	C
7	East of I-26/I-95 System Interchange	Basic	19.8	C	15.3	B	15.2	B	15.1	B	15.2	B	22.4	C	22.2	C	22.1	C	22.1	C
8	Off-Ramp to I-95 NB	Diverge	19.9	B	14.2	B	15.3	B	15.3	B	17.0	B	18.4	B	22.1	C	22.3	C	27.3	C
9	Between Ramps	Basic	14.1	B	11.0	B	10.2	A	10.2	A	8.7	A	16.4	B	14.9	B	14.6	B	12.7	B
10	I-26 at I-95 System Weave*	Weave	27.3	C	29.3	D	7.9	A	8.0	A	*	*	34.7***	D	10.6	B	10.5	B	*	*
11	Between Ramps	Basic	29.0	D	20.6	C	8.6	A	8.6	A	*	*	26.8***	D	12.8	B	12.8	B	*	*
12	On-Ramp from I-95 SB	Merge	24.3	C	13.5	B	12.9	B	12.6	B	12.5	B	16.8***	B	18.6	B	18.7	B	18.4	B
13	West of I-26/I-95 System Interchange (assumes theoretical westbound auxiliary lane)**	Basic	24.2	C	13.5	B	13.7	B	13.8	B	13.8	B	16.8***	B	20.3	C	20.4	C	20.4	C
14	Off-Ramp to S.C. 210	Diverge	29.1	D	14.7	B	13.7	B	13.1	B	14.7	B	16.8***	B	22.0	C	21.6	C	22.3	C
15	Between S.C. 210 Ramps	Basic	24.4	C	18.1	C	17.9	B	17.9	B	17.8	B	22.0***	C	27.0	D	26.9	D	26.7	D
16	On-Ramp from S.C. 210	Merge	22.6	C	16.2	B	17.8	B	17.7	B	17.4	B	20.5***	C	25.3	C	24.9	C	25.5	C
17	West of S.C. 210	Basic	23.9	C	18.2	C	18.3	C	18.3	C	18.4	C	22.5***	C	27.2	D	27.4	D	27.2	D

**In all 2030 and 2050 Build Alternatives the weave segment is removed. In Alternatives 1 and 2, this segment is replaced by a diverge segment, which is the off-ramp to I-95 Southbound.*
*** See TransModeler analysis assumptions as discussed in Section 7.1.2.*
**** For 2050, the No Build has substantial queuing and restricted flow on the I-95 northbound loop to I-26 westbound (needs two lanes). For this reason, I-26 westbound volumes are lower as compared with the Build alternatives. Due to the lower volumes, densities on downstream links are lower than the Build alternatives west of the I-26 at I-95 interchange based on the TransModeler simulation analysis. Nevertheless, the Build alternatives all represent an improvement in I-26 westbound flow (since the densities in the No Build are limited), serves higher volumes, and maintains acceptable LOS D operations.*

Table 7.4: TransModeler Freeway Segment Density Results: I-95 Northbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS															
			2022 Existing		2030 No Build		2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 No Build		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
					7-lanes on I-26 + 6-lanes on I-95**															
1	South of U.S. 178	Basic	24.7	C	29.2	D	29.0	D	29.1	D	29.0	D	86.4	F	38.8	E	38.6	E	38.7	E
2	I-26 NB Off-Ramp to U.S. 178	Diverge	30.1	D	35.3	E	35.2	E	36.6	E	34.6	D	108.0	E	45.5	E	43.5	E	48.2	E
3	I-26 EB Between U.S. 178 Ramps	Basic	23.4	C	27.4	D	27.6	D	27.9	D	27.6	D	92.6	F	35.7	E	35.0	E	35.5	E
4	I-26 EB On-Ramp from U.S. 178	Merge	25.1	C	22.0	C	19.7	B	19.7	B	19.7	B	121.4	E	25.3	C	25.2	C	25.2	C
5	South of I-26/I-95 System interchange (assumes theoretical I-95 northbound auxiliary lane)**	Basic	25.3	C	22.0	C	19.7	C	19.7	C	19.7	C	121.4	F	25.3	C	25.2	C	25.2	C
6	Off-Ramp to I-26 EB	Diverge	26.0	C	22.0	C	17.1	B	16.9	B	17.1	B	121.4	F	23.6	C	24.0	C	23.6	C
7	Between Ramps	Basic	24.9	C	52.7***	F	12.5	B	12.9	B	12.7	B	86.8	F	13.3	B	13.5	B	13.8	B
8	I-26 at I-95 System Weave*	Weave	27.4	C	45.7***	F	8.9	A	8.8	A	9.0	A	51.0	F	9.6	A	9.9	A	9.4	A
9	Between Ramps	Basic	11.4	B	14.6***	B	12.9	B	12.8	B	12.9	B	11.1***	B	14.3	B	13.9	B	14.2	B
10	On-Ramp from I-26 WB	Merge	17.7	B	21.2***	C	21.2	C	21.2	C	21.1	C	22.4***	C	27.3	C	27.4	C	27.3	C
11	North of I-26/I-95 System interchange	Basic	17.4	B	20.6***	C	20.6	C	20.7	C	20.5	C	20.6***	C	25.3	C	25.3	C	25.2	C
12	Off-Ramp to U.S. 176	Diverge	19.1	B	21.8***	C	23.0	C	22.9	C	23.3	C	23.0***	C	25.6	C	25.9	C	27.1	C
13	Between U.S. 176 Ramps	Basic	16.3	B	19.8***	C	19.3	C	19.5	C	18.9	C	19.2***	C	24.5	C	24.5	C	24.0	C
14	On-Ramp from U.S. 176	Merge	15.6	B	18.3***	B	18.8	B	18.0	B	19.2	B	19.1***	B	23.4	C	23.2	C	23.4	C
15	North of U.S. 176	Basic	16.5	B	19.8***	C	19.7	C	19.7	C	19.4	C	19.4***	C	24.2	C	24.2	C	24.2	C

** In all 2030 and 2050 Build Alternatives the weave segment is removed. In This segment is replaced by a merge segment, which is the on-ramp to I-26 Eastbound.*
*** See TransModeler analysis assumptions as discussed in Section 7.1.2.*
**** For 2030 and 2050, the No Build has substantial queuing and restricted flow on I-95 northbound approaching weave area in Link 8. For this reason, I-95 northbound volumes are restricted to links north of the bottleneck in the No Build scenario. Due to the lower volumes, densities on downstream links are lower than the Build alternatives north of the I-26 at I-95 interchange based on the TransModeler simulation analysis. Nevertheless, the Build alternatives all represent an improvement in I-95 northbound flow (since the densities in the No Build are limited), serves higher volumes, and maintains acceptable LOS C or better operations to the north.*

Table 7.5: TransModeler Freeway Segment Density Results: I-95 Southbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS															
			2022 Existing		2030 No Build		2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 No Build		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
					7-lanes on I-26 + 6-lanes on I-95**															
1	North of U.S. 176	Basic	16.2	B	19.2	C	19.1	C	19.1	C	19.0	B	24.0	C	24.1	C	24.0	C	24.0	C
2	Off-Ramp to U.S. 176	Diverge	17.7	B	20.9	C	20.5	C	20.4	C	20.8	C	27.6	D	26.1	C	25.9	C	26.3	C
3	Between U.S. 176 Ramps	Basic	15.9	B	18.6	C	19.0	C	19.0	C	19.0	C	24.1	C	24.0	C	24.2	C	23.9	C
4	On-Ramp from U.S. 176	Merge	16.4	B	19.6	B	19.2	B	19.2	B	19.1	B	24.4	C	24.5	C	24.2	C	24.2	C
5	North of I-26/I-95 Interchange	Basic	17.3	B	20.5	C	20.5	C	20.4	C	20.4	C	25.6	C	25.7	C	25.7	C	25.6	C
6	Off-Ramp to I-26	Diverge	16.8	B	19.7	B	19.2	B	18.9	B	18.6	B	26.1	C	24.5	C	24.9	C	24.1	C
7	Between Ramps	Basic	17.3	B	21.1	C	12.7	B	12.5	B	12.5	B	28.7	D	14.3	B	14.5	B	14.6	B
8	I-26 at I-95 System Weave*	Weave	16.4	B	22.4	C	10.4	B	11.5	B	13.5	B	30.5	D	13.9	B	12.6	B	15.3	B
9	Between Ramps	Basic	14.1	B	16.6	B	15.1	B	15.5	B	13.5	B	19.5	C	18.4	C	18.0	B	15.3	B
10	On-Ramp from I-26 EB	Merge	23.7	C	19.8	B	18.0	B	17.3	B	14.6	B	20.6***	C	21.7	C	21.1	C	18.5	B
11	South of I-26/I-95 Interchange (assumes theoretical extra I-95 southbound auxiliary lane**)	Basic	25.5	C	19.8	C	19.8	C	20.5	C	20.7	C	20.6***	C	24.2	C	25.9	C	24.9	C
12	Off-Ramp to U.S. 178	Diverge	25.9	C	19.8	B	19.8	B	19.8	B	19.8	B	20.6***	C	24.2	C	24.3	C	24.1	C
13	Between U.S. 178 Ramps	Basic	24.6	C	28.8	D	30.0	D	29.8	D	29.4	D	31.2***	D	48.3	F	46.6	F	42.5	E
14	On-Ramp from U.S. 178	Merge	25.3	C	31.8	D	32.1	D	31.8	D	31.4	D	34.4***	D	49.9	E	47.9	E	47.0	E
15	South of U.S. 178	Basic	25.4	C	29.8	D	30.0	D	30.4	D	30.1	D	31.7***	D	37.6	E	37.2	E	37.4	E

**In all 2030 and 2050 Build Alternatives the weave segment is removed. In Alternatives 1 and 2, this segment is replaced by a diverge segment, which is the off-ramp to I-95 Southbound. In Alternative 3, this segment is replaced by a merge segment, which is the flyover on-ramp from I-26 Westbound.*

*** See TransModeler analysis assumptions as discussed in Section 7.1.2.*

**** For 2030 and 2050, the No Build has substantial queuing and restricted flow on I-26 eastbound due to the existing one lane ramp from I-26 eastbound to I-95 southbound. The I-26 bottleneck and ramp constraint substantially reduces the amount of traffic able to access and merge into I-95 southbound at the Link 10 merge. For this reason, I-95 southbound volumes are restricted south of the Link 10 merge. Due to the lower volumes, densities on downstream links are lower than the Build alternatives south of the I-26 at I-95 interchange based on the TransModeler simulation analysis. Nevertheless, the Build alternatives all represent an improvement in I-26 eastbound flow. There is slightly increased congestion and higher densities on I-95 southbound because I-95 southbound serves higher peak period volumes. The increased congestion on I-95 south of the interchange is a key reason for additional analysis in Chapters 7 and 8.*

7.2 TransModeler Capacity Analysis Criteria

The following section describes the capacity analysis for the I-26 at I-95 system interchange. In contrast to Chapter 6 which has merge, diverge, and weave analysis, the analysis in this section primarily focuses on the ramp roadway capacity and volume served results from TransModeler. Ramp roadway analysis is important because it provides far more detail into how the interchange operates today and will operate with different alternatives. HCS only looks at freeway segments and only includes the on and off-ramp lane, while this section of the report examines each interchange ramp. This additional analysis provides insightful information about No Build conditions and how each potential concept compares to each other and to the No Build.

To compare each modeled scenario, the following characteristics were collected:

- Ramp Density LOS
- Ramp Volume Served
- System Travel Times

Using engineering judgment, the basic freeway segment HCM LOS criteria was selected to evaluate the ramp segments of the system interchange. **Table 7.6** shows the HCM LOS criteria for basic freeway segments.

Table 7.6: HCM Basic Segment LOS Criteria

LOS	Density (pc/mi/ln)
A	< 11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45

Based on the design criteria for rural freeways presented in SCDOT's 2021 Roadway Design Manual, HCM LOS C is the preferred minimum LOS for a rural interstate analysis. SCDOT guidance for this project is that LOS D will be used as the minimum LOS.

One indicator of congestion in TransModeler is the percent of the volume served. Percent volume served is the number of vehicles that are actually served compared to the volume input coded into the model, in this case the volumes described in Chapter 4. If the input volume cannot be served, this indicates an operational or capacity issue. To verify it was a true capacity issue, a throughput threshold of 80 percent to identify locations that specific movements were potentially restricted. No specific guidance was utilized in identifying 80 percent threshold, but it was based on the evaluation of the 2022 calibrated network data in Table 7.7 which identifies some

of the lower volume ramps at or near the 80 percent traffic served. This means that any movement served less than 80 percent of the volume put into the model was inspected more closely to ensure the issue was not related to model coding. Regardless, this was a secondary quality control review and all links were thoroughly checked to verify that modeling errors were not causing backups.

Additionally, TransModeler travel times are compared to show time saved for each interchange alternative. Each travel time represents a system-to-system movement in the network and each one is measured to and from each extent of the study area.

7.3 I-26 at I-95 System Interchange Existing and No Build Analysis

The following section describes the evaluation of the I-26 at I-95 system interchange as well as proposed alternative interchange configurations to address deficiencies. As described in Section 7.1.2, this initial analysis was conducted assuming additional lanes on I-95 to the south and I-26 to the west in order to test interchange design needs without flow restrictions impacting upstream and downstream volumes. Final TransModeler analysis of the final interchange layouts with anticipated laneage on both I-26 and I-95 are included in Chapter 9.

7.3.1 2022 Existing Conditions

The evaluation of existing volumes under current interchange geometry is discussed in the sections below. TransModeler output for the 2022 existing conditions analysis are provided in **Appendix H**.

Figure 7.7 shows the existing I-26 at I-95 system interchange with numbered ramps that correspond with the TransModeler results of the 2022 existing analysis, shown in the following table. Table 7.7 shows the volume served, percent volume served, density, and LOS results for each ramp. Despite capacity issues, the results show each ramp serves at least 80 percent of the traffic demand. Based on density, five ramps perform at LOS C or better (preferred), one ramp operates at LOS D (acceptable) and two perform at an unacceptable LOS of E and F. Widening of ramps 1 and 6 are needed under existing conditions, especially for the Ramp 6 loop which has the highest density. These results do not reflect the weave issues which would only worsen the congestion findings and are looked at in the following analysis.

Figure 7.7: TransModeler 2022 Existing Conditions Ramp LOS

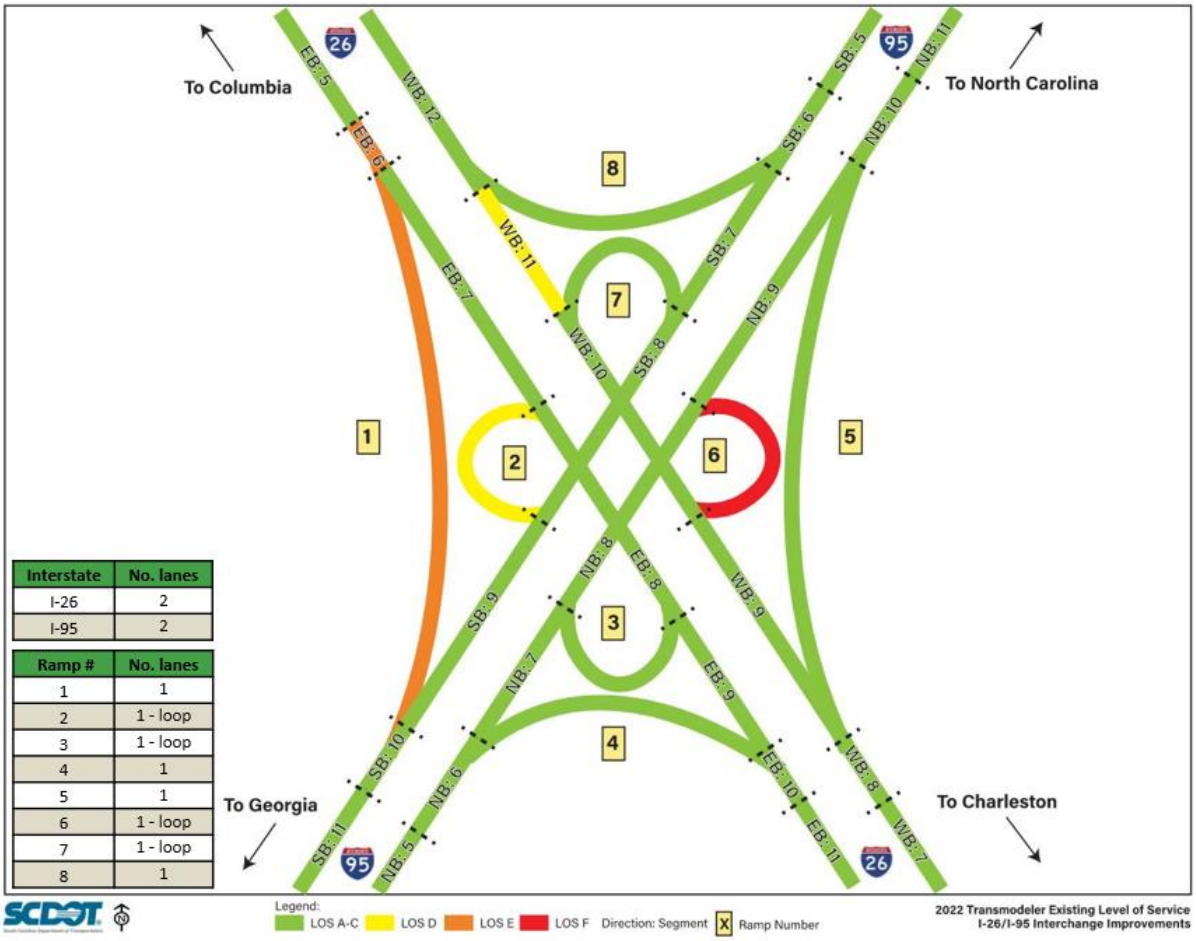


Table 7.7: 2022 Existing Interchange Ramp Volume and Capacity Results

2022 Demand		Number of Lanes	Volume Served | % Volume Served		Density (pcpmpl) | LOS	
1	1,365	1	1,342	98%	43.0	E
2	714	1 (loop)	694	97%	29.2	D
3	42	1 (loop)	33	82%	1.2	A
4	242	1	222	92%	6.1	A
5	714	1	706	99%	21.6	C
6	1,365	1 (loop)	1,331	98%	62.6	F
7	242	1 (loop)	201	83%	7.4	A
8	42	1	33	88%	0.9	A

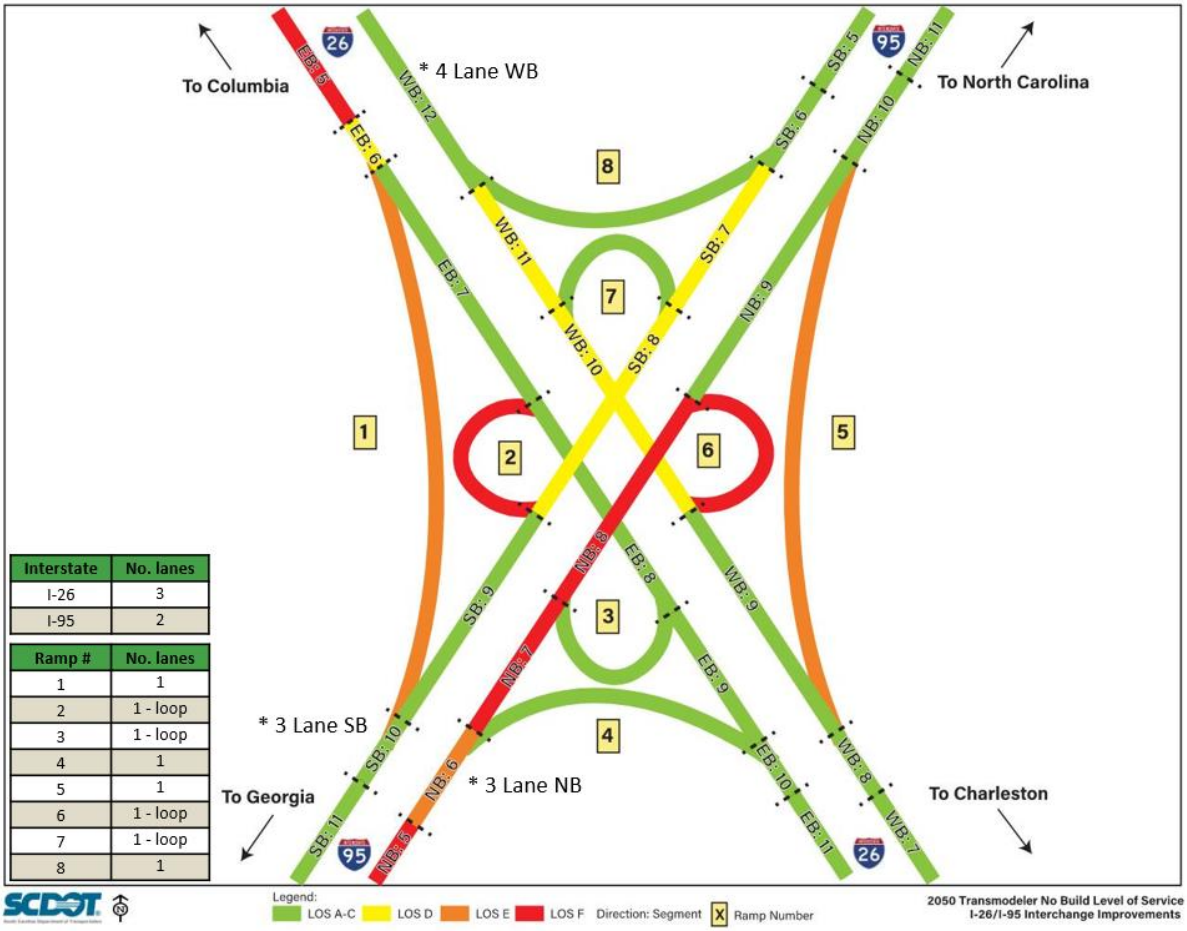
Note: All ramps are single lane under existing conditions.

7.3.2 2030 and 2050 No Build Conditions

The evaluation of future volumes under current geometry with the widening of I-26 to 3 lanes in each direction is discussed in the sections below. TransModeler output for the 2030 and 2050 No Build conditions analysis is provided in **Appendix I**.

Figure 7.8 shows the 2050 No Build I-26 at I-95 system interchange with numbered ramps that correspond with the TransModeler results of the 2050 No Build analysis. 2030 No Build results are presented with the 2050 results in the following tables.

Figure 7.8: TransModeler 2050 No Build Conditions Ramp LOS



*Note: * TransModeler LOS results shown include theoretical improvements on I-95 northbound, I-95 southbound and I-26 westbound as described in Section 7.1.2.*

Table 7.8 shows the volume served and percent volume served results for each ramp.

Table 7.8: TransModeler No Build Interchange Ramp Volume Results

Segment Description		2030 Demand	2050 Demand	Volume Served | % Demand Served			
				2030 No Build		2050 No Build	
1	I-26 EB to I-95 SB	1,570	2,192	1,516	97%	1,378	63%
2	I-95 SB to I-26 EB	821	1,152	782	95%	1,075	93%
3	I-26 EB to I-95 NB	48	70	49	100%	50	71%
4	I-95 NB to I-26 EB	278	375	264	95%	236	63%
5	I-26 WB to I-95 NB	821	1,154	791	96%	1,100	95%
6	I-95 NB to I-26 WB	1,570	2,194	1,507	96%	1,517	69%
7	I-26 WB to I-95 SB	278	375	279	100%	314	84%
8	I-95 SB to I-26 WB	48	70	45	93%	59	85%
Total Volume Served		**5,434**	**7,582**	**5,232**	**96%**	**5,729**	**76%**

Note:
All ramps are single lane in existing conditions.
Output with less than 80% of demand served is shown in ***red***

Table 7.8 indicates that the ramps should perform acceptably through 2030, but Ramps 1, 3, 4, and 6 could degrade by 2050 due to deficiencies that restrict volume flow.

- Ramp 1 is only able to serve 63 percent of demand because it is over capacity as a one-lane ramp and creates a bottleneck on I-26 eastbound.
- The Ramp 1 bottleneck constricts the ability of demand to reach Ramp 3, affecting its volume served.
- Ramp 4 is only able to serve 63 percent of demand because of the bottleneck on I-95 northbound south of this ramp. Percent demand served for Ramps 3 and 4 is not an indication of a deficiency, but instead an indication that upstream flow is metered.
- Ramp 6 is only able to serve 69 percent of demand because it is over capacity as a one-lane loop ramp and creates a bottleneck on I-95 northbound. This bottleneck constricts the ability of demand to reach Ramp 4, in a manner similar to Ramp 3.
- Overall, the No Build interchange only serves 76 percent of the 2050 design hour peak volumes. This is an indicator that improvements are required to at the interchange.

Table 7.9 shows the density and LOS results for each ramp.

Table 7.9: TransModeler No Build Interchange Ramp Capacity Results

Ramp Description		Number of Lanes*	Density (pcpmpl) | LOS			
			2030 No Build		2050 No Build	
1	I-26 EB to I-95 SB	1	48.6	F	43.4	E*
2	I-95 SB to I-26 EB	1	32.3	D	46.9	F
3	I-26 EB to I-95 NB	1	2.1	A	2.0	A*
4	I-95 NB to I-26 EB	1	7.3	A	6.7	A*
5	I-26 WB to I-95 NB	1	24.7	C	34.1	D
6	I-95 NB to I-26 WB	1	76.8	F	85.2	F
7	I-26 WB to I-95 SB	1	10.4	A	12.6	B
8	I-95 SB to I-26 WB	1	1.3	A	1.7	A

Notes:
** All ramps are single lane in existing conditions*
*** In all cases, ramp volumes increase from 2030 to 2050. Reductions in density or improvements in LOS are reflective of bottlenecks restricting flow onto some ramps and are not indicative of improved conditions.*

Table 7.9 indicates Ramps 1, 2, and 6 will exceed the LOS threshold by 2050. Ramp 1 appears to improve in LOS from 2030 to 2050 but is due to the failing merge on I-95 southbound, reducing the volume on the ramp, as shown in Table 7.9.

7.4 I-26 at I-95 System Interchange Alternatives Analysis

Three Build alternatives were developed, analyzed and compared as part of the initial TransModeler analysis. As described in Section 7.1.2, this initial analysis was conducted assuming additional lanes on I-95 to the south and I-26 to the west to test interchange design needs without flow restrictions impacting upstream and downstream volumes. Final TransModeler analysis of the final interchange layouts with anticipated laneage on both I-26 and I-95 are included in Chapter 9.

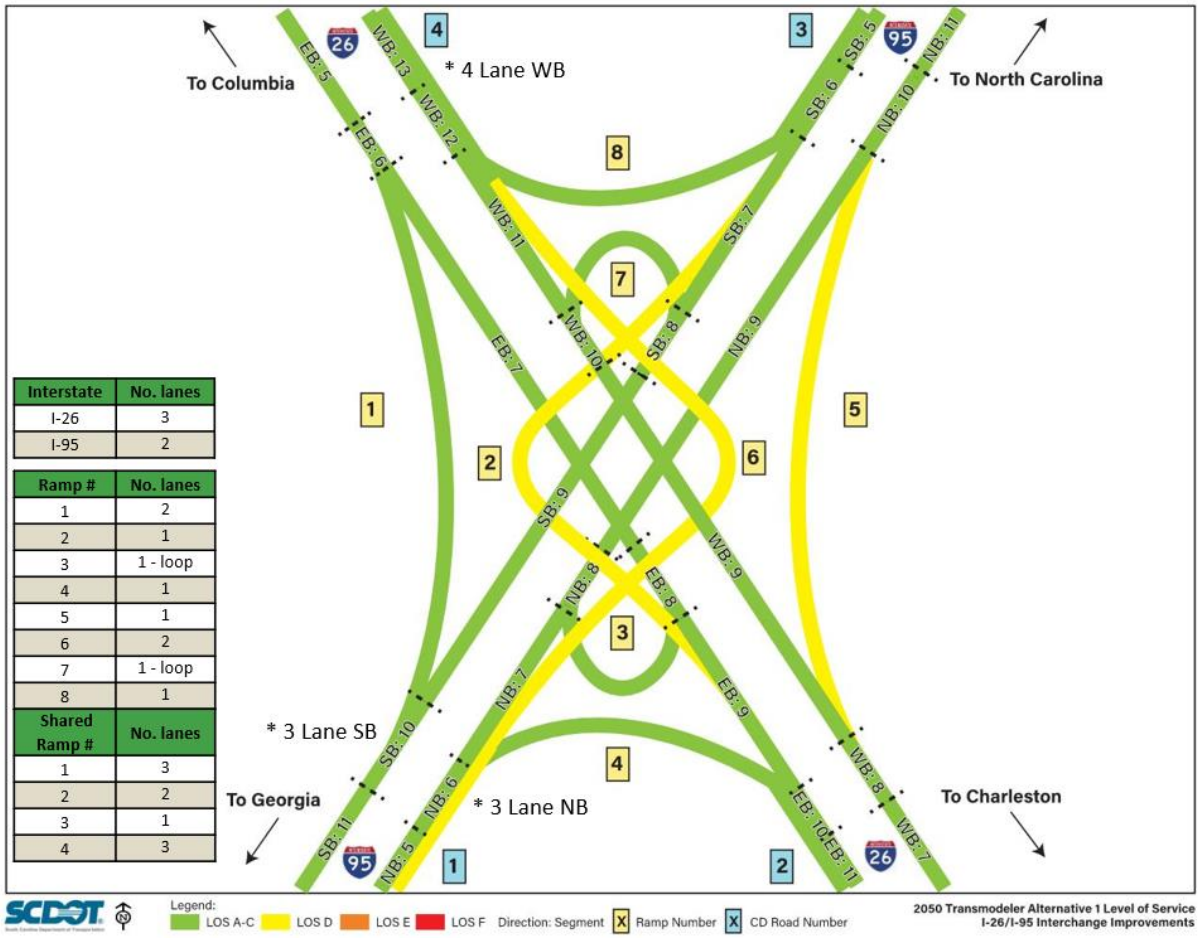
7.4.1 Alternative 1 Interchange

The Alternative 1 interchange is a stacked four-level flyover interchange with two loops as described in Section 5.1. Specific features include:

- Ramp 1 is widened to two lanes and maintains a similar alignment to the existing ramp.
- Ramp 5 remains a one lane ramp on a similar alignment.
- Ramp 4 remains a one lane ramp and will follow a similar alignment, but the design speed and radii are increased. The ramp will pull off I-95 northbound on a combined shared ramp segment with Ramp 6 (the old Loop 6) and then exit the shared ramp segment to I-26 eastbound.
- Ramp 8 remains a one lane ramp and will be very similar to Ramp 4 with a similar layout to the existing ramp with a higher design speed and radii. The ramp will pull off I-95 southbound on a shared ramp segment with Ramp 2 (the old Loop 2) and then exit the shared ramp segment to I-26 westbound.
- Ramps 2 and 6 (the old Loops 2 and 6) are replaced with fly-over ramps connecting to the shared ramp segments both at the exit from I-95 and the merge segments with I-26. Ramp 2 is a one lane fly-over and Ramp 6 is a two-lane fly-over.
- Loops 3 and 7 (i.e., Loops 3 and 7) will be reconstructed as improved loops in the same quadrant as currently located and will both be one lane. The loop radii and design speed will be increased to meet the design speed for the project. These loops carry the two lowest loop volumes and are diagonally opposite each other. They can both be maintained as isolated merges and diverges with the mainline with no weave segments.

TransModeler output for the 2030 and 2050 Build Alternative 1 conditions ramp output is provided in **Appendix J**. **Figure 7.9** shows the 2050 Build Alternative 1 interchange with numbered ramps and shared ramp segments that correspond with the TransModeler results of the 2050 Build Alternative 1 analyses.

Figure 7.9: TransModeler 2050 Build Alternative 1 Ramp LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1 - loop
8	1

Shared Ramp #	No. lanes
1	3
2	2
3	1
4	3

*Note: * TransModeler LOS results shown include theoretical improvements on I-95 northbound, I-95 southbound and I-26 westbound as described in Section 7.1.2.*

Table 7.10 shows the volume served and percent volume served results for each ramp. It also indicates that the Alternative 1 interchange improvements allow for the ramps to serve above the 80 percent volume threshold through 2050.

Table 7.10: TransModeler Build Alternative 1 Interchange Ramp Volume Results

Segment Description		2030 Demand	2050 Demand	Volume Served | % Demand Served			
				2030 Build Alternative 1		2050 Build Alternative 1	
1	I-26 EB to I-95 SB	1,570	2,192	1,516	97%	1,870	85%
2	I-95 SB to I-26 EB	821	1,152	779	95%	1,070	93%
3	I-26 EB to I-95 NB	48	70	46	96%	65	92%
4	I-95 NB to I-26 EB	278	375	266	96%	338	90%
5	I-26 WB to I-95 NB	821	1,154	789	96%	1,159	100%
6	I-95 NB to I-26 WB	1,570	2,194	1,529	97%	2,218	100%
7	I-26 WB to I-95 SB	278	375	281	100%	333	89%
8	I-95 SB to I-26 WB	48	70	44	92%	59	84%
Total Volume Served		**5,434**	**7,582**	**5,250**	**97%**	**7,110**	**94%**

Note: Output with less than 80% of demand served is shown in ***red***

Table 7.11 shows the density and LOS results for each ramp. Table 7.11 indicates that the interchange ramps perform at an acceptable LOS under 2030 and 2050 Build Alternative 1 conditions with three ramps links operating at LOS D and the remaining five ramps at LOS C or better.

Table 7.11: TransModeler Build Alternative 1 Interchange Ramp Capacity Results

Ramp Description		Number of Lanes	Density (pcpmpl) | LOS			
			2030 Build Alternative 1		2050 Build Alternative 1	
1	I-26 EB to I-95 SB	2	20.0	C	25.3	C
2	I-95 SB to I-26 EB	1	20.4	C	28.8	D
3	I-26 EB to I-95 NB	1	1.3	A	1.7	A
4	I-95 NB to I-26 EB	1	7.5	A	9.1	A
5	I-26 WB to I-95 NB	1	21.7	C	33.4	D
6	I-95 NB to I-26 WB	2	20.4	C	29.9	D
7	I-26 WB to I-95 SB	1	8.8	A	10.0	A
8	I-95 SB to I-26 WB	1	1.0	A	1.5	A

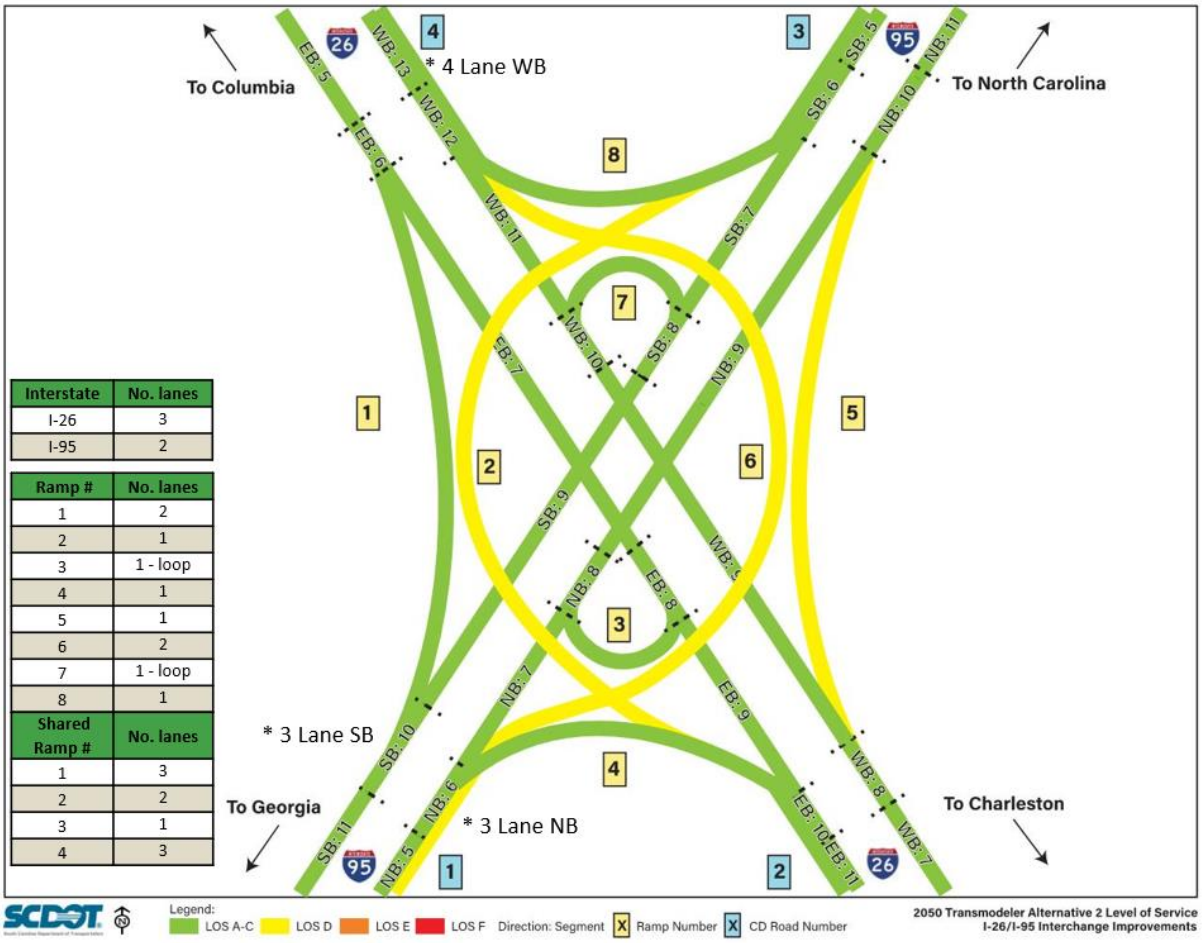
7.4.2 Alternative 2 Interchange

The Alternative 2 interchange operates almost identically to Alternative 1. The only difference is the flyover ramps replacing Loop 2 and Loop 6. Instead of following an alignment creating a third level and fourth level structure over the center of the interchange, the ramps are taken on a longer alignment requiring more two level structures, but no third and fourth level structure. As a result, Alternative 2 does require a bigger footprint with more impacts and ROW.

TransModeler output for the 2030 and 2050 build alternative 2 conditions ramp output is provided in **Appendix K**.

Figure 7.10 shows the 2050 Build Alternative 2 I-26 at I-95 System interchange with numbered ramps and shared ramp segments that correspond with the TransModeler results of the 2050 Build Alternative 2 analyses.

Figure 7.10: TransModeler 2050 Build Alternative 2 Ramp LOS



Interstate	No. lanes
I-26	3
I-95	2

Ramp #	No. lanes
1	2
2	1
3	1 - loop
4	1
5	1
6	2
7	1 - loop
8	1

Shared Ramp #	No. lanes
1	3
2	2
3	1
4	3

*Note: * TransModeler LOS results shown include theoretical improvements on I-95 northbound, I-95 southbound and I-26 westbound as described in Section 7.1.2.*

Table 7.12 shows the volume served and percent volume served results for each ramp. The results indicate that the Alternative 2 interchange improvements allow for the ramps to serve above the 80 percent volume threshold through 2050.

Table 7.12: TransModeler Build Alternative 2 Interchange Ramp Volume Results

Segment Description		2030 Demand	2050 Demand	Volume Served | % Demand Served			
				2030 Build Alternative 2		2050 Build Alternative 2	
1	I-26 EB to I-95 SB	1,570	2,192	1,516	97%	1,850	84%
2	I-95 SB to I-26 EB	821	1,152	779	95%	1,071	93%
3	I-26 EB to I-95 NB	48	70	46	96%	64	91%
4	I-95 NB to I-26 EB	278	375	268	96%	336	90%
5	I-26 WB to I-95 NB	821	1,154	789	96%	1,160	100%
6	I-95 NB to I-26 WB	1,570	2,194	1,528	97%	2,218	100%
7	I-26 WB to I-95 SB	278	375	279	100%	333	89%
8	I-95 SB to I-26 WB	48	70	43	90%	60	85%
Total Volume Served		**5,434**	**7,582**	**5,249**	**97%**	**7,091**	**94%**

Note: Output with less than 80% of demand served is shown in ***red***

Table 7.13 shows the density and LOS results for each ramp. Three ramps operate at LOS D and 5 operate at LOS C or better.

Table 7.13: TransModeler Build Alternative 2 Interchange Ramp Capacity Results

Segment Description		Number of Lanes	Density (pcpmpl) | LOS			
			2030 Build Alternative 2		2050 Build Alternative 2	
1	I-26 EB to I-95 SB	2	20.4	C	25.2	C
2	I-95 SB to I-26 EB	1	20.3	C	28.9	D
3	I-26 EB to I-95 NB	1	1.4	A	1.9	A
4	I-95 NB to I-26 EB	1	7.0	A	10.0	A
5	I-26 WB to I-95 NB	1	21.8	C	33.7	D
6	I-95 NB to I-26 WB	2	20.1	C	29.4	D
7	I-26 WB to I-95 SB	1	8.1	A	10.0	A
8	I-95 SB to I-26 WB	1	1.2	A	1.5	A

Table 7.13 indicates that the interchange ramps perform at an acceptable LOS under 2030 and 2050 Build Alternative 2 conditions.

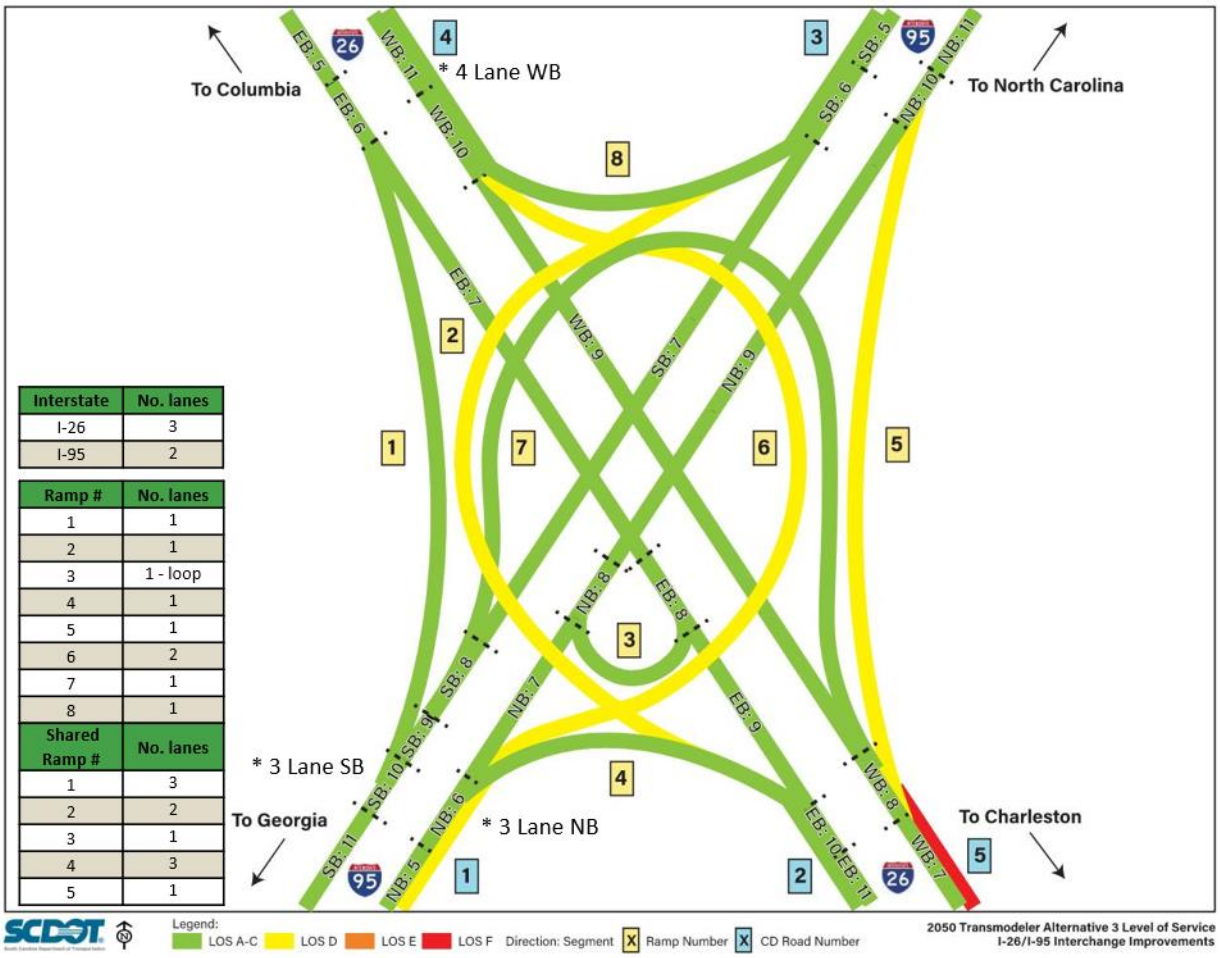
7.4.3 Alternative 3 Interchange

The Alternative 3 interchange is very similar to Alternative 2 except that three existing loops are converted to flyovers. Specifically, Loop 7 is converted to a flyover from I-26 westbound to I-95 southbound. In providing the flyover it introduces a need for a short shared ramp segment with Ramp 5 at the diverge from I-26 westbound. The proposed merge with I-95 southbound does not use a shared ramp segment but does shift the southbound merge further south than the existing loop reducing spacing to the heavy downstream merge of Ramp 1 with I-95 southbound.

TransModeler output for the 2030 and 2050 build alternative 3 conditions ramp output is provided in **Appendix L.**

Figure 7.11 shows the 2050 Build Alternative 3 I-26 at I-95 System interchange with numbered ramps and shared ramp segments that correspond with the TransModeler results of the 2050 Build Alternative 3 analyses.

Figure 7.11: TransModeler 2050 Build Alternative 3 Ramp LOS



*Note: * TransModeler LOS results shown include theoretical improvements on I-95 northbound, I-95 southbound and I-26 westbound as described in Section 7.1.2.*

Table 7.14 shows the volume served and percent volume served results for each ramp. In both 2030 and 2050, the Alternative 3 interchange improvements allow for the ramps to serve above the 80 percent volume threshold through 2050.

Table 7.14: TransModeler Build Alternative 3 Interchange Ramp Volume Results

Segment Description		2030 Demand	2050 Demand	Volume Served | % Demand Served			
				2030 Build Alternative 3		2050 Build Alternative 3	
1	I-26 EB to I-95 SB	1,570	2,192	1,512	96%	1,881	86%
2	I-95 SB to I-26 EB	821	1,152	780	95%	1,068	93%
3	I-26 EB to I-95 NB	48	70	47	98%	67	96%
4	I-95 NB to I-26 EB	278	375	269	97%	336	90%
5	I-26 WB to I-95 NB	821	1,154	790	96%	1,157	100%
6	I-95 NB to I-26 WB	1,570	2,194	1,531	97%	2,211	100%
7	I-26 WB to I-95 SB	278	375	280	100%	328	87%
8	I-95 SB to I-26 WB	48	70	43	90%	59	84%
Total Volume Served		**5,434**	**7,582**	**5,252**	**97%**	**7,107**	**94%**

Note: Output with less than 80% of demand served is shown in ***red***

Table 7.15 shows the density and LOS results for each ramp. It indicates that the interchange ramps perform at an acceptable LOS under 2030 and 2050 Build Alternative 3 conditions. The ramps operate at the same LOS as Alternatives 1 and 2.

Table 7.15: TransModeler Build Alternative 3 Interchange Ramp Capacity Results

Segment Description		Number of Lanes	Density (pcpmpl) | LOS			
			2030 Build Alternative 3		2050 Build Alternative 3	
1	I-26 EB to I-95 SB	2	20.9	C	25.7	C
2	I-95 SB to I-26 EB	1	20.5	C	29.1	D
3	I-26 EB to I-95 NB	1	1.4	A	1.9	A
4	I-95 NB to I-26 EB	1	7.5	A	9.3	A
5	I-26 WB to I-95 NB	1	22.5	C	33.7	D
6	I-95 NB to I-26 WB	2	20.1	C	34.6	D
7	I-26 WB to I-95 SB	1	9.4	A	11.0	B
8	I-95 SB to I-26 WB	1	1.1	A	1.6	A

7.4.4 Shared Ramp Diverge & Merge Segment Analysis

The proposed design alternatives for the proposed flyovers reflect a "single exit" and "single entrance" design type. This design approach combines traffic bound for two separate ramps into a single ramp exit from the mainline followed by a separate split to the two destinations. In other locations, this treatment may include a full collector distributor roadway, but the proposed alternatives do not strictly provide CD sections because the shared ramp does not allow for a parallel route through the entire interchange. Instead, the proposed alternatives include the following shared ramp sections:

Shared ramp sections at exits:

- I-95 northbound has a single exit point to I-26 which then separates as a proposed two-lane flyover to I-26 westbound and a single lane ramp to I-26 eastbound. (Alternatives 1, 2 and 3)
- I-95 southbound has a single exit point to a single lane flyover to I-26 eastbound and a single lane ramp to I-26 westbound. (Alternatives 1, 2 and 3)
- I-95 westbound also has an option with a shared ramp section for the exits to I-95 southbound (a single lane flyover) and I-95 southbound (a single lane ramp). (Alternative 3 only)

Shared ramp sections at merges:

- I-26 westbound includes a shared section of ramp when the two-lane I-95 northbound flyover and the I-95 southbound exit ramp merge together before merging with the I-26 westbound mainline traffic (Alternatives 1, 2 and 3)
- I-26 eastbound includes a shared section of ramp when the one-lane I-95 southbound flyover merges with the I-95 northbound ramp to I-26 eastbound (Alternatives 1, 2 and 3)
- With Alternative 3, the flyover from I-26 westbound is not proposed as a shared ramp and instead merges directly onto I-95 southbound in a separate merge from the I-26 eastbound to I-95 southbound merge.

Each alternative interchange design incorporates short sections of shared ramps that combine entering and exiting ramp volumes. These shared ramp segments are short and require a separate capacity analysis. **Table 7.16** shows the capacity analysis of the shared ramps for each alternative based on the density of the combined segment. TransModeler output for the 2030 and 2050 build alternatives shared ramp segment analysis is provided in **Appendix M**.

Table 7.16 indicates that the four shared ramp segments in common to all three alternatives operate similarly and function at LOS D or better. Alternative 3, however, is the only alternative with shared ramp Segment 5. Segment 5 is forecast to operate at LOS E in 2030 and LOS F in 2050. As currently designed, Alternative 3 does not meet the required acceptable LOS. Note that the shared ramp segment could be widened and would likely function at LOS D or better, but this would require additional construction on the I-26 approach resulting in increased costs and impacts.

Table 7.16: TransModeler Interchange Shared Ramp Capacity Results

Shared Ramp Description		Number of Lanes	2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
1	I-95 NB to I-26	3	19.5	C	21.0	C	20.7	C	30.3	D	30.1	D	29.0	D
2	I-95 to I-26 EB	2	12.9	B	12.8	B	12.7	B	16.3	B	17.9	B	17.1	B
3	I-95 SB to I-26	1	22.3	C	19.1	C	19.0	C	29.5	D	30.1	D	26.6	D
4	I-95 to I-26 WB	3	14.0	B	13.7	B	13.6	B	20.7	C	21.4	C	21.4	C
5	I-26 WB to I-95	1	-	-	-	-	43.2	E	-	-	-	-	64.4	F

7.4.5 Interchange Travel Times

Each interchange alternative significantly reduces congestion, which impacts overall service and results in shorter travel times. **Table 7.17** shows travel times for each system-to-system movement in the network, associated with an interchange ramp. **Table 7.18** shows the associated average speeds. TransModeler output for the 2030 and 2050 build alternatives travel time analysis is provided in **Appendix N.**

Table 7.17 indicates that travel times will continue to increase from 2022 to 2030 and 2050 if no interchange improvements are made. Travel times will decrease with the alternative interchange improvements. Compared to 2030 and 2050 No Build conditions, the Alternative 1 interchange improvements will result in a network-wide travel time savings of more than 3 minutes by 2030 and 2 hours by 2050. The Alternative 2 interchange improvements will result in a network-wide travel time savings of almost 3 minutes by 2030 and 2 hours by 2050. The Alternative 3 interchange improvements will result in a network-wide travel time savings of 1 minute and 36 seconds by 2030 and 2 hours by 2050.

Table 7.17: TransModeler Alternative Travel Time Results

Travel Time Segment			Travel Time (mm:ss)														
		Associated Ramp	2022 Existing	2030 No Build	2030 Build Alternative 1	Time Diff	2030 Build Alternative 2	Time Diff	2030 Build Alternative 3	Time Diff	2050 No Build	2050 Build Alternative 1	Time Diff	2050 Build Alternative 2	Time Diff	2050 Build Alternative 3	Time Diff
Start	End		7-lanes on I-26 + 6-lanes on I-95														
I-26 Eastbound, West of S.C. 210	I-26 Eastbound, East of U.S. 15	-	08:15	08:12	08:05	-00:07	08:05	-00:06	08:05	-00:07	08:20	-18:09	08:43	-17:45	08:17	-18:12	08:15
	I-95 Northbound, North of U.S. 176	3	10:15	10:21	10:11	-00:10	10:11	-00:10	10:11	-00:10	10:25	-16:04	10:49	-15:40	10:21	-16:08	10:15
	I-95 Southbound, South of U.S. 178	1	09:24	09:24	09:10	-00:14	09:11	-00:13	09:14	-00:10	09:39	-15:47	09:58	-15:28	09:35	-15:51	09:24
I-26 Westbound, East of U.S. 15	I-26 Westbound, West of S.C. 210	-	08:15	08:08	08:02	-00:06	08:02	-00:06	08:04	-00:04	08:13	-01:42	08:14	-01:41	08:16	-01:39	08:15
	I-95 Northbound, North of U.S. 176	5	08:19	08:21	08:14	-00:07	08:14	-00:07	08:27	00:06	08:23	-01:32	08:24	-01:31	08:39	-01:16	08:19
	I-95 Southbound, South of U.S. 178	7	08:08	08:09	08:03	-00:07	08:03	-00:07	08:51	00:42	08:26	-01:22	08:21	-01:27	09:12	-00:35	08:08
I-95 Northbound, South of U.S. 178	I-26 Eastbound, East of U.S. 15	4	07:24	07:40	07:32	-00:08	07:32	-00:08	07:32	-00:08	07:45	-17:28	07:45	-17:28	07:45	-17:27	07:24
	I-26 Westbound, West of S.C. 210	6	10:01	10:28	09:32	-00:56	09:48	-00:40	09:47	-00:40	10:03	-18:28	10:05	-18:26	10:03	-18:27	10:01
	I-95 Northbound, North of U.S. 176	-	08:59	09:33	08:38	-00:54	08:38	-00:55	08:38	-00:55	08:48	-16:38	08:49	-16:38	08:48	-16:39	08:59
I-95 Southbound, North of U.S. 176	I-26 Eastbound, East of U.S. 15	2	09:33	09:35	09:07	-00:28	09:26	-00:09	09:26	-00:09	09:36	-00:09	09:35	-00:10	09:37	-00:08	09:33
	I-26 Westbound, West of S.C. 210	8	10:16	10:13	10:18	00:05	10:15	00:02	10:15	00:02	10:25	00:06	10:26	00:07	10:25	00:06	10:16
	I-95 Southbound, South of U.S. 178	-	09:38	09:43	09:40	-00:03	09:40	-00:03	09:39	-00:04	10:02	-15:25	09:56	-15:30	09:56	-15:30	09:38
Time saved compared to No Build					**-0:03:14**		**-0:02:42**		**-0:01:36**			**-2:02:35**		**-2:01:36**		**-2:01:45**	

Table 7.18: TransModeler Alternative Average Speed Results

Travel Time Segment			Average Speed (mph)								
		Associated Ramp	2022 Existing	2030 No Build	2030 Build Alternative 1	2030 Build Alternative 2	2030 Build Alternative 3	2050 No Build	2050 Build Alternative 1	2050 Build Alternative 2	2050 Build Alternative 3
Start	End										
I-26 Eastbound, West of S.C. 210	I-26 Eastbound, East of U.S. 15	-	68	68	69	69	69	39	67	66	67
	I-95 Northbound, North of U.S. 176	3	68	67	68	69	68	44	67	66	67
	I-95 Southbound, South of U.S. 178	1	66	66	67	68	67	40	65	65	64
I-26 Westbound, East of U.S. 15	I-26 Westbound, West of S.C. 210	-	68	69	70	70	70	61	68	68	68
	I-95 Northbound, North of U.S. 176	5	67	67	67	69	66	60	68	68	65
	I-95 Southbound, South of U.S. 178	7	67	67	67	68	63	59	65	66	61
I-95 Northbound, South of U.S. 178	I-26 Eastbound, East of U.S. 15	4	68	67	66	65	66	39	63	63	64
	I-26 Westbound, West of S.C. 210	6	66	66	66	66	66	43	65	64	64
	I-95 Northbound, North of U.S. 176	-	69	67	68	69	68	43	67	67	67
I-95 Southbound, North of U.S. 176	I-26 Eastbound, East of U.S. 15	2	67	67	67	66	66	66	65	65	65
	I-26 Westbound, West of S.C. 210	8	68	69	68	68	68	68	67	67	67
	I-95 Southbound, South of U.S. 178	-	69	68	68	68	68	67	66	67	67
Average Speed			**67**	**67**	**67**	**68**	**67**	**52**	**66**	**66**	**65**

7.4.6 Initial TransModeler Interchange Alternatives Capacity Analysis Summary

Table 7.19 and **Table 7.20** show the TransModeler volumes served and density/LOS at each ramp of the I-26 at I-95 System interchange for all existing and future conditions.

The TransModeler results indicate that existing interchange conditions will continue degrading by 2030 and 2050 under projected volumes, potentially impacting the operation of I-95 by 2030 and I-26 by 2050. Each of the alternatives showed improvements in ramp volumes served, ramp density/LOS, travel times, and average speeds, compared to the No Build analyses. All three alternatives had similar ramp volume served and LOS results. Alternative 1 and 2 showed better operations on the shared ramp segments also. Additional year of failure analysis is documented in the next section for the I-26 and I-95 corridors.

Table 7.19: TransModeler Comparison of Build Alternative Interchange Ramp Volume Results

Segment Description		2030 Demand	2050 Demand	Volume Served | % Demand Served													
				2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 No Build:		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
1	I-26 EB to I-95 SB	1,570	2,192	1,516	97%	1,516	97%	1,512	96%	1,378	63%	1,870	85%	1,850	84%	1,881	86%
2	I-95 SB to I-26 EB	821	1,152	779	95%	779	95%	780	95%	1,075	93%	1,070	93%	1,071	93%	1,068	93%
3*	I-26 EB to I-95 NB	48	70	46	96%	46	96%	47	98%	50	71%	65	92%	64	91%	67	96%
4	I-95 NB to I-26 EB	278	375	266	96%	268	96%	269	97%	236	63%	338	90%	336	90%	336	90%
5	I-26 WB to I-95 NB	821	1,154	789	96%	789	96%	790	96%	1,100	95%	1,159	100%	1,160	100%	1,157	100%
6	I-95 NB to I-26 WB	1,570	2,194	1,529	97%	1,528	97%	1,531	97%	1,517	69%	2,218	100%	2,218	100%	2,211	100%
7*	I-26 WB to I-95 SB	278	375	281	100%	279	100%	280	100%	314	84%	333	89%	333	89%	328	87%
8	I-95 SB to I-26 WB	48	70	44	92%	43	90%	43	90%	59	85%	59	84%	60	85%	59	84%
Total Volume Served		**5,434**	**7,582**	**5,250**	**97%**	**5,249**	**97%**	**5,252**	**97%**	**5,729**	**76%**	**7,110**	**94%**	**7,091**	**94%**	**7,107**	**94%**

**Ramps 7 and 3 are loops in Alternative 1 and 2. Alternative 7 replaces the loop with a fly-over ramp.*

Table 7.20: TransModeler Comparison of Build Alternative Interchange Ramp Capacity Results

Segment Description		Density (pcpmpl) | LOS															
		2022 Existing		2030 No Build		2030 Build Alternative 1		2030 Build Alternative 2		2030 Build Alternative 3		2050 No Build		2050 Build Alternative 1		2050 Build Alternative 2		2050 Build Alternative 3	
1	I-26 EB to I-95 SB	43.0	E	48.5	F	20.0	C	20.4	C	20.9	C	43.5	E	25.3	C	25.2	C	25.7	C
2	I-95 SB to I-26 EB	29.2	D	33.0	D	20.4	C	20.3	C	20.5	C	47.0	F	28.8	D	28.9	D	29.1	D
3*	I-26 EB to I-95 NB	1.2	A	2.0	A	1.3	A	1.4	A	1.4	A	2.0	A	1.7	A	1.9	A	1.9	A
4	I-95 NB to I-26 EB	6.1	A	7.6	A	7.5	A	7.0	A	7.5	A	6.5	A	9.1	A	10.0	A	9.3	A
5	I-26 WB to I-95 NB	21.6	C	24.9	C	21.7	C	21.8	C	22.5	C	36.6	E	33.4	D	33.7	D	33.7	D
6	I-95 NB to I-26 WB	62.6	F	77.0	F	20.4	C	20.1	C	20.1	C	85.7	F	29.9	D	29.4	D	34.6	D
7*	I-26 WB to I-95 SB	7.4	A	10.8	A	8.8	A	8.1	A	9.4	A	13.0	B	10.0	A	10.0	A	11.0	B
8	I-95 SB to I-26 WB	0.9	A	1.2	A	1.0	A	1.2	A	1.1	A	1.5	A	1.5	A	1.5	A	1.6	A

**Ramps 7 and 3 are loops in Alternative 1 and 2. Alternative 7 replaces the loop with a fly-over ramp.*

8. REFINED TRANSMODELER ANALYSIS OF KEY MERGES

Chapters 6 and 7 provided a comparative analysis of the No Build and proposed Build alternatives using HCS and TransModeler. The purpose of Chapter 8 is to test and identify improvements to the proposed design that could be applied to improve traffic operations. As identified in both Chapters 6 and 7, two key capacity issues requiring additional analysis are:

- The merge of southbound I-95 with the ramp carrying traffic from I-26 eastbound to I-95 southbound. This issue is especially critical given that no widening is currently planned on I-95 south of I-26.
- Similarly, an operational issue on the I-26 westbound merge with the proposed flyovers carrying traffic from I-95 northbound to I-26 westbound. The planned widening of I-26 helps relieve this issue, but some operational and queuing effects are noted that impact flow through the project interchange.

Note that the Chapter 6 and 7 analyses were preliminary analyses used to develop and refine the preferred design. For both chapters, assumptions were made analyzing flows on all ramps by including extra capacity on I-95 to the south and I-26 to the west. This assumption maximized traffic volumes through the I-26 at I-95 interchange.

8.1 I-26 and I-95 Corridor Year of Failure Analysis

Preliminary unconstrained analysis identified two segments where congestion impacted ramp flow: I-95 southbound south of the interchange and I-26 westbound west of the interchange. In both cases, the highest volume ramps in the corridor must merge into interstate mainline lanes despite higher volumes on the ramps. As a result, while the interchange has adequate capacity, queuing from the downstream interstate queues backs to the interchange.

TransModeler was used to evaluate a year of failure to determine when mitigation might be needed and different options for mitigation. Alternative 1, without additional widening to I-95, was used in each evaluation to allow for free-flowing ramp operations but would apply similarly for all three Build alternatives.

The analysis began with estimating origin-destination matrices for 2040 by averaging the 2030 and 2050 matrices. These volumes were used to evaluate the critical segments in 2040 and 2045. **Table 8.1** shows the capacity results for 2030, 2040, and 2045. TransModeler output for the year of failure analysis is provided in **Appendix O.**

Table 8.1: TransModeler I-95 Southbound and I-26 Westbound Freeway Segment Year of Failure Results

Basic Segment Location	Density (pcpmpl) | LOS					
	2030 Build Alternative 1		2040 Build Alternative 1		2045 Build Alternative 1	
I-95 Southbound South of I-26 and I-95 System Interchange	36.14	E	50.53	F	52.03	F
I-26 Westbound West of the I-26 and I-95 System Interchange	14.01	B	24.16	C	56.03	F

Thresholds for LOS D and E are densities >29 pc/mi/ln and >35 pc/mi/ln. LOS F occurs with V/C > 1.0.

Table 8.1 suggests the I-95 southbound basic segment reaches LOS E by 2030. When the I-95 southbound segment reaches LOS E in 2030, the I-26 eastbound to I-95 southbound ramp will queue back to I-26 eastbound. The I-26 westbound basic segment exceeds LOS D between 2040 and 2045.

8.2 Merge Length Analysis for I-26 Westbound

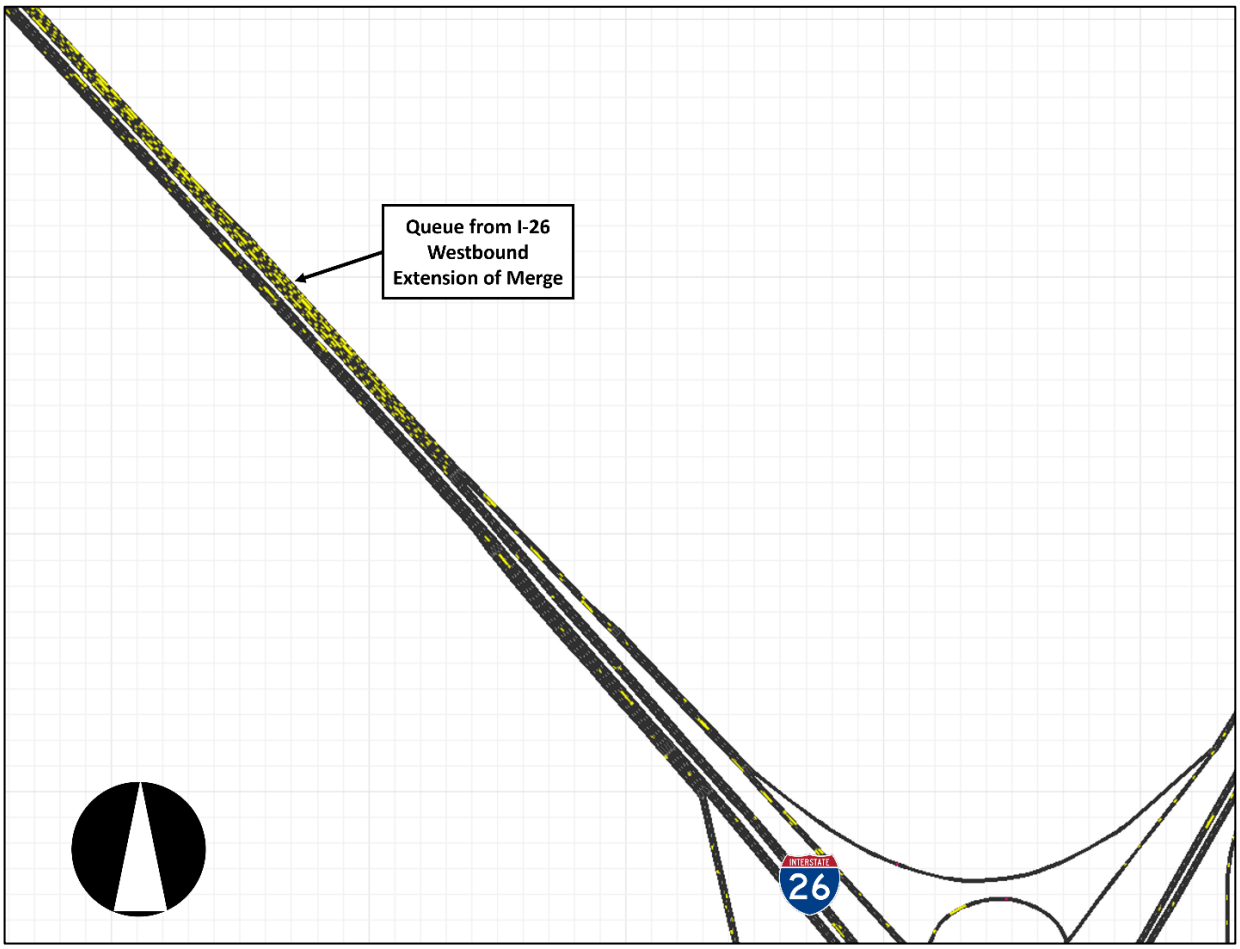
As a follow-on analysis to the freeway year of failure analysis, a second analysis was developed examining the length of a merge lane required to prevent queuing into the I-26 at I-95 interchange. The I-26 westbound merge congestion begins where the two-lane flyover Ramp 6 (which replaces loop Ramp 6) merges onto I-26 westbound. Using 2050 data, a temporary extension of merge areas was analyzed to determine what length of merge can keep congestion queues off the interchange ramps without needing a full auxiliary lane carried the to the S.C. 210 interchange. Visual queue lengths were the basis of this analysis and simulations were stopped just before the peak hour ended.

A series of model runs were completed showing queuing issues on the westbound merge. For I-26 westbound, an iterative lengthening of the 4-lane merge area determined that an additional 4,000 feet is needed to keep the congestion from queuing onto the I-95 northbound to I-26 westbound ramp. **Figure 8.1** shows the queue not spilling back to the I-95 northbound to I-26 westbound ramp.

Key findings of this analysis for the westbound merge include:

- A 4,000-foot westbound merge of the two-lane ramp would be needed to minimize potential of queuing back into the interchange area or ramp in 2050.
- This analysis was done assuming that all ramp traffic from I-95 northbound would be processed on the flyover Ramp 6. To do this, the TransModeler network assumed an additional I-95 northbound lane. Since an additional lane on I-95 is not planned, the traffic demand may be metered during the highest periods of congestion, reducing the ramp movement and subsequent merge movement that was analyzed to determine the 4,000-foot merge length.

Figure 8.1: TransModeler 2050 Build Alternative 1 - I-26 Westbound Widening



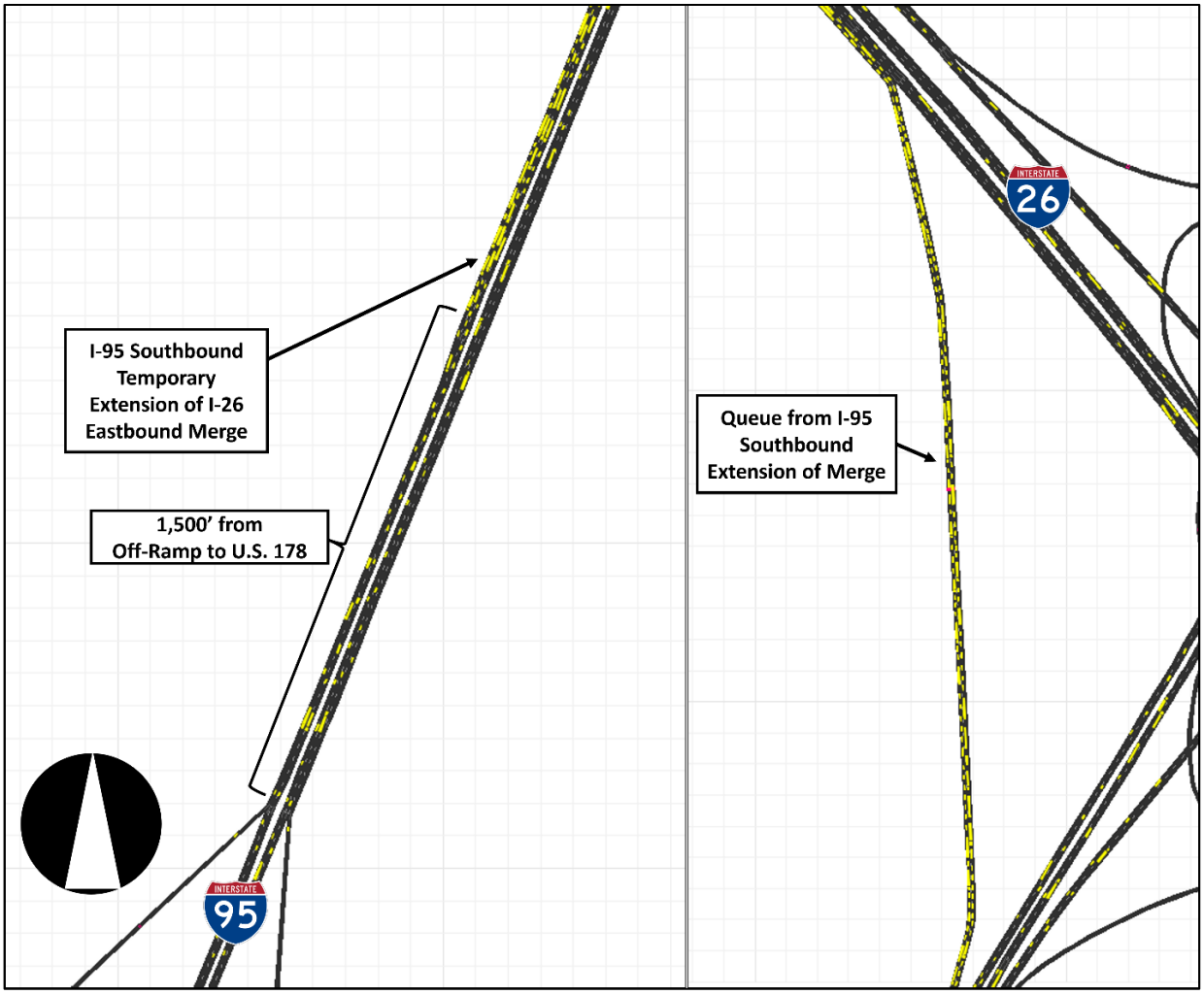
8.3 Merge Length Analysis for I-95 Southbound

An additional merge length analysis was also completed for I-95 southbound that further examines the segment of I-95 southbound south of the system interchange in 2030 and 2050 to determine mitigation of the merge area. The analysis focused on the length of a merge lane required to prevent queuing into the I-26 at I-95 interchange caused by a two-lane section on I-95 having inadequate capacity. Using 2050 data, a temporary extension of merge areas was analyzed to determine what length of merge can keep congestion queues off the interchange ramps without needing a full auxiliary lane carried the full two and one-half miles to the U.S. 178 interchange. Visual queue lengths were the basis of this analysis and simulations were stopped just before the peak hour ended.

8.3.1 Initial Testing of Extended Merge

Figure 8.2 shows the extension of the merge area just north of U.S. 178 and the resulting queue on the ramp. For I-95 southbound, an iterative lengthening of the three-lane merge area determined that the congestion would continue queuing onto the I-26 eastbound to I-95 southbound ramp even if this merge is extended to provide three southbound lanes over two miles to within 1,500 feet from the off-ramp to U.S. 178. Figure 8.2 shows the queue spilling back onto the I-26 eastbound to I-95 southbound ramp and further into the I-26 eastbound mainline. In general, the findings were that simply extending the merge lane would not address the congestion issue related to inadequate capacity on I-95 south of the I-26 at I-95 interchange.

Figure 8.2: TransModeler 2050 Build Alternative 1 - I-95 Southbound Widening



8.3.2 Alternative Merge Treatments for I-95 Southbound based on ITE Interchange Design Handbook Guidance

Based on the previous analysis in Section 8.3.1 simply extending the merge lane at the I-95 southbound merge would not eliminate queuing back into the I-26 at I-95 interchange even with the proposed Build alternative improvements. The key issue is that 2050 volumes are expected to exceed the volume of a two-lane freeway section on I-95 south of the interchange. This analysis also indicated that congestion would persist with improvements to the merge area in 2050.

Further analysis for 2030 and 2050 was used to examine alternative merging solutions to mitigate congestion in the merge area to ideally allow for free-flowing ramp operations. Alternative 1 was used in each evaluation to allow for free-flowing ramp operations but would apply similarly for all three Build alternatives.

All merges were assumed to be for a two-lane ramp merging into a two-lane freeway. The section starts with four lanes and the ramp lanes are dropped from the right side. It is assumed that the rightmost lane is merged over approximately half the total merge distance resulting in a three-lane section. The next ramp lane is similarly merged into the two interstate lanes in the second half of the merge.

As noted, two merge lengths were tested on I-95 southbound. The shorter merge section of 2,500 feet was provided in the initial interchange concept based on minimum geometric requirements from AASHTO's "*A Policy on Geometric Design of Highways and Streets*" (ISBN-13: 978-1560516767, 2018 edition) for a two-lane merge comparing gap acceptance length and acceleration length.

After consultation with SCDOT staff, reference was made to the Institute of Transportation Engineers "*Freeway and Interchange Geometric Design Handbook*" (ISBN: 0-935403-94-9 published January 2005) as an alternate guideline. Chapter 6 of this document includes a section on auxiliary lanes with the following guidance which is applicable to our current situation.

> *When interchanges are widely spaced, it might not be feasible or necessary to extend the auxiliary lane from one interchange to the next. In such cases, an auxiliary lane added at a two-lane entrance should be carried along the freeway for an effective distance beyond the merging point, or an auxiliary lane introduced on a two-lane exit should be carried along the freeway for an effective distance in advance of the exit and extended onto the ramp. Experience indicates that distances of about 2,500 feet are needed to produce the necessary operational effect and develop the full capacity of two-lane entrances and exits on high-type facilities.*

The key element is that once a distance of 2,500 feet is reached for a lane merge, the operational effects and capacity benefits are effectively achieved, and additional

extension provide minimal benefit. After consultation with SCDOT, it was confirmed that the 2,500-foot guidance was for each lane to dropped in the merge. Based on the feedback and consideration of the ITE guidance, a 5,000-foot merge was tested and compared with a 2,500-foot merge.

Based on these assumptions, four scenarios were analyzed for both 2030 and 2050 analyses:

1. Build Alternative 1 concept with no I-95 widening
    a. Southbound merge section of 2,500 feet (reflects the initial concept design for the interchange Alternative 1)

2. Build Alternative 1 with no I-95 widening
    a. Increase southbound merge section to 5,000 feet (reflects the proposed ITE method for maximizing the effective merging distance)

3. Build Alternative 1 with I-95 widened to 3-lanes southbound (tests ultimate future layout)
    a. Southbound merge section of 2,500 feet

4. Build Alternative 1 with I-95 widened to 3-lanes southbound (tests ultimate future layout)
    a. Increase southbound merge section to 5,000 feet

Option 1 represents the base condition with a 2,500-foot merge for the key merge area. This option was utilized to compare the mitigations described in Options 2, 3, and 4. I-95 southbound operational improvements were compared using freeway density, LOS, and travel times. Focusing only on the I-95 southbound operations, freeway density and LOS was analyzed for the I-95 southbound segments south of the I-26 and I-95 system interchange and shown in **Table 8.2**. Additionally, travel time was analyzed for segments ending at I-95 southbound, south of U.S. 178 and shown in **Table 8.3**. TransModeler output for the I-95 southbound south of the system interchange analysis is provided in **Appendix P.**

Table 8.2: TransModeler I-95 Southbound Freeway Segment Density Results

Segment Number	Segment Description	Segment Type	Density (pcpmpl) | LOS																	
			2030 No Build – No Widening		1. 2030 Build Alternative 1 - No I-95 Widening with 2,500 ft merge		2. 2030 Build Alternative 1 - No I-95 Widening + Extended 5,000 ft Merge		3. 2030 Build Alternative 1 - I-95 Widening with 2,500 ft merge		4. 2030 Build Alternative 1 - I-95 Widening + Extended 5,000 ft Merge		2050 No Build		1. 2050 Build Alternative 1 - No I-95 Widening + with 2,500 ft merge		2. 2050 Build Alternative 1 - No I-95 Widening + Extended 5,000 ft merge		3. 2050 Build Alternative 1 - I-95 Widening with 2,500 ft merge		4. 2050 Build Alternative 1 - I-95 Widening + Extended 5,000 ft merge	
1	North of U.S. 176	Basic	19.2	C	19.1	C	19.1	C	12.6	B	12.6	B	24.1	C	24.1	C	24.1	C	15.7	B	15.8	B
24.1	Off-Ramp to U.S. 176	Diverge	22.3	C	21.5	C	21.2	C	13.1	B	13.1	B	26.6	D	26.5	C	27.2	C	17.0	B	16.7	B
26.5	Between U.S. 176 Ramps	Basic	18.9	C	19.0	C	18.8	C	12.5	B	12.4	B	24.1	C	24.1	C	24.0	C	15.5	B	15.5	B
24.1	On-Ramp from U.S. 176	Merge	19.5	B	19.5	B	19.4	B	12.0	B	12.4	B	24.3	C	23.9	C	24.3	C	14.9	B	14.7	B
23.9	North of I-26/I-95 Interchange	Basic	20.5	C	20.5	C	20.4	C	13.4	B	13.4	B	25.7	C	25.7	C	25.7	C	16.7	B	16.8	B
25.7	Off-Ramp to I-26	Diverge	21.2	C	18.6	B	19.6	B	13.5	B	13.6	B	26.6	C	24.1	C	23.7	C	17.5	B	17.1	B
24.1	Between Ramps	Basic	21.1	C	12.9	B	12.1	B	8.2	A	8.3	A	28.9	D	15.1	B	15.1	B	9.5	A	9.8	A
15.1	Loop On-Ramp from I-26 WB	Merge	19.3	B	11.4	B	10.8	B	6.6	A	6.8	A	30.0	D	13.1	B	13.6	B	8.7	A	8.0	A
13.1	Between Ramps	Basic	16.3	B	15.4	B	16.2	B	9.9	A	10.1	A	20.1	C	22.0	C	24.0	C	12.1	B	12.0	B
22.0	On-Ramp from I-26 EB	Critical Merge under Study	28.7	D	25.4	C	18.6	B	18.9	B	15.7	B	30.2	D	109.3	F	93.8	F	23.1	C	18.9	B
109.3	South of I-26/I-95 Interchange	Basic	30.6	D	36.1	E	20.0	C	19.7	C	14.6	B	32.6	D	115.4	F	51.4	F	24.5	C	17.8	B
115.4	Off-Ramp to U.S. 178	Diverge	31.3	D	29.8	D	20.0	B	19.1	B	14.6	B	32.4	D	29.8	D	29.7	D	22.2	C	22.7	C
115.4	Between U 178 Ramps	Basic	29.8	D	29.7	D	30.0	D	18.4	C	18.9	C	32.1	D	28.8	D	29.4	D	23.5	C	22.9	C
14	On-Ramp from U.S. 178	Merge	30.8	D	32.0	D	32.4	D	18.4	B	18.8	B	33.5	D	30.7	D	30.8	D	21.0	C	22.2	C
15	South of U.S. 178	Basic	30.0	D	29.7	D	29.9	D	19.4	C	19.7	C	31.7	D	29.9	D	29.7	D	24.0	C	23.8	C

Table 8.3: TransModeler I-95 Southbound Travel Time Results

Travel Time Segment		Travel Time (mm:ss) \ Average Speed (mph)												
Start	End	1. 2030 Build Alternative 1 - No I-95 Widening with 2,500 ft merge	2. 2030 Build Alternative 1 - No I-95 Widening + Extended 5,000 ft Merge	Time Diff	3. 2030 Build Alternative 1 - I-95 Widening with 2,500 ft merge	Time Diff	4. 2030 Build Alternative 1 - I-95 Widening + Extended 5,000 ft Merge	Time Diff	1. 2050 Build Alternative 1 - No I-95 Widening with 2,500 ft merge	2. 2050 Build Alternative 1 - No I-95 Widening + Extended 5,000 ft Merge	Time Diff	3. 2050 Build Alternative 1 - I-95 Widening with 2,500 ft merge	Time Diff	4. 2050 Build Alternative 1 - I-95 Widening + Extended 5,000 ft Merge	Time Diff
I-26 Eastbound, West of S.C. 210	I-95 Southbound, South of U.S. 178	09:16	09:03	-00:13	09:06	-00:10	09:05	-00:11	24:14	17:37	-06:37	09:18	-14:56	09:16	-14:57
Average Speed (mph)		66	67	-	68	-	68	-	45	52	-	66	-	66	-

Using these model results, a matrix comparison was prepared of the key findings and results of this comparison as shown in **Table 8.4** and **Table 8.5**.

Table 8.4: TransModeler I-95 Southbound LOS Comparison

Movement	2030 LOS from TransModeler		2050 LOS from TransModeler	
I-26 EB to I-95 SB	Ramp from I-26 EB to I-95 SB	I-95 SB merge	Ramp from I-26 EB to I-95 SB	I-95 SB merge
	Maintain 2 SB lanes on I-95			
2,500-foot merge	C	E	E	F
5,000-foot merge	B	C	E	F
	Widen to 3 SB lanes on I-95			
2,500-foot merge	A	A	A	B
5,000-foot merge	A	A	A	B

Table 8.5: TransModeler I-26 Eastbound to I-95 Southbound Movement: Travel Time & Speed Comparison

Movement	Travel Time EB to SB		Delay per Vehicle over Uncongested Travel Time of 09:00 (in min:sec)		Travel Speed EB to SB	
I26 EB to I-95 SB	2030	2050	2030	2050	2030	2050
	Maintain 2 SB lanes on I-95					
2,500-foot merge	09:16	24:14	0:16	15:14	66 mph	45 mph
5,000-foot merge	09:03	17:37	0:03	8:37	67 mph	52 mph
	Widen to 3 SB lanes on I-95					
2,500-foot merge	09:06	09:18	0:06	0:18	68 mph	66 mph
5,000-foot merge	09:05	09:16	0:05	0:16	68 mph	66 mph

8.3.3 Level of Service

- 2030: With a 2,500-foot merge, LOS E will be observed on I-95 immediately south of the ramp merge. Lengthening the merge to 5,000 feet improves 2030 operations to LOS C.
- 2050: Increasing volumes on I-95 will result in LOS F operations at the merge regardless of whether a 2,500-foot merge or 5,000-foot merge. This is consistent with the iterative merge analysis that showed queuing even if the merge were extended more than two miles.

- Widening I-95 to a six lane section results in LOS C and B operations in 2050 with a 2,500-foot or 5,000-foot merge, respectively.

8.3.4 Travel Times and Travel Speeds

- Baseline for Uncongested Operations: Relative free flow (LOS A and B) are anticipated for all scenarios with three southbound lanes on I-95. Using this as a base for comparison, uncongested conditions are assumed to be occurring with a travel time of 9 minutes corresponding to a travel speed of 68 mph.
- 2030: With a 2,500-foot merge, queuing and congestion will slightly increase travel times and decrease travel speed to 66 mph (a reduction of 2 mph). In comparison, a 5,000-foot merge maintains relatively uncongested travel times through the southbound merge.
- 2050: With either a 2,500 foot or a 5,000-foot merge, congested conditions will increase travel time and reduce travel speed substantially on both the ramp from I-26 eastbound to I-95 southbound as well as on I-95 southbound if I-95 is not widened. Nevertheless, a 5,000-foot merge still provides substantial benefit compared with the 2,500-foot merge in terms of travel time saving and operational speeds:
  - With a 5,000-foot merge, travel time (17 minutes 37 seconds) is almost twice as long as uncongested conditions (approx. 9 minutes 0 seconds). In comparison, the 2,500-foot merge travel time (24 minutes 14 seconds) is near three times the uncongested travel time.
  - Looked at in terms of delay, the 5,000-foot merge has 8 minutes 37 seconds of delay per vehicle which is near half the 15 minutes 14 seconds of delay with a 2,500-foot merge.
  - Average travel speeds with the 5,000-foot merge ramp is 52 mph compared with 45 mph with a 2,500 foot ramp. If I-95 were to be widened in the future, 66 mph flow is anticipated with either merge treatment.

Based on this analysis (especially the travel time, delay and speed analysis), it is recommended that a 5,000-foot merge section be utilized for the two-lane ramp merging onto I-95 southbound. With the 5,000-foot merge, peak hour delays on the eastbound to southbound movement will be approximately half that which occurs with a 2,500-foot merge.

9. FINAL TRANSMODELER COMPARISON OF NO BUILD & PREFERRED ALTERNATIVE

9.1 Selection of Preferred Interchange Alternative & Design Enhancements

Based on the initial analysis comparison of alternatives in Chapter 6 and the more detailed findings and refinements in Chapter 8, the following conclusions were reached for the comparison of alternatives.

- From a traffic perspective, Alternatives 1 and 2 operate almost identically since the traffic volumes and recommended laneage are the same at all merge and diverge points.
- Alternative 3 operates similarly to Alternatives 1 and 2 but does exhibit some operational deficiencies. Specifically, the replacement with a flyover introduces two traffic capacity issues:
  - The merge from the flyover onto I-95 southbound occurs further south than the loop merge that is being replaced. Due to the shift southward, there is a shorter distance to the critical four lane merging section of the I-26 eastbound to I-95 southbound merge. The reduced spacing causes disruptions in flow at both merge areas.
  - With the third flyover, the I-26 westbound shared ramp requires a combined exit of both the I-95 northbound and I-95 southbound traffic. This ramp exit then divides approximately 800 to 1000 feet downstream. The combination of these two movements into a single lane shared ramp results in a poor LOS on the combined ramp segment.

Based on this review, both Alternative 1 and 2 meet the traffic operational requirements for the project and provide essentially the same level of traffic operations and are equally acceptable as a preferred alternative from a traffic perspective. After additional analysis examining multiple planning, impact, design and cost characteristics (in addition to the traffic analysis), Alternative 2 was identified as the Preferred Alternative for the project.

In addition to the identification of the highest functioning interchange alternatives from a traffic perspective, Chapter 8 examined some key operational requirements of the proposed alternatives. The two key elements are:

- On I-95 southbound, no widening of I-95 is currently planned. As a result, there are capacity issues noted for the high-volume merge of the I-26 eastbound to I-95 southbound ramp with I-95 southbound south of the interchange.

  - After a series of iterative runs and examination of alternatives, it is recommended that this merge area be extended to 5,000 feet (approximately 1 mile) with a four-lane section carried for 2,500 feet followed by a three-lane section of an additional 2,500 feet.
  - Even with this configuration some queuing is anticipated in the southbound direction from the ultimate merge back into two lanes. This queue is expected to back into the interchange during the peak analysis period (based on TransModeler), but additional length on the merge does not substantially improve traffic flows.
  - In order to eliminate queuing at this merge in 2050, I-95 widening to a three-lane section would be required. If this were to happen in the future, the proposed 5,000-foot weave would provide adequate capacity for operations without anticipated queuing.

- On I-26 westbound, there is also a high-volume merge from proposed two-lane I-95 northbound to I-26 westbound flyover located west of the interchange. Even with the planned six-lane widening of I-26, the merge area westbound was determined to require a 4,000-foot merge. Ideally, the merge would be 5 lanes for the first 1,500 feet and four lanes for the next 2,500 feet before merging into the planned three mainline lanes on westbound I-26.

As part of the Interchange Modification Report requirements, this section examines the No Build scenario and the preferred alternative scenario in both the 2030 opening year and the 2050 design year. For the preferred alternative, the Alternative 2 TransModeler simulation model is used as a base with modifications to include the longer merge distance on I-95 southbound and I-26 westbound. Note that although the Alternative 2 model is being used as a base, the results are intended to reflect either Alternative 1 or 2 for traffic analysis.

9.2 Final Comparison of No Build and Preferred Alternative with TransModeler

The final step in the traffic analysis was to test operations for the No Build scenarios with the preferred alternative as revised based upon the Chapter 8 analysis of key merges – specifically the provision of a 5,000-foot merge onto I-95 southbound and a 4,000-foot westbound merge onto I-26.

The analysis methods will be the same as originally applied in the Section 7.1.3 TransModeler analysis and the Section 7.4 comparison of Build alternatives. The analysis findings in this new section are different and show higher levels of congestion for the preferred alternative. The key reason is that Section 7.1.3 analysis assumed widening of I-95 (and westbound auxiliary lanes on I-26) to maximize flows entering and exiting the interchange on all approaches and departures. This was necessary at

that stage to verify the overall design requirements and still allowed for comparison of alternatives.

The updated analysis in this section assumes no widening on I-95 (four mainline lanes – two northbound and two southbound) as well as the lengthened merge areas on I-26 westbound and I-95 southbound. As a result, there are locations with poor LOS and reduced speeds (primarily due to congestion at the I-26 westbound merge area and the I-95 southbound merge area). Due to the future congestion issues with the preferred alternative operations in 2050, an interim year analysis of both of these key merges is also addressed. TransModeler output for the 2030 and 2050 No Build and Build preferred alternative conditions output is provided in **Appendix Q.**

The updated TransModeler analysis provides a comparison of five scenarios:

- 2022 Existing
- 2030 No Build and 2030 Build Preferred Alternative
- 2050 No Build and 2050 Build Preferred Alternative

9.2.1 Freeway Operations and Key Merge, Diverge and Weave Operations

The following section describes the evaluation of the I-26 at I-95 system interchange as well as proposed alternative interchange configurations to address deficiencies. The analysis examined traffic flows in the four key directions along I-26 and I-95. Key findings from each table include:

Eastbound on I-26

As shown in **Table 9.1**, there is congestion anticipated in 2050 on the three-lane approach to the I-26 at I-95 interchange and on the ramp to I-95 southbound. Specific observations include:

- The three-lane freeway approach (Link 5 EB) to the ramp is projected to operate at LOS F in both the 2050 No Build and Build scenarios. That said, the preferred alternative congestion is substantially lower with a density (46.6 pcpmpl) less than half of the No Build density (110.2 pcpmpl).
- The diverge section (Link 6 EB) just past the freeway section is showing as LOS F with the preferred alternative compared to LOS E with the No Build. Key issues in both the No Build and Build operations are:
  - For the No Build, the existing one lane ramp to I-95 southbound (at the Link 6 EB diverge) is not able to process the full volume of demand. As a result, substantial volumes of traffic is queuing back onto I-26 (Link 5 EB). Once I-26 is congested it hits a bottleneck which meters eastbound traffic from

reaching the diverge at Link 6. Diverging traffic is able to travel at a lower density on the ramp to southbound I-95 once the bottleneck is passed.

  - In the 2050 Build scenario, the simulation is showing impacts of queuing and congestion backing onto the widened two-lane ramp from the merge with I-95 southbound. This downstream queuing represents a shift in the bottleneck point from the southern merge point on the ramp. As a result, the two-lane ramp is processing higher volumes, but the density is increased (and LOS worsened) on the ramp.

  - Operations with the proposed alternative is preferred to the No Build since the two-lane ramp processes higher volumes and queuing on I-26 eastbound is reduced (and shifted to the two-lane ramp).

- As noted, the southbound merge area is a key constraint affecting Link 6 and likely Link 5. Therefore, more detailed analysis of the southbound merge is presented in Section 9.2.5 to examine the interim operations between 2030 and 2050.

- The preferred alternative eliminates the weave section. The TransModeler analysis underestimates congestion at most links east of Links 5 and 6 as through traffic is metered downstream of Links 5 and 6.

Westbound on I-26

As shown in **Table 9.2**, there is congestion noted for the 2050 preferred alternative. Key observations are:

- For the preferred alternative, eastbound operations are at LOS B and C until the merge of the I-95 northbound to I-26 westbound ramp. This high-volume ramp (Link 12 WB) operates at LOS E due primarily to the merging section at the freeway (Link 13 WB which is split into two segments) that operates at LOS F in 2050. Similar to the I-95 southbound merge, more detailed analysis of the I-26 westbound merge is included in Section 9.2.5.

- The preferred alternative eliminates the westbound weave section due to the removal of the high-volume ramp in the northeast quadrant. The removal of the weave decreases density, improves LOS, and improves operations overall. Note that in the No Build scenario, the weave meters flow merging onto I-26 westbound since it cannot process the demand volumes (i.e., the one lane loop is replaced by a two-lane flyover in order to serve the demand). As a result, the westbound operations are artificially reflecting LOS C westbound operations downstream of the weave.

Northbound on I-95

As shown in **Table 9.3**, LOS C is maintained on I-95 northbound with the preferred alternative. Key observations are:

- The preferred alternative eliminates the northbound weave section. The removal of the northeast quadrant loop and the existing weave addresses one of the key congestion bottlenecks within the existing interchange with LOS F operations in 2030 (Link 8 NB) and queuing back to the nearest upstream segment (Link 7 NB). By 2050, the queuing for the weave and single lane loop ramp extends south to the U.S. 178 interchange.
- In both the No Build and preferred alternative, I-95 is assumed to remain two lanes northbound. In both cases, the two-lane I-95 section is unable to serve the 2050 northbound traffic with LOS F in the No Build and LOS E with the preferred alternative on Links 1 NB through 3 NB. The difference is due to residual effects of the weaving section's failed operations in the No Build.

Southbound on I-95

As shown in **Table 9.4** (and discussed in detail), the merge of the I-26 eastbound to I-95 southbound ramp with the I-95 southbound traffic is a key bottleneck. Key observation of how this affects southbound flow include:

- The merge to the southbound I-95 operates at a LOS F by 2050. For this analysis the merge has been divided into each lane drop to illustrate the increasing congestion as the available lanes are reduced. More detailed analysis is shown in Section 9.2.5 to look at interim years.
- The southbound merge appears to operate at LOS D in the No Build condition. The primary reason, however, is that the high-volume ramp from I-26 eastbound to I-95 southbound is only one lane in the No Build resulting in queuing from the ramp back onto I-26 eastbound and reduced volumes being processed.
- The preferred alternative also eliminates the southbound weave section improving operations and reducing conflicts.

Table 9.1: TransModeler Freeway Segment Density Results: I-26 Eastbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS									
			2022 Existing		2030 No Build		2030 Build Preferred Alt		2050 No Build		2050 Build Preferred Alt	
1	West of S.C. 210	Basic	23.9	C	18.0	C	18.1	C	61.9	F	26.3	D
2	Off-Ramp to S.C. 210	Diverge	23.4	C	15.2	B	13.9	B	39.9	E	20.9	C
3	Between S.C. 210 Ramps	Basic	23.9	C	17.9	B	18.0	C	85.1	F	25.6	C
4	On-Ramp from S.C. 210	Merge	23.2	C	14.7	B	14.2	B	87.6	E	21.4	C
5	West of I-26/I-95 System Interchange	Basic	24.6	C	19.0	C	18.3	C	110.2	F	46.6	F
6	Off-Ramp to I-95 SB	Diverge	36.7	E	27.0	C	12.2	B	30.5**	F***	58.9	F
7	Between Ramps	Basic	12.3	B	9.2	A	8.6	A	11.0	B	13.1	B
8	I-26 at I-95 System Weave* (No Build) Off ramp to Loop (Preferred Alt)	Weave Diverge	11.9	B	10.4	B	4.6	A	15.8	B	7.9	A
9	Between Ramps	Basic	18.9	C	13.1	B	8.4	A	17.5	B	11.3	B
10	On-Ramp from I-95 NB	Merge	18.1	B	13.3	B	11.6	B	15.7	B	15.9	B
11	East of I-26/I-95 System Interchange	Basic	19.7	C	15.0	B	11.5	B	17.9	B	16.6	B
12	Off-Ramp to U.S. 15 SB	Diverge	18.8	B	11.2	B	11.4	B	13.8	B	15.6	B
13	Between Ramps	Basic	17.0	B	14.2	B	14.1	B	17.3	B	20.0	C
14	Weave to/from U.S. 15	Weave	8.4	A	4.4	A	6.1	A	5.6	A	9.3	A
15	Between Ramps	Basic	20.4	C	15.2	B	14.9	B	17.6	B	20.5	C
16	On-Ramp from U.S. 15 NB	Merge	19.0	B	12.0	B	13.2	B	14.4	B	17.9	B
17	East of U.S. 15	Basic	19.8	C	14.2	B	14.3	B	18.2	C	19.8	C

**In all 2030 and 2050 Build Alternatives the weave segment is removed. This segment is replaced by a diverge segment, which is the off-ramp to I-95 Northbound.*

*** For 2050, the No Build has substantial queuing and restricted flow at Link 6 which is a bottleneck due to the ramp from I-26 eastbound to I-95 southbound having inadequate capacity (one lane compared with two lanes in the Build). As a result, queuing and delays occur on I-26 upstream of the ramp with increased densities and poor LOS. Densities on downstream links are lower than the Build alternatives based on the lower volumes being served.*

**** Although density reflect better LOS, the capacity of the one lane exit is exceeded in the No Build resulting in substantial delays and queuing.*

Table 9.2: TransModeler Freeway Segment Density Results: I-26 Westbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS									
			2022 Existing		2030 No Build		2030 Build Preferred Alt		2050 No Build		2050 Build Preferred Alt	
1	East of U.S. 15	Basic	19.6	C	15.1	B	15.0	B	22.7	C	22.6	C
2	Off-Ramp to U.S. 15 NB	Diverge	13.0	B	11.2	B	11.2	B	17.7	B	17.1	B
3	Between Ramps	Basic	19.2	C	14.5	B	14.8	B	22.3	C	22.8	C
4	Weave to/from U.S. 15	Weave	9.4	A	6.9	A	5.8	A	11.2	B	11.5	B
5	Between Ramps	Basic	19.4	C	15.3	B	15.0	B	21.4	C	21.8	C
6	On-Ramp from U.S. 15 SB	Merge	19.3	B	13.2	B	12.2	B	19.9	B	18.3	B
7	East of I-26/I-95 System Interchange	Basic	19.8	C	15.4	B	15.0	B	23.8	C	22.5	C
8	Off-Ramp to I-95 NB	Diverge	19.9	B	14.0	B	15.4	B	20.8	C	22.8	C
9	Between Ramps	Basic	14.1	B	10.8	A	10.3	A	16.4	B	14.8	B
10	I-26 at I-95 System Weave* (No Build) Off ramp to Loop (Preferred Alt)	Weave	27.3**	C	29.0	D	7.8	A	33.7**	D	10.8	B
11	Between Ramps	Basic	29.0	D	21.3	C	8.6	A	25.8	C	12.8	B
12	On-Ramp from I-95 SB	Merge	24.3	C	17.0	B	14.0	B	20.8	C	47.4	F
13	West of I-26/I-95 System Interchange	Basic – 4 Lanes	24.2	C	18.5	C	13.8	B	23.3	C	78.6	F
		Basic – 3 Lanes					19.0	C			99.7	F
14	Off-Ramp to S.C. 210	Diverge	29.1	D	16.5	B	18.1	B	22.5	C	30.0	D
15	Between S.C. 210 Ramps	Basic	24.4	C	17.7	B	18.6	C	23.3	C	25.5	C
16	On-Ramp from S.C. 210	Merge	22.6	C	13.8	B	13.8	B	17.3	B	19.0	B
17	West of S.C. 210	Basic	23.9	C	18.2	C	18.2	C	22.4	C	22.4	C

**In all 2030 and 2050 Build Alternatives the weave segment is removed. This segment is replaced by a diverge segment for the off-ramp to I-95 Northbound.*

*** For 2050, I-26 westbound flow is less congested based on the TransModeler simulation because the loop serving I-95 northbound to I-26 westbound is only one lane severely limiting the volumes that can access I-26 westbound. Densities on downstream links are lower than the Build alternatives based on the lower volumes being served.*

Table 9.3: TransModeler Freeway Segment Density Results: I-95 Northbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS									
			2022 Existing		2030 No Build		2030 Build Preferred Alt		2050 No Build		2050 Build Preferred Alt	
1	South of U.S. 178	Basic	24.7	C	29.3	D	29.2	D	87.0	F	38.6	E
2	I-26 NB Off-Ramp to U.S. 178	Diverge	30.1	D	37.9	E	34.5	D	106.5	F	41.4	E
3	I-26 EB Between U.S. 178 Ramps	Basic	23.4	C	27.3	D	27.6	D	93.1	F	35.9	E
4	I-26 EB On-Ramp from U.S. 178	Merge	25.1	C	21.6	C	19.8	B	121.8	F	25.2	C
5	South of I-26/I-95 System interchange	Basic	25.3	C	21.6	C	19.8	C	121.8	F	25.2	C
6	Off-Ramp to I-26 EB	Diverge	26.0	C	21.6	C	17.0	B	121.8	F	23.4	C
7	Between Ramps	Basic	24.9	C	66.0	F	12.4	B	87.0	F	13.7	B
8	I-26 at I-95 System Weave*	Weave	27.4	C	48.6	F	8.2	A	51.3**	F	9.4	A
9	Between Ramps	Basic	11.4	B	14.9	B	12.9	B	11.0	A	14.1	B
10	On-Ramp from I-26 WB	Merge	17.7	B	21.1	C	21.1	C	22.6	C	27.3	C
11	North of I-26/I-95 System interchange	Basic	17.4	B	20.5**	C	20.6	C	20.5	C	25.3	C
12	Off-Ramp to U.S. 176	Diverge	19.1	B	21.7**	C	21.8	C	23.4	C	25.4	C
13	Between U.S. 176 Ramps	Basic	16.3	B	19.5**	C	19.5	C	19.2	C	24.2	C
14	On-Ramp from U.S. 176	Merge	15.6	B	17.8**	B	18.9	B	18.4	B	22.1	C
15	North of U.S. 176	Basic	16.5	B	19.8**	C	19.5	C	19.6	C	24.4	C

**In all 2030 and 2050 Build Alternatives the weave segment is removed. This segment is replaced by a diverge segment, which is the off-ramp to I-95 Northbound*

*** For 2050, I-95 northbound flow has very high levels of congestion and delays due to inadequate capacity on the one lane loop serving I-95 northbound to I-26 westbound. This queue extends south of the interchange for a substantial distance. Densities on downstream links (to the north) are lower than the Build alternatives based on the lower volumes being served.*

Table 9.4: TransModeler Freeway Segment Density Results: I-95 Southbound

Segment No.	Segment Description	Segment Type	Density (pcpmpl) | LOS									
			2022 Existing		2030 No Build		2030 Build Preferred Alt		2050 No Build		2050 Build Preferred Alt	
1	North of U.S. 176	Basic	16.2	B	19.1	C	19.0	C	24.1	C	24.1	C
2	Off-Ramp to U.S. 176	Diverge	17.7	B	23.5	C	22.4	C	25.3	C	25.2	C
3	Between U.S. 176 Ramps	Basic	15.9	B	19.0	C	18.9	C	24.0	C	24.3	C
4	On-Ramp from U.S. 176	Merge	16.4	B	19.6	B	19.7	B	24.8	C	23.7	C
5	North of I-26/I-95 Interchange	Basic	17.3	B	20.5	C	20.5	C	25.6	C	25.6	C
6	Off-Ramp to I-26	Diverge	16.8	B	20.5	C	18.6	B	24.7	C	24.6	C
7	Between Ramps	Basic	17.3	B	22.1	C	12.2	B	29.3	D	14.6	B
8	I-26 at I-95 System Weave (No Build)* Between Ramps (Preferred Alt)	Weave	16.4	B	19.5	B	11.2	B	29.7	D	14.1	B
9	Between Ramps	Basic	14.1	B	15.9**	B	16.3	B	19.8	C	23.2	C
10	On-Ramp from I-26 EB	Merge	23.7	C	29.0	D	20.3	C	30.2**	D	110.5	F
11	South of I-26/I-95 Interchange	Basic – 4 Lanes	25.5	C	30.9	D	20.2	C	32.6	D	125.0	F
		Basic – 3 Lanes					30.5	D			33.4***	F
12	Off-Ramp to U.S. 178	Diverge	25.9	C	30.4	D	19.9	B	32.6	D	104.2	F
13	Between U.S. 178 Ramps	Basic	24.6	C	29.9	D	30.4	D	31.9	D	28.4	D
14	On-Ramp from U.S. 178	Merge	25.3	C	31.4	D	31.3	D	32.7	D	30.5	D
15	South of U.S. 178	Basic	25.4	C	29.7	D	30.2	D	31.9	D	29.5	D

**In all 2030 and 2050 Build Alternatives the weave segment is removed. This segment is replaced by a diverge segment, which is the off-ramp to I-95 Northbound.*

*** For 2050, I-95 southbound flow has high levels of congestion and delays due to inadequate capacity on the two lane I-95. In the No Build, however, these delays are less apparent because the on-ramp from I-26 eastbound (Link 10) is a single lane restricting traffic flow from ramp merging onto I-95 southbound. A high level of delays on I-26 eastbound results in the No Build.*

**** Although density reflects better LOS, the capacity of the segment is exceeded in the No Build resulting in substantial delays and queuing.*

9.2.2 Ramp Operations

In addition to the merges, diverges and weaves along the two interstate corridors, the TransModeler analysis was completed for specific ramp movements as shown in **Table 9.5**. The preferred alternative operates better than the No Build due to a combination of ramp widenings and the elimination of high-volume loop ramps. The preferred alternative operates at LOS C or better for all ramps in 2030 with an acceptable LOS D on three ramps in 2050. In contrast, the No Build has two ramps operating at LOS F in 2030 and four ramps operating at LOS E or F in 2050. In some cases, ramp volumes are also constrained in the No Build resulting in congestion impacts to adjacent segments.

There is one exception (Ramp 1) where the 2050 No Build LOS is better than the 2050 preferred alternative scenario (LOS E). This discrepancy is a result of merging and diverging issues discussed in Section 9.2.1 affecting flows due to metering as well as queuing. A comparison of the No Build and preferred alternative simulations at Ramp 1 indicates:

- In the No Build, the ramp from I-26 eastbound to I-95 southbound is a single lane. Since one lane is inadequate to serve the demand, the eastbound diverge from I-26 serves as a bottleneck creating a queue back onto I-26 eastbound. Downstream of this bottleneck (i.e. on the ramp), a reduced volume of traffic is served, speed increases, and density is reduced. The lower density and better LOS on this one-lane ramp compared to the Build reflects congestion on I-26 restricting flow that reaches the ramp.
- In the Build scenario with the preferred alternative, the Segment 1 ramp is widened to two lanes. With the two lane section, the bottleneck at the I-26 eastbound diverge is removed. Despite the widened section, the TransModeler results show a LOS F on the ramp in 2050 with a high density. The reason for this is that the ramp is operating upstream of a bottleneck at the I-95 southbound merge. As a result, more traffic enters onto the ramp than can be processed at the southern end of merge with I-95.

In addition to the basic ramp sections, the proposed preferred alternative has four shared ramp segments at the exit and entrances of the two proposed flyovers. Since these segments have combined ramp volumes, the laneage can be more than the ramps being separated or merged together. **Table 9.6** illustrates operations on these shared ramps. All shared ramp sections will operate at LOS D or better in 2050. No comparison with the No Build is applicable since shared ramps are not included in the existing interchange layout.

Table 9.5: TransModeler No Build & Preferred Alternative Ramp Capacity

Ramp Description		# Lanes	Density (pcpmpl) | LOS									
			2022 Existing		2030 No Build		2030 Build Preferred Alt		2050 No Build		2050 Build Preferred Alt	
1	I-26 EB to I-95 SB	1 lane Ramp - NB 2 lane Ramp - Pref Alt	43.0	E	48.7	F	20.4	C	44.1**	F	121.3***	F
2	I-95 SB to I-26 EB	1 lane Loop - NB 1 lane Flyover – Pref Alt	29.2	D	33.4	D	20.4	C	47.1	F	28.6	D
3*	I-26 EB to I-95 NB	1 lane Loop	1.2	A	2.1	A	1.3	A	2.1	A	1.4	A
4	I-95 NB to I-26 EB	1 lane Ramp	6.1	A	7.2	A	7.6	A	6.6	A	9.3	A
5	I-26 WB to I-95 NB	1 lane Ramp	21.6	C	24.6	C	21.7	C	36.7	E	33.2	D
6	I-95 NB to I-26 WB	1 lane Loop – NB 2 lane Flyover – Pref Alt	62.6	F	75.8	F	20.1	C	87.5	F	29.3	D
7*	I-26 WB to I-95 SB	1 lane Loop	7.4	A	10.6	A	8.0	A	12.6	B	11.1	B
8	I-95 SB to I-26 WB	1 lane Ramp	0.9	A	1.1	A	1.1	A	1.5	A	1.3	A

** Ramps 7 and 3 are loops in Alternative 1 and 2. Alternative 3 replaces Loop 7 with a fly-over ramp.*
*** The 2050 No Build analysis of Ramp 1 reflects an upstream bottleneck on I-26 restricting flow onto the existing one lane ramp. The metering results in fewer vehicles and lower densities being served by the ramp and queuing back onto I-26 eastbound.*
****The 2050 Build analysis of Ramp 1 reflects a downstream bottleneck occurring at the merge of Ramp 1 with I-95 southbound due to inadequate capacity on I-95. The queuing from this bottleneck backs onto Ramp 1 resulting in restricted flow, queuing, and increased density.*

Table 9.6: TransModeler Shared Ramp Capacity

Shared Ramp Description		Number of Lanes	2030 Build Preferred Alt		2050 Build Preferred Alt	
1	I-95 NB to I-26	3	19.9	C	29.4	D
2	I-95 to I-26 EB	2	12.8	B	18.6	C
3	I-95 SB to I-26	1	19.9	C	30.6	D
4	I-95 to I-26 WB	3	13.6	B	22.3	D*

** Although density would indicate LOS C, high concentration of volume on flyover Ramp 6 controls flow and LOS.*

9.2.3 Summary of TransModeler LOS Results

Utilizing the data from Table 9.1 through Table 9.6, a colored illustration of the interchange was developed for both the No Build and the Preferred Alternative in 2030 and 2050. These illustrations utilize the color coding first introduced in Section 6.1 to represent LOS A (low levels of congestion – green) to LOS F (very high congestion and unstable flow – red). Key bottlenecks in each scenario are also identified. The scenarios and corresponding figures are:

- 2030 No Build (**Figure 9.1**)
- 2050 No Build (**Figure 9.2**)
- 2030 Build Preferred Alternative (**Figure 9.3**)
- 2050 Build Preferred Alternative (**Figure 9.4**)

Figure 9.1: TransModeler LOS Results 2030 No Build

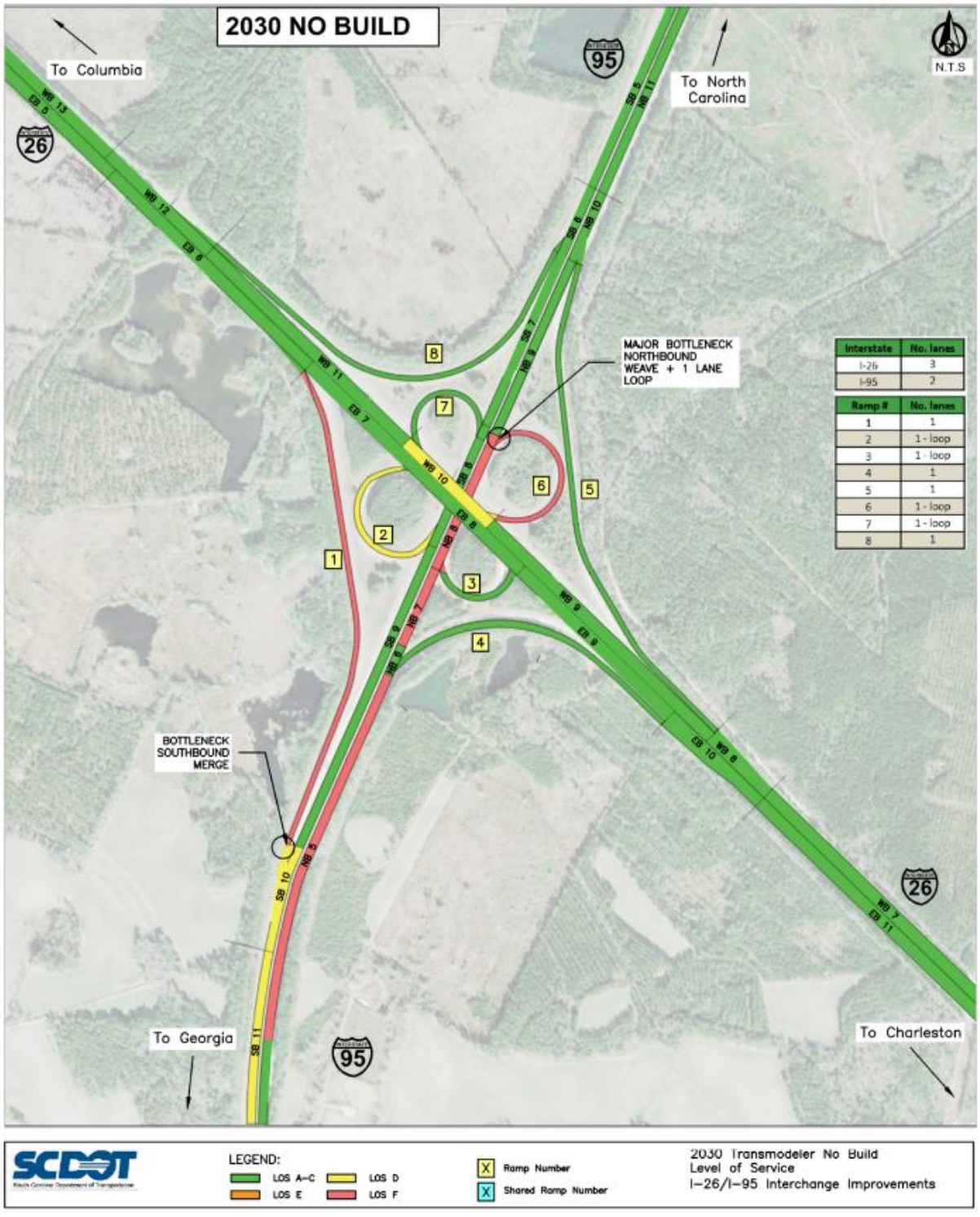


Figure 9.2: TransModeler LOS Results 2050 No Build

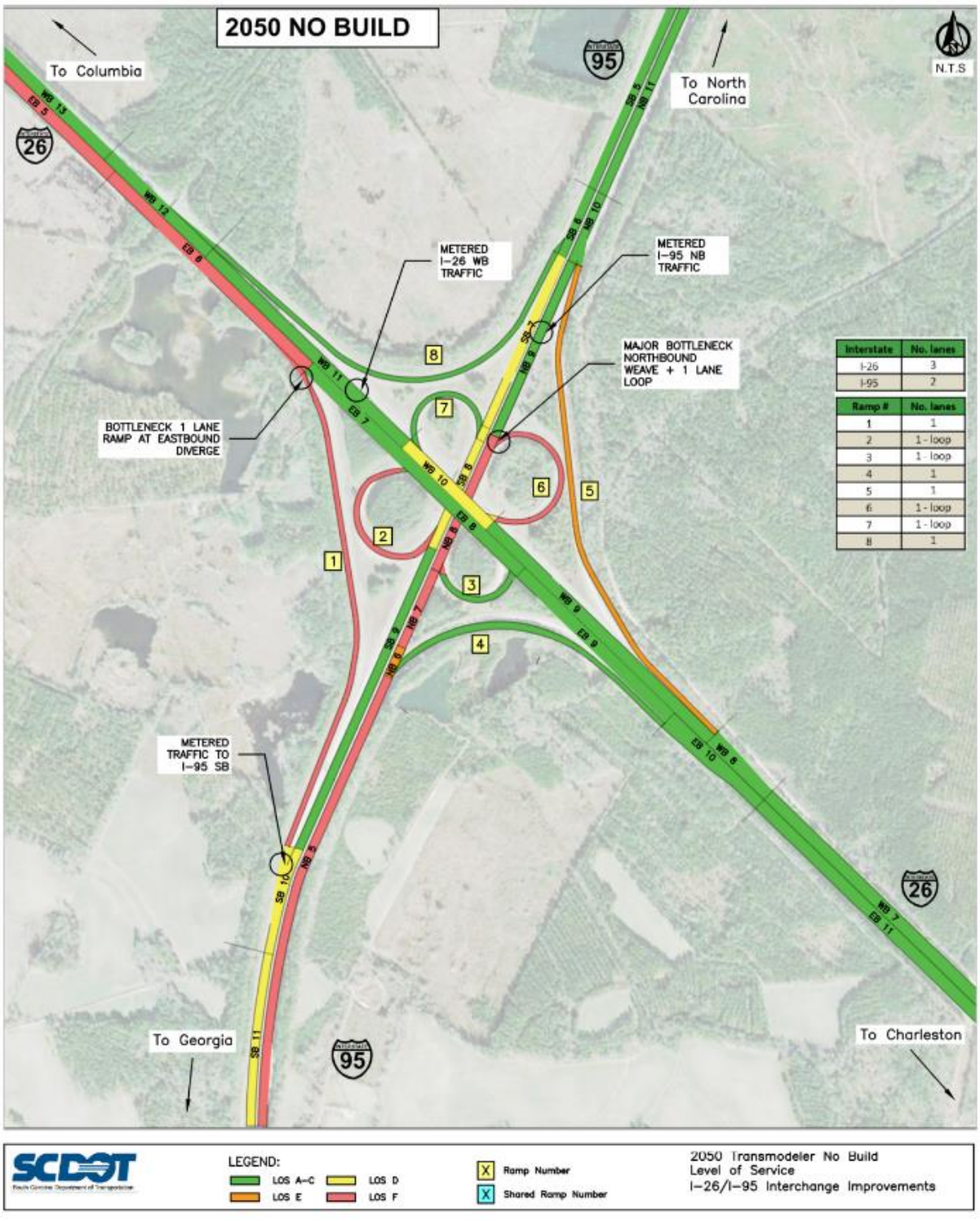


Figure 9.3: TransModeler LOS Results 2030 Build Preferred Alternative

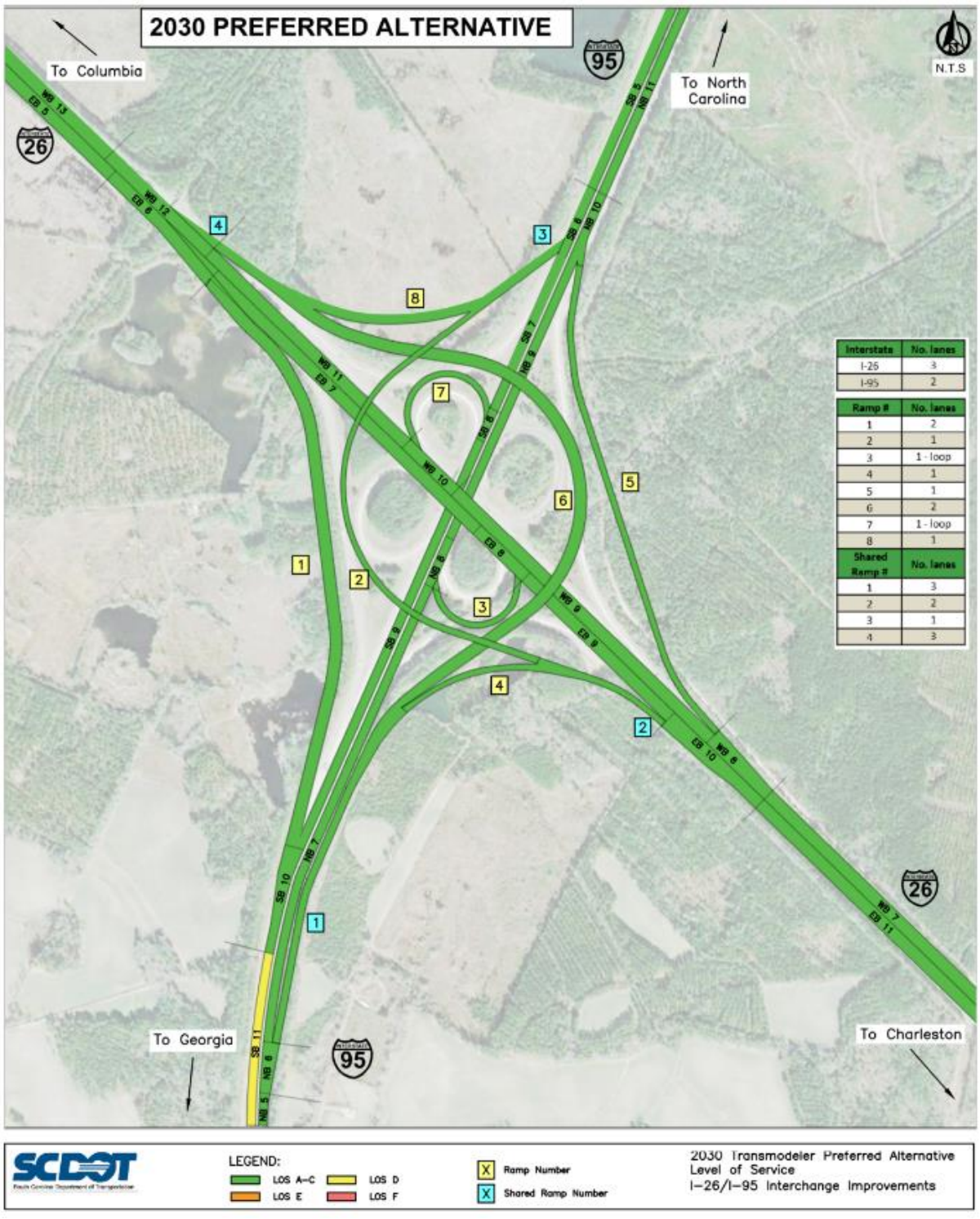
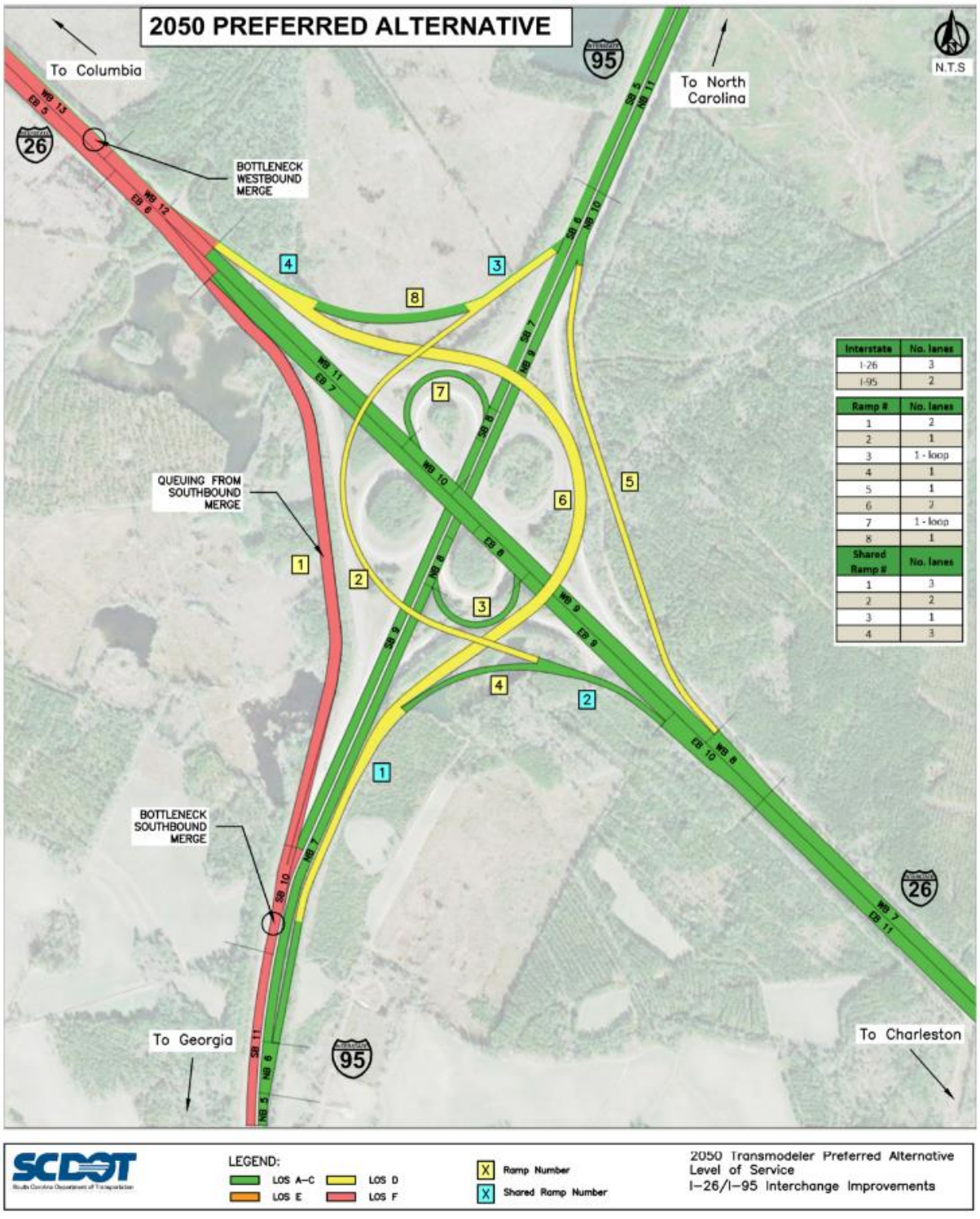


Figure 9.4: TransModeler LOS Results 2050 Build Preferred Alternative



9.2.4 Travel Times & Average Travel Speed through Corridor

In order to examine overall flow through the network, travel times and speed for 12 movements through the entire network were examined. The length of each movement varied but in general ranged from 6 to 8 miles. This measure can give insights into overall operations instead of focusing on just a single segment or merge/diverge point. At the same time, it also reflects the impacts that a single merge or diverge point may have on other segments either due to heavy queuing or metered flows allowing for improved operations once a bottleneck is passed.

Table 9.7 illustrates the travel times through the corridor for both the No Build and Build scenarios as well as the time saved with the preferred alternative in place. **Table 9.8** illustrates the average travel speed on the same 12 travel paths, averaging the travel time of the distance traveled. Key observations include:

- Starting from west of SC 210, eastbound traffic can save between 6 and 7 minutes compared with the No Build depending upon their path. The most savings are noticed by vehicles travelling to I-95 to the north or I-26 east, primarily as a result of queuing near the weave section and blockage of the loop to the north due to I-95 northbound queues. The move to I-95 southbound has the lowest time savings, likely due to the queuing issues at the I-95 southbound merge.
- Starting from I-26 east of U.S. 15, westbound traffic experiences an increase in travel time in each direction. This is due to traffic on the northeast quadrant loop being metered in the No Build resulting in lower volumes on I-26 itself.
- Starting from south of U.S. 178, I-95 northbound traffic has the most reduction in travel times through the corridor with between 17 and 20 minutes of travel time savings in all directions. The key reason is the replacement of the northeast quadrant loop with a two-lane flyover. In addition to directly impacting the move to I-26 westbound, the replacement of the loop and elimination of the weave reduces queuing on I-95 northbound that spills back to the south impacting both the I-95 through movement and the ramp to the east on I-26.
- Starting from I-95 north of U.S. 176, I-95 southbound traffic also has limited travel time benefit and, in some cases, have longer travel times by up to 2 minutes. For the through movement on I-95, the additional time is due to congestion at the I-95 southbound merge. In the No Build, the one lane ramp from I-26 eastbound to I-95 southbound causes delays at the exit point to the ramp on I-26, but the metered flows improve operations at the southbound merge point. For the traffic bound to I-26 westbound, the slightly longer travel time is due to the I-26 westbound merge. In the No Build, this merge is less critical since the loop in the northeast quadrant is limited in the volume of traffic it can carry and meters flow to the west.

- The results of the average travel speed summary in Table 9.8 reflects these same trends. Traffic originating from the south on I-95 have the highest increase in average travel speeds with an increase of between 14 mph to 27 mph on the three trip destinations. Similarly, travel originating from the west on I-26 also have an increase of average travel speed from between 6 mph to 18 mph. For traffic from the east on I-26 and north on I-95, the preferred alternative speeds are slower by 0 mph to 7 mph. As explained, the key reason is that these trip patterns avoid the highest delays and queuing and have a hidden benefit of metered traffic not being able to access their preferred path.

Table 9.7: TransModeler No Build & Preferred Alternative Travel Time Results

Travel Time Segment		Travel Time (mm:ss)						
Start	End	2022 Existing	2030 No Build	2030 Build Preferred Alt	Time Diff	2050 No Build	2050 Build Preferred Alt	Time Diff
I-26 Eastbound, West of S.C. 210	I-26 Eastbound, East of U.S. 15	08:15	08:12	08:05	-00:07	23:49	10:45	-13:04
	I-95 Northbound, North of U.S. 176	10:56	11:05	10:50	-00:15	26:43	13:30	-13:13
	I-95 Southbound, South of U.S. 178	09:24	09:30	09:09	-00:20	25:02	17:49	-07:13
I-26 Westbound, East of U.S. 15	I-26 Westbound, West of S.C. 210	08:15	08:12	06:37	-01:34	08:30	09:39	01:09
	I-95 Northbound, North of U.S. 176	08:59	09:02	08:52	-00:10	09:16	09:04	-00:12
	I-95 Southbound, South of U.S. 178	08:08	08:14	08:01	-00:13	08:29*	10:22	01:53
I-95 Northbound, South of U.S. 178	I-26 Eastbound, East of U.S. 15	07:24	07:36	07:33	-00:04	25:40	07:43	-17:57
	I-26 Westbound, West of S.C. 210	10:01	10:35	08:24	-02:12	29:09	11:30	-17:39
	I-95 Northbound, North of U.S. 176	09:40	10:19	09:17	-01:01	28:39	09:28	-19:11
I-95 Southbound, North of U.S. 176	I-26 Eastbound, East of U.S. 15	09:33	09:34	09:18	-00:15	09:44	09:36	-00:09
	I-26 Westbound, West of S.C. 210	10:16	10:17	08:43	-01:34	10:27*	11:53	01:26
	I-95 Southbound, South of U.S. 178	09:38	09:47	09:39	-00:08	09:54*	11:57	02:03
Total Time & Time saved compared to No Build		**1:50:30**	**1:52:23**	**1:44:29**	**0:07:54**	**3:35:23**	**2:13:15**	**-1:22:08**

** Lower volumes served in No Build due to upstream metering caused by congestion.*

Table 9.8: TransModeler No Build & Preferred Alternative Average Speed Results

Travel Time Segment		Average Speed (mph)					
Start	End	Associated Ramp	2022 Existing	2030 No Build	2030 Build Preferred Alt	2050 No Build	2050 Build Preferred Alt
I-26 Eastbound, West of S.C. 210	I-26 Eastbound, East of U.S. 15	-	68	68	69	40	58
	I-95 Northbound, North of U.S. 176	3	68	67	68	45	60
	I-95 Southbound, South of U.S. 178	1	66	66	66	40	46
I-26 Westbound, East of U.S. 15	I-26 Westbound, West of S.C. 210	-	68	69	70	66*	60
	I-95 Northbound, North of U.S. 176	5	67	67	67	65*	66
	I-95 Southbound, South of U.S. 178	7	67	66	67	64*	58
I-95 Northbound, South of U.S. 178	I-26 Eastbound, East of U.S. 15	4	68	67	66	38	65
	I-26 Westbound, West of S.C. 210	6	66	65	65	42	56
	I-95 Northbound, North of U.S. 176	-	68	66	68	48	67
I-95 Southbound, North of U.S. 176	I-26 Eastbound, East of U.S. 15	2	67	67	66	66*	65
	I-26 Westbound, West of S.C. 210	8	68	68	67	67*	60
	I-95 Southbound, South of U.S. 178	-	69	68	68	67*	62
Average Speed			**67**	**67**	**67**	**54***	**60**

** Lower volumes served in No Build due to upstream metering caused by congestion.*

9.2.5 Interim Year Analysis of the I-95 Southbound and I-26 Westbound Merges

As noted, the I-95 southbound merge and the I-26 westbound merge points are the two key congestion points and are both anticipated to operate at LOS F in the 2050 design year. This analysis is intended to illustrate the operations for not just 2030 and 2050, but also for each five-year increment (2035, 2040 and 2045). The analysis focuses on the preferred alternative.

Additional traffic analysis was conducted to examine operations for interim years at these key merge points between 2030 and 2050.

I-26 Westbound Merge

For the I-26 westbound merge, the proposed two-lane flyover from I-95 northbound must merge with the future three westbound I-26 lanes. As documented, a 4,000-foot merge is proposed – 1,500 feet to merge in the first lane and 2,500 feet for the second lane (effectively merging five lanes into three lanes). A key assumption in this analysis is that I-26 is widened to six lanes from the current four lane section.

Table 9.9 provides a comparison of operations on multiple segments of both the ramp and I-26 through the I-26 westbound merge. As indicated in previous summaries, the merge is forecast to operate at LOS C in 2030 and at LOS F in 2050. Examining the interim years provides some key insights:

- The ramp from eastbound I-95 carries higher volumes than the I-95 southbound flow approaching the merge. This reflects the observation that the movement between I-26 to the west (Columbia) to/from I-95 to the south (Georgia) is the highest demand volume in the interchange area.
- Congestion is observed in 2045 and 2050. Specifically:
  - The operations of the merge area are relatively uncongested through 2040 (LOS C and 65 mph).
  - By 2045, however, the final three lane bottleneck operates at LOS F with speeds reduced to 25 mph. Congested operations, however, are focused on this segment and have not resulted in backup into the upstream segments.
  - By 2050, congested operations are noted in both the five lane (LOS E and 36 mph) and four lane (LOS F and 26 mph) merge segments. LOS D is observed on the ramp with minimal queuing. This matches the previous analysis where a 4,000-foot merge was deemed the minimum applicable merge length to prevent queuing back onto the flyover.

- As noted, this section is planned for widening from four to six lanes by 2030. This is the primary reason congestion is less at this location than the I-95 southbound merge (which has similar volumes). Widening beyond six lanes is not currently anticipated for I-26.
- Provision of an auxiliary lane to the SC 210 interchange would reduce potential for queuing back into the interchange. At the same time, it would not provide a true solution – ultimately the three-lane section would be reached. Since SC 210 does not have a substantial volume of traffic exiting, it does not seem efficient to provide an auxiliary lane.

As demonstrated, the westbound merge is anticipated to operate at LOS F in 2050 and will see substantial congestion by 2045. The solution to this issue, however, is not achievable by improvements to the interchange ramps or layout. Nevertheless, the improvements provided by the preferred alternative are still recommended as needed to improve overall flow, including travel onto I-26 westbound from I-95 northbound. As noted, the movement between I-26 to the west (Columbia) and I-95 to the south (Georgia) is the highest volume movement at this interchange, higher than the through movements on both I-26 and I-95. TransModeler output for the I-26 westbound merge with the Build preferred alternative year of failure analysis is provided in **Appendix R.**

I-95 Southbound Merge

For the I-95 southbound merge, the proposed two-lane widened ramp must merge with the two I-95 southbound merge lanes. As documented, a 5,000-foot merge is proposed – 2,500 feet to merge in the first lane and 2,500 feet for the second lane (effectively merging four lanes into two lanes). As noted, however, the four lane I-95 does not provide adequate capacity in 2050 (south of the I-26 interchange) and there are no widening projects currently planned for I-95.

Table 9.10 provides a comparison of operations on multiple segments of both the ramp and I-95 through the I-95 southbound merge. As indicated in previous summaries, the merge is forecast to operate acceptably in 2030 and at LOS F in 2050. Examining the interim years provides some key insights:

- The ramp carries higher volumes than I-95 approaching the merge.
- The ramp from I-26 eastbound degrades sooner with LOS D in 2040 quickly degrading to LOS F by 2045. A key measure is the travel speed on the ramp which decreases from 41 mph to 10 mph between 2030 and 2035. Note that the congestion and slowdowns are a result of spillback from the merge – if the ramp were in isolation it would operate at LOS D.

Table 9.9: TransModeler Preferred Alternative I-26 Westbound Merge Year of Failure Analysis

Segment Description	Segment Type	# of Lanes	Density (pcpmpl) | LOS | Speed (mph)															
			2030 Build Preferred Alternative			2035 Build Preferred Alternative			2040 Build Preferred Alternative			2045 Build Preferred Alternative			2050 Build Preferred Alternative		
I-95 to I-26 Westbound	Ramp	2	20.1	C	49	22.1	C	49	23.7	C	48	25.0	C	48	29.3	D	48
Between Ramps	Basic	3	8.6	A	71	9.7	A	71	10.7	A	70	11.7	B	71	12.8	B	70
On-Ramp from I-95 NB + SB	Merge	5	14.0	B	67	14.9	B	66	16.9	B	65	18.5	B	65	47.4	E	36
West of I-26/I-95 System Interchange	Basic	4	13.8	B	69	15.6	B	68	17.0	B	68	18.5	B	67	78.6	F	26
		3	19.0	C	67	21.4	C	66	24.0	C	65	68.0	F	25	99.7	F	16

Table 9.10: TransModeler Preferred Alternative I-95 Southbound Merge Year of Failure Analysis

Segment Description	Segment Type	# of Lanes	Density (pcpmpl) | LOS | Speed (mph)															
			2030 Build Preferred Alternative			2035 Build Preferred Alternative			2040 Build Preferred Alternative			2045 Build Preferred Alternative			2050 Build Preferred Alternative		
I-26 Eastbound to I-95 Southbound	Ramp	2	20.4	C	48	22.2	C	47	29.0	D	41	101.6	F	10	121.3	F	7
North of I-26 EB Merge	Basic	2	16.3	C	68	15.2	B	68	19.1	C	66	22.3	C	57	23.2	C	54
On-Ramp from I-26 Eastbound	Merge	4	20.3	C	62	22.4	C	61	53.2	E	32	99.7	F	12	110.5	F	10
South of I-26/I-95 Interchange	Basic	3	20.2	C	67	21.8	C	65	76.5	F	17	119.4	F	11	125.0	F	11
		2	30.5	D	66	33.0	D	66	33.2	D	62	33.3	D	61	33.4	D	61

- The I-95 southbound mainline section approaching the merge is anticipated to operate at LOS C into 2050. Nevertheless, the impact of the queue congestion is reflected primarily by a decrease in speed of 66 mph in 2040 (still relatively uncongested) to 57 mph in 2045 and 54 mph in 2050.
- The key impacts and degraded flow are observed in the merge section. For this analysis, TransModeler was used to examine operations in both the initial four lane merge (where the two-ramp lane and two I-95 lanes come together), the following three lane segment and then the final two-lane segment. Note that all traffic on I-95 and the ramp are impacted in these segments.
  - The first portion of the merge section is the four-lane segment which ultimately merges down to three lanes. In 2035, this section is still operating acceptably (LOS C and 61 mph), but it degrades by 2040 (LOS E and 32 mph). In 2045, the density increases substantially from 2040 and speeds reach 12 mph. The 2050 results are similar to 2045 at the merge which is indicative that the merge area is saturated, and queues are extending further back.
  - The key bottleneck is observed in the three-lane segment (more precisely, the bottleneck is at the point where the two-lane segment is reached so the delay is observed in the three-lane segment). This section is expected to degrade rapidly between 2035 (LOS C and 65 mph) to 2040 (LOS F and 17 mph). Flow continues to degrade, with density increasing between 2040 and 2045 (reflective of more stop and go operations) and decreasing in speed to 11 mph.
  - South of the merge section, the analysis shows LOS D through 2050. This is misleading in that the merge point is a bottleneck. As traffic queues north of the bottleneck, the flows south of the bottleneck are metered resulting in the LOS D operations.

As demonstrated, the southbound merge is anticipated to operate at LOS F in 2050 and will see substantial congestion by 2040. The solution to this issue, however, is not achievable by improvements to the interchange ramps or layout. Instead, it is recommended that widening of I-95 south of the I-26 interchange be considered as part of future projects. Nevertheless, the improvements provided by the preferred alternative are still recommended as needed to improve overall flow, including travel onto I-95 southbound from I-26 west of I-95. As noted, the movement between I-26 to the west (Columbia) and I-95 to the south (Georgia) is the highest volume movement at this interchange, higher than the through movements on both I-26 and I-95. TransModeler I-95 southbound merge output for the Build preferred alternative year of failure analysis is provided in **Appendix R.**

10. INTERCHANGE MODIFICATION REPORT

10.1 Design Exceptions & Operational Deficiencies

No formal design exceptions are being requested or planned for the proposed I-26 at I-95 interchange improvements project.

In terms of the preferred design level of service and operations, there are some features that operate at an acceptable but not a preferred level of service. In general, the preferred 2050 level of service for this project is LOS C, although LOS D is deemed acceptable. LOS D operations are identified in 2050 at the following ramps:

- The proposed two-lane flyover from I-95 northbound to I-26 westbound will operate at LOS D in 2050. Widening to three lanes would introduce multiple issues in terms of lane balance and driver expectations.
- The relocated and widened two-lane ramp from I-26 eastbound to I-95 southbound will operate at LOS D in 2050. Similar to the opposing flyover, widening this section to three lanes would introduce multiple issues related to lane balance and driver expectations.
- The relocated one lane ramp from I-26 westbound to I-95 northbound operates at LOS D in 2050 (two-lanes required for LOS C or better).
- The proposed one lane flyover from I-95 southbound to I-26 eastbound operates at LOS D in 2050 (two lanes required for LOS C or better).

It is also noted that capacity constraints with LOS F operations in 2050 are anticipated on both I-26 and I-95 if the existing four lane sections on each facility is not widened before 2050.

- I-26 has already been identified for widening as part of SCDOT's 2021-2027 Statewide Transportation Improvement Program (STIP). Therefore, both the No Build and Build analyses assume a future six-lane section is provided on I-26 through the study area. Even with the six-lane section on I-26, the westbound merge area is expected operate at LOS F in 2050. To minimize queuing impacts, a 4,000-foot merge area has been identified for this two-lane merge.
- I-95 is anticipated to operate over capacity with queuing and stop and go operations in the 2050 PM peak period, if the existing four lane section is not widened. No widening of I-95 is currently planned or scheduled in the current plans. For this analysis, the following findings and assumptions for I-95 include:
  - Southbound on I-95, analysis was conducted to provide a design that would minimize the frequency and extent of queuing on I-95. As a result, a 5,000-foot merge south of the proposed interchange was identified in Chapter 8.

Nevertheless, queuing is still anticipated in the southbound direction due to the two-lane limitation on I-95.

- Northbound on I-95, I-95 will bottleneck resulting in metering of new traffic entering into the interchange from the south. For this analysis, the TransModeler network was theoretically assumed to be three lanes to confirm that the simulation analysis included the forecasted traffic volumes.
- Although widening of I-95 is not in the current plan for implementation by 2050, testing was performed for operations in 2050 if I-95 was widened south of the I-26 at I-95 interchange. The proposed interchange design (including the proposed I-95 southbound merge configuration) would operate at an acceptable LOS in 2050. Note, however, that widening of I-95 to the south is a future corridor level improvement and not just needed in the immediate vicinity of the I-26 at I-95 interchange.

- Despite the 2050 scenario having operational deficiencies for some movements, the analysis confirms that all Build Alternatives considered improve operations as compared with the No Build. Key improvements include widening of two key ramps, elimination of four weave sections impacting I-26 and I-95 in all four directions, and improvement of major merge, particularly on I-95 south of the interchange and I-26 west of the interchange.

10.2 FHWA Policy Points

FHWA policy requires that all requests for new or revised access to an interstate facility must provide sufficient supporting information to allow FHWA to independently evaluate the request. The FHWA decision to approve a request requires documentation of two key policy points. Note that Policy Point 1 is divided into three key issues: Operations & Safety, Adjacent Interchanges, and Crossroads. Policy Point 2 focuses on partial access interchanges (which would not apply to the proposed interchange configuration) as well as requiring access request meet or exceed current standards. The policy points are addressed in **Table 10.1**.

Table 10.1: Responses to FHWA Policy Points

Policy Point 1 – Operations & Safety
"An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections."   The proposed revisions and modifications to the existing I-26 at I-95 interchange will have an overall positive impact on both traffic safety and the operations of I-26, I-95 and the I-26 at I-95 interchange overall. Key improvements in the preferred alternative include: ***Widening of Key Ramps***   The two highest volume movements within the interchange are between I-26 to the west toward Columbia and I-95 to the south toward Georgia with approximately 4,400 vph (both directions combined) in the 2050 peak period. This movement is currently served by a single lane ramp in the eastbound to southbound direction and a single lane loop ramp in the returning direction. The preferred alternative replaces the existing ramps with a two-lane ramp in the eastbound to southbound direction and a two-lane flyover for northbound to westbound traffic. In addition, the diverge and merge areas for these widened ramps are converted to two lanes at each of the ramp tie-ins to I-26 and I-95. These changes improve traffic operations and level of service to an acceptable LOS D (from LOS F) and increase design speeds (particularly related to elimination of the existing loop in the northeast quadrant).   ***Elimination of Weaves on I-26 and I-95***   The current interchange configuration is a full cloverleaf with loops in all four quadrants. This type of interchange allows for free flow for all turning movements (no stops or signals) as is required for an interstate-to-interstate system interchange. By 2050, however, the weave areas between loop ramps will degrade resulting in queuing and delays on the freeway segments. The issue affects each of the weave areas in the main interchange, in particular the weave along I-95 northbound which operates at LOS F in 2030. Also note that the four weave areas were all identified as part of the crash and safety analysis as having a high frequency of crashes in Table 3.10. The elimination of the four weaves improves operations and safety for both ramp traffic and through vehicles on I-26 and I-95.

Improvement of Major Merge Areas

Two major weave areas are proposed to be widened from a single lane merge to dual lane merges on I-26 westbound and I-95 southbound. The capacity improvements are key to improving flow in the future, but it is still anticipated that there will be queuing and operational issues by 2050, in particular for the I-95 southbound merge. In addition to the 2030 and 2050 analysis, interim year operations were examined in 5-year increments. The primary reason for the operational issues at the merge is the future need to widen I-95 south of I-26.

To minimize the future impact of these flow issues, the merge areas have been lengthened in accordance with recommendations from the Institute of Transportation Engineers (ITE) *Freeway and Interchange Geometric Design Handbook* as discussed in Section 8.3.2. Even with these caveats, the proposed ramp improvements substantially improve traffic operations as compared with the No Build interchange.

Safety is improved at the major merge areas being improved. The I-95 southbound merge is the highest frequency crash location in the study area as shown in Table 3.10 primarily due to rear end crashes likely resulting from queues at the merge congestion point onto I-95. The I-26 westbound merge improvements is also identified as a crash hot spot in Figure 3.2.

Other Safety Recommendations

As part of the safety analysis in Chapter 3, three safety recommendations were identified and detailed in Section 3.7. These included elimination of the weave areas as well as improvements at high volume merge areas (especially at the I-95 southbound merge due to capacity constraints on I-95) that are noted above.

In addition, the analysis of fatal crashes indicated that multiple fatal crashes on I-26 in the study area (8 of 11 fatal crashes) ultimately involved a vehicle impacting a tree off the edge of the road. To minimize this, the proposed design should consider the elimination of trees in the clear zones on both the outer and inner (i.e., the median) sides of I-26 in both directions.

Policy Point 1(continued) – Adjacent Interchanges

"The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f))."

The study area and network limits examined in this analysis include four interchanges on each approach to the system interchange. Despite the interchange being located in a rural area, the adjacent interchanges were included in recognition of the key regional importance and high volumes along both I-26 and I-95. Each of these interchanges are spaced more than two miles from I-26 at I-95 interchange as noted below. The four interchanges are detailed in Section 1.3.3 and include:

- I-95 at U.S. 176 Old State Road (Exit 90): 4 miles to the north
- I-95 U.S. 178 Charleston Highway (Exit 82): 2.9 miles to the south
- I-26 at S.C. 210 Vance Road (Exit 165): 3.2 miles to the west
- I-26 at U.S. 15 (Exit 172): 2.4 miles to the east

The HCS analysis in Section 6.2 included freeway operations analysis for each of the four interchanges. As part of the traffic forecasting, however, all four interchanges were identified as serving relatively low volume facilities (maximum 2021 AADT of 3,000 vpd was noted) and low historical and forecasted annual growth rates.

Based on the analysis, it was concluded that the adjacent interchanges are not adversely impacted by the proposed improvements at the I-26 at I-95 interchange. Key observations included:

- The freeway operations analysis indicated that ramp operations were not critical in either 2030 or 2050.
- It was noted that I-95 requires future widening south of I-26 (LOS F in 2050) which would address any merge or diverge improvement needs. Similarly, some LOS E operations were noted on I-26 west of I-95 in 2050 even with a six-lane segment. To address potential modeling issues associated with downstream bottlenecks impacting flows into the key interchange with the TransModeler network, theoretical widening assumptions were applied as detailed in Chapter 8.

Since the operations at the four interchanges do not require future capacity improvements and are spaced more than two miles on all approaches to the I-26 at I-95 interchange, the specific operations are not critical to this IMR. All four adjacent interchanges were included in the TransModeler simulation models to provide proper flow patterns into the interchange.

Policy Point 1(continued) – Crossroads & Local Street Network

"The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d))."

The local road network at each of the four adjacent interchanges was examined as part of the traffic forecasting process discussed in Chapter 4 and detailed in Appendix D. Key observations included:

- All four interchanges have low AADT volumes based on 2021 AADT data (3,000 vpd or less).
- Growth rates are low at the three diamond interchanges (SC 210, U.S. 176 and U.S. 178) which is reflective by the historical trends noted in both historical AADT volumes and land use patterns for Orangeburg County. In addition, at each of the three diamond interchanges, no traffic signals are currently in place and are not anticipated in the future based on the forecast traffic growth rates and volumes.
- For the existing full cloverleaf interchange at U.S. 15, a higher growth rate was noted likely reflected of the regional nature of the highway flow. Nevertheless, the increase in volumes was minimal due to the low existing volumes. The HCS freeway operations capacity analysis confirmed the adequacy of the weaves (LOS C in 2050) on I-26.

Based on these observations, a formal capacity analysis of the local road network and intersection operations was not conducted since it would not impact traffic flows or design requirements at the I-26 at I-95 interchange. The adjacent interchanges were included in the TransModeler network, however, to better reflect flows loading into the study interchange.

Policy Point 1(continued) – Conceptual Signing Plan

"Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d))."

A conceptual signing plan is provided for the proposed interchange layout and is attached in Appendix S. The conceptual plan focuses on guide signs on the approaches to the interchange as well as guide signs at various ramp exits and splits.

Policy Point 2 – Provision of All Movements & Public Road Access

"The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design."

The I-26 at I-95 interchange is a system interchange with all movements currently provided in a full cloverleaf configuration. The preferred alternative (Alternative 2) maintains and improves all movements including the provision of flyover ramps to replace some loop ramps. All new ramps (including two loops) will be reconstructed and will meet or exceed current design standards. Each of these movements are between I-26 and I-95 which are both public roads serving key national, regional, state and local network connections.

11. CONCLUSIONS

The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 System interchange in Orangeburg County, South Carolina. This project will be a full interchange improvement to address the operational deficiencies of the current full cloverleaf configuration. Key elements include removal of the four existing weaving sections (two on I-26 and two on I-95), provision of directional ramps for key movements, and improving overall operations. The interchange currently experiences congestion issues that are expected to worsen with proposed traffic growth.

This Interchange Modification Report (IMR) summarizes the traffic operations and safety analyses performed for the proposed interchange alternatives. After extensive analysis, it summarizes the traffic recommendations for the project including the identification of either Alternative 1 or 2 as the preferred alternative from a traffic analysis perspective. After additional planning analysis related to the environmental impacts, design requirements, and construction costs, Alternative 2 was selected as the Preferred Alternative. The report also includes responses answering the two key policy points from FHWA for modifying access to an existing interstate interchange.

11.1 Crash & Safety Analysis

Crash analysis of the study area is summarized in Chapter 3. The analysis shows that the total crash rate and the injury crash on both I-26 and I-95 are below the statewide average for similar rural interstate facilities. On I-26, however, it was noted that both the serious injury and fatal crash rate exceed the statewide average crash rates.

In addition to each corridor, the crash patterns at the existing I-26 at I-95 interchange were examined and five high frequency crash locations were noted including (in order of highest frequency):

- I-95 merge of ramp serving I-26 eastbound to I-95 southbound with the I-95 southbound mainline traffic – 55 crashes
- I-26 westbound weave – 46 crashes
- I-95 northbound weave – 41 crashes
- I-26 eastbound weave – 32 crashes
- I-95 southbound weave – 30 crashes

Examining each of these locations, some patterns were noted:

- The highest frequency of crashes occurs at the I-95 southbound merge with 65 percent of crashes being rear end crashes. Review of the crashes indicates that

capacity constraint at the merge area as well as on I-95 likely result in stop and go conditions on I-95 that is not typical operations for a rural interstate.

- Similarly, the crash types in the I-95 weaves were primarily rear end crashes (70 to 80 percent) that is indicative of speed reduction and queuing related to capacity constraints.
- On I-26, the crash types were primarily a combination of angle and sideswipe crashes (50 to 60 percent) which is more typical for weave areas.

Examination of the fatal crashes on I-26 indicated a high percentage of fatal crashes ultimately involving impact of a vehicle with a tree. Review of aerials show a narrower clear zone on I-26 than I-95. In addition, trees are on both sides of I-26 including the median (although trees have been removed from some sections of the median).

The analysis also indicated that although Friday, Saturday and Sunday carry an average of 24 percent higher daily traffic volumes, each of these days has an average 130 percent higher frequency of crashes.

11.2 Traffic Forecast

Traffic forecasts were developed for the project based on multiple sources of data and analysis steps. Baseline traffic data were analyzed, and growth factors were applied to identify 2030 and 2050 traffic volumes for I-26, I-95 and study area interchanges. Some key elements of the analysis included:

- In determining the k percentages for I-26 and I-95, a review of the highest hourly volume data was conducted, focused on identifying the "knee of the curve".
  - On I-26, a k-factor of 10.5 percent was selected reflecting the 78th Highest Hourly Volume (HHV).
  - On I-95, a k-factor of 10.5 percent was also selected reflecting the 98th HHV on I-95 (although the I-95 HHV is likely closer to the 150th HHV if all holiday data for 2019 were available).
- Based on these observations, this forecast has been developed assuming a single mid-day peak period (approximately 3 PM to 4 PM) with peak flows in both directions on I-95 and I-26.
- Although there is variation in actual counts, the design period reasonably approximates a typical Friday afternoon in the spring for both I-26 and I-95.

The estimated peak hour volumes developed for this study are presented in Figure 4.2 (2022 Base Year), Figure 4.3 (2030), and Figure 4.4 (2050). The details of the traffic forecasting assumptions and methodologies is detailed in the Appendix D Traffic Forecast Technical Memorandum.

11.3 Capacity Analysis & Alternative Comparison

11.3.1 No Build

The future traffic conditions were evaluated for the proposed opening year of 2030 and design year of 2050. Given the high volumes and variability of traffic flows on both I-26 and I-95, it was determined in cooperation with SCDOT that although the preferred level of service (LOS) for operations on a rural interstate is typically LOS C, LOS D would be considered acceptable for the peak period of analysis at the I-26 at I-95 interchange. Both Highway Capacity Software (HCS) and TransModeler microsimulation software was used in analyzing traffic flows. The HCS analysis is summarized in Chapter 6 and the TransModeler analysis is in Chapter 7.

Another key factor in the future No Build and subsequent Alternative analyses is that I-26 has been identified and funding is being assigned for the widening of I-26 from four to six lanes through the study area. No widening or improvement project has been identified for I-95, so the future assumed typical section on I-95 remains two lanes in each direction for the 2030 and 2050 analyses. Note that the highest volume roadways at the interchange is on I-26 west of the interchange and on I-95 south of the interchange. Similarly, the heaviest volume of flow is between I-26 on the west (to/from Columbia) and I-95 to the south (to/from Georgia).

The analysis of the existing interchange was performed for future operations (2030 and 2050). Key observations of the No Build interchange include:

- The loop movement from I-95 northbound to I-26 westbound (as well as the ramp serving the reverse movement) will require widening to two-lane segments. With the widening LOS D operations would be anticipated.
- The loop movement from I-95 southbound to I-26 eastbound (and the reverse movement) requires two lanes each to reach LOS C, but it was determined that leaving these movements a single lane would allow for acceptable LOS D operations.
- I-95 southbound has substantial capacity constraints with LOS F anticipated in the peak periods. In the southbound direction, the capacity constraint results in queuing extending back into and through the study interchange (resulting in queues on I-26 eastbound). On I-95 northbound LOS F condition with queuing and operational issues, occur on I-95 mainline north to the northbound loop to I-26 westbound.
- The weave areas on both I-26 and I-95 are key constraints in traffic flow both in terms of capacity as well as safety and crashes. Removing the weave areas from both I-26 and I-95 are recommended. Nevertheless, loops can be effectively utilized as part of concept alternatives, especially the lowest volume

loops in the northwest quadrant (I-26 westbound to I-95 southbound) and the southeast quadrant (I-26 eastbound to I-95 northbound).

11.3.2 Comparison of Build Alternatives

Three Build Alternatives were examined using the same software and assumptions as the No Build in 2030 and 2050. Overall, the three alternatives have the following similarities and differences:

- The two highest volume loops are eliminated in all alternatives. The two replaced loops are the northeast quadrant (serving I-95 northbound to I-26 westbound traffic flows) and the southeast quadrant (serving I-95 southbound to I-26 eastbound). Each of these loops is replaced by higher speed flyover movements.
  - The removal of these two loops located in opposite (diagonal) quadrants effectively eliminates all four of the critical weave movements on both I-26 and I-95.
  - Alternative 3 removes a third loop in the northwest quadrant serving I-26 westbound to I-95 southbound and replaces it with a third flyover.
- Two-lane ramps are provided for the I-95 northbound to I-26 westbound movement as well as the return movement for all alternatives. The two-lane ramps are required for multiple reasons including the initial freeway diverge, the ramp movement itself, and the merge back into the final freeway link. In both cases, the two-lane ramp sections have adequate capacity, but the 2050 merges with I-95 and I-26 are anticipated to have LOS F and queuing issues. Since LOS F is anticipated in 2050, additional capacity analysis was focused on these two-lane merges in subsequent steps.
- In all alternatives, the six remaining ramps are single lane ramps. Of these ramps, LOS C is expected at the four lowest volume ramps, while LOS D is expected on the one lane ramps between I-26 westbound to I-95 northbound (and the opposite direction).
- Each alternative has short shared ramp segments where two ramps exit from I-95, split into two ramps, continue as a new flyover, and then merge with another ramp before merging into I-26. These shared ramp segments all function at LOS D or better as currently designed. Alternative 3, however, has a fifth shared ramp segment which operates at an unacceptable LOS E in 2030 and LOS F in 2050.

11.3.3 Capacity Constraints on I-95 and I-26 merges

As previously noted, the future analyses assume a widening of I-26 from four to six lanes will be in place by 2030, but no widening is currently planned for I-95. A series of analyses were examined to identify options for providing a merge solution that minimizes potential for queuing to impact operations within the study interchange. This analysis is presented in Chapter 8. Key observations included:

- A 5,000-foot southbound merge onto I-95 (2 + 2 lanes = 4 lanes) is recommended to minimize queuing back into the proposed interchange. The merge would be evenly divided into two 2,500-foot merges for each merge lane. This recommendation is despite the observation that there is queuing on I-95 southbound and the merging ramp in 2050 with LOS F operations. Key reasons are:
  - The LOS restriction and queuing in 2050 is not due to deficiencies in the proposed interchange. Instead, the future traffic volumes on I-95 south of I-26 are projected to exceed the capacity of a four-lane freeway (two mainline lanes in each direction). Widening of I-95 is not the primary purpose of this project and is not currently planned for the corridor. If I-95 were to be widened, the proposed design for the I-26 at I-95 interchange would provide acceptable LOS at the the I-95 southbound merge.
  - The 5,000-foot merge provides acceptable operations with LOC C at the merge in 2030 based on TransModeler analysis. A 2,500-foot merge is anticipated to operate at an unacceptable LOS E in 2030.
  - By 2050 congested operations (LOS F and queuing on I-95 southbound and the merging ramp from I-26) are noted with both a 2,500 foot and a 5,000-foot merge. During the 2050 peak period analysis, however, the 2,500-foot merge has twice the delay per vehicle compared to the same period with the 5,000-foot merge.
  - A 5,000-foot merge is also applicable based on the Institute of Transportation Engineers (ITE) *Freeway and Interchange Geometric Design Handbook*. The guidance addresses the design of a two-lane entrance when the preferred approach would be the provision of an auxiliary lane or addition of a new lane, but other constraints do not allow for that treatment. The key element is that once a distance of 2,500 feet is reached for a single lane merge, the operational effects and capacity benefits are effectively achieved, and additional extensions provide minimal benefit. More discussion is provided in Section 8.3.2.

A similar merge issue was noted on I-26 westbound where the two-lane flyover Ramp 6 (which replaces loop Ramp 6) merges onto I-26 westbound. In this case, however, I-26 has three lanes westbound which helps disperse the traffic at the merge. Regardless, a series of model runs were completed and indicated:

- A 4,000-foot westbound merge of the two-lane ramp would be needed to minimize potential of queuing back into the interchange area or ramp in 2050.
- This analysis was done assuming that all ramp traffic from I-95 northbound would be processed on the flyover Ramp 6. To do this, the TransModeler network assumed an additional I-95 northbound lane. Since an additional lane on I-95 is not planned, the traffic demand may be metered during the highest periods of congestion, reducing the ramp movement and subsequent merge movement that was analyzed to determine the 4,000-foot merge length.

Note that the I-26 westbound merge is less critical than the I-95 southbound merge (despite a freeway volume that is 10 percent lower on I-95 than I-26). The key reason is that the planned three lane I-26 freeway segment provides more capacity than the existing two-lane I-95 freeway segment.

11.3.4 Summary of Initial Capacity Analysis

Based on the initial review of the initial design for Alternatives 1, 2 and 3 the following observations are made:

- All three alternatives operate substantially better than the existing interchange under 2030 and 2050 conditions.
  - The primary improvement is the removal of four weave segments impacting I-95 and I-26 in both directions. In addition to capacity constraints, the elimination of weave segments will also provide safety benefits since the four weave segments are currently the second through fifth highest frequency crash segments in the study area.
  - The other key improvement is the provision of two lanes on the I-26 eastbound to I-95 southbound ramp (Ramp 1 in the report) and the I-95 northbound to I-26 westbound flyover (Ramp 6) replacing the loop in the northeast quadrant.
- Alternatives 1 and 2 effectively operate the same from traffic operations perspective. Both can successfully meet LOS D or better operations in 2050. There is a slight difference in travel times, but this is related to the longer length (albeit partially offset by a higher design speed) on the flyovers in Alternative 2. Nevertheless, from a traffic capacity perspective, there is no key difference.

- Alternative 3 does not meet the LOS D operational goal of the entire interchange through 2030 or 2050. Specifically, the third flyover requires incorporation of a fifth shared ramp segment combining two ramps from I-26 westbound. As currently designed, this single lane shared ramp segment does not provide LOS D operations.

11.4 Refined Analysis of No Build Versus the Preferred Alternative

Based upon this analysis and comparison, key decisions were able to be made regarding the preferred traffic alternative for the proposed interchange. The comparison analysis was completed in Chapter 8. An illustration summarizing the TransModeler LOS analysis for both the No Build and Build preferred alternative are shown in Figure 9.1 through Figure 9.4. Overall, the key conclusions were:

- The preferred alternative from a traffic capacity perspective is either Alternative 1 or 2. Design details such as the design speed, grade and other elements could differ based on final design approved for the project.
- The preferred alternative would include a 5,000-foot merge on I-95 southbound mainline merge with the two-lane ramp from I-26 eastbound. Although this treatment still operates at LOS F in 2050, it improves operations and minimizes queuing as compared with a shorter merge and is supported for application of ITE guidance for two-lane merges.
- The preferred alternative will also include a 4,000-foot merge on I-26 westbound with the merge of the proposed I-95 northbound to I-26 westbound flyover. This merge also is anticipated to operate at LOS F in 2050. Nevertheless, the provision of a 4,000-foot merge is sufficient to prevent queuing back onto the proposed flyover ramp.

11.5 Design & Operational Exceptions

This document is the Interchange Modification Report (IMR) required by FHWA for modifications or changes to existing interchanges on the interstate network. In addition to the capacity analysis, the IMR requires some additional elements be provided in reviewing the document for approval. These elements include:

- FHWA policy requires that all requests for new or revised access to an interstate facility must provide sufficient supporting information to allow FHWA to independently evaluate the request. The FHWA decision to approve a request requires documentation of two key policy points as discussed in Section 10.2. Table 10.1 addresses each of the Policy Points.

- Design exceptions are typically identified as part of the IMR. For this project, however, there are no anticipated design exceptions.
- There are some operational exceptions, however, to the identified congestion threshold of minimum acceptable LOS D operations in 2050. Detailed analysis of the two-lane merges is included in Section 8.3.2 and addressed as part of this summary. Specifically:
  - The existing four lane I-95 south of I-26 will be over capacity and operate at LOS F in the 2050 design year. No widening or capacity improvements are currently identified for the I-95 corridor in SCDOT's 2021-2027 Statewide Transportation Improvement Program (STIP). Improvement of the I-95 mainline is beyond the intent of the current I-26 at I-95 interchange improvements.
  - The proposed 5,000-foot southbound merge of I-95 and the two-lane ramp from I-26 eastbound will operate at LOS F in 2050. Queuing will extend onto the ramp and I-95 southbound approaches to the merge.
  - The proposed 4,000-foot westbound merge of I-26 and the proposed two-lane flyover from I-95 northbound will operate at LOS F in 2050 (even with the assumed widening of I-26 to six lanes in the No Build). Queuing is expected in the merging section but is not anticipated to back up onto the flyover ramp in 2050.
  - Additional traffic analysis was conducted in Section 9.2.5 to examine operations for interim years at these two key merge points between 2030 and 2050. Key findings for the I-26 westbound merge were:
    - The operations of the merge area are relatively uncongested through 2040 (LOS C and 65 mph). By 2045, however, the final three lane bottleneck operates at LOS F with speeds reduced to 25 mph. Congested operations, however, are focused on this segment and have not resulted in backup into the upstream segments.
    - By 2050, congested operations are noted in both the five lane (LOS E and 36 mph) and four lane (LOS F and 26 mph) merge segments. LOS D is observed on the ramp with minimal queuing. This matches the previous analysis where a 4,000-foot merge was deemed the minimum applicable merge length to prevent queuing back onto the flyover.
  - The I-95 southbound merge interim year analysis that the southbound merge is anticipated to operate at LOS F in 2050 and will see substantial congestion by 2040. Observations include:

- The ramp from I-26 eastbound degrades sooner with LOS D in 2040 quickly degrading to LOS F by 2045. A key measure is the travel speed on the ramp which decreases from 41 mph to 10 mph between 2030 and 2035.
- The key impacts and degraded flow are observed in the merge section. The key bottleneck is observed in the three-lane segment of the merge (more precisely, the bottleneck is at the point where the two-lane segment is reached so the delay is observed in the three-lane segment). This section is expected to degrade rapidly between 2035 (LOS C and 65 mph) to 2040 (LOS F and 17 mph). Flow continues to degrade, with density increasing between 2040 and 2045 (reflective of more stop and go operations) and decreasing in speed to 11 mph.
- As demonstrated, the southbound merge is anticipated to operate at LOS F in 2050 and will see substantial congestion by 2040. The solution to this issue, however, is not achievable by improvements to the interchange ramps or layout. Instead, it is recommended that widening of I-95 south of the I-26 interchange be considered as part of future projects.

Appendix C

Alternatives Analysis Memo

I-26 AT I-95 INTERCHANGE IMPROVEMENTS
ALTERNATIVES ANALYSIS MEMO

TABLE OF CONTENTS

FIGURES

TABLES

1 INTRODUCTION

1.1 OVERVIEW

The South Carolina Department of Transportation (SCDOT) proposes to improve the interchange on I-26 at I-95 in Dorchester and Orangeburg Counties. The interchange is located at Exit 169B along I-26 and Exit 86A&B along I-95, approximately 8 miles east of Bowman and 11 miles west of Holly Hill. This project will be a full interchange improvement to address the operational deficiencies of the current configuration. The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. Goals for the project include accommodating future capacity improvements of both I-26 and I-95 and accommodating lane reversal requirements in accordance with SCDOT emergency management.

FIGURE 1-1: INTERCHANGE AT I-26 AND I-95

2 EXISTING CONDITIONS

2.1 GEOMETRIC DEFICIENCIES

The 2021 SCDOT Roadway Design Manual provides guidance on geometric design based on the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (SCDOT Roadway Design Manual)[1]. There are elements of the existing I-26 at I-95 interchange that are geometrically deficient, which result in congestion and poor safety conditions; see Figure 2-1. These elements include: the acceleration and deceleration lanes that are not long enough and short distances between entrance and exit ramps that result in tight vehicle merging or weaving. The low radii loop ramps do not meet current design speeds.

2.2 OPERATIONAL DEFICIENCIES

Four operational deficiencies were identified that would need to be addressed in the development of the proposed improvements. All four deficiencies are related to weaving and merging. Weaving involves one vehicle crossing the path of another vehicle along a roadway without the aid of signals or other traffic control devices such as weaving between vehicles entering the highway off an exit-ramp to enter an on-ramp. Merging involves two separate vehicle traffic streams joining together to form a single stream such as an exit-ramp traffic stream joining with an existing traffic stream on the interstate. Subsequent traffic analysis validated that the deficiencies are related to the existing operation of the interchange. The four deficiencies are described below.

[1] Roadway Design Manual. SCDOT. February 2021.
https://www.scdot.org/business/pdf/roadway/2021_SCDOT_Roadway_Design_Manual.pdf

2.2.1 Existing Network Weaving

Deficiency A: Deficiency A involves the weave segment between loop-ramp 3 and loop-ramp 6 shown in orange. (Figure 2-1, Location A Merge Conflicts). Specifically, I-95 northbound experiences back up which begins at the merge from I-26 eastbound. The backup of traffic results from short distances between entrance and exit ramps. The existing interchange does not effectively provide for the I-26 eastbound to I-95 northbound merge movement. Forty-one crashes have occurred within the weave on I-95 northbound with 70% of those crashes being rear end crashes indicative that traffic is slowing down to merge into a weave or queuing occurring upstream on I-95 northbound in the mainline traffic flow. Eliminating this conflict point between these two ramps would eliminate the conflict point of vehicles changing lanes in a short distance.

Deficiency B: Deficiency B involves the weave segment between loop-ramp 2 and loop-ramp 3 shown in blue (Figure 2-1, Location B Merge Conflicts). Specifically, I-26 eastbound experiences congestion which begins at the merge from I-95 southbound. The backup of traffic results from short distances between entrance and exit ramps. The existing interchange does not effectively provide for the I-95 southbound to I-26 eastbound movement. The congestion and back-up associated with this movement is attributed to the heavy volumes of vehicles traveling towards Charleston. Thirty-two crashes have occurred within the weave on I-26 eastbound with 50% of those crashes being angle and sideswipe crashes indicative that traffic is moving within the weave area but having issues finding gaps or openings to merge or diverge. Eliminating this conflict point between these two ramps would eliminate the conflict point of vehicles changing lanes in a short distance.

Deficiency C: Deficiency C involves the weave segment between loop-ramp 6 and loop ramp 7 shown in purple (Figure 2-1, Location C Merge Conflicts). Specifically, I-26 westbound experiences congestion which begins at the merge from I-95 northbound. The congestion of traffic results from short distances between entrance and exit ramps. Forty-six crashes have occurred within the weave on I-26 westbound and is the highest frequency of the four weave areas. Of the 46 crashes 63% of those crashes being angle and sideswipe crashes is indicative that traffic is moving within the weave area but having issues finding gaps or openings to merge or diverge. Eliminating this conflict point between these two ramps would eliminate the conflict point of vehicles changing lanes in a short distance.

Deficiency D: Deficiency D involves the weave segment between loop-ramp 7 and loop-ramp 2 shown in green (Figure 2-1, Location D Merge Conflicts). Specifically, I-95 southbound experiences congestion which begins at the merge from I-26 westbound. The backup of traffic results from short distances between entrance and exit ramps. Thirty crashes have occurred within the weave on I-95 southbound with over 80% of the crashes being rear end crashes indicative of slowing to merge or due to queuing occurring upstream or a weave in the mainline traffic flow. While this weave movement operates at an acceptable LOS, the existing interchange does not safely and effectively provide for the I-26 westbound to I-95 southbound movement.

2.2.2 Ramp Operations and Level of Service

Four of the eight existing exit and entrance ramps on the interchange would operate at a poor LOS of E or F in the year 2050 if no improvements are made (**Table 2-1**). LOS C or better is preferred, while LOS E and F are defined as unacceptable. Each of the alternatives would improve ramp LOS to A through C along five ramps and LOS D along three ramps.

TABLE 2-1: NO BUILD INTERSTATE RAMP LEVEL OF SERVICE FOR YEAR 2050

	No Build
Ramp 1	F
Ramp 2	F
Ramp 3	A
Ramp 4	A
Ramp 5	E
Ramp 6	F
Ramp 7	B
Ramp 8	A

3 ALTERNATIVE 1

3.1 GEOMETRY / TRAFFIC OPERATIONS

Alternative 1 includes two flyover ramps; see Figure 3-1. The first flyover ramp would be two lanes connecting I- 95 northbound to I-26 westbound, replacing one loop-ramp (Ramp 6). The second flyover ramp would be one lane connecting I-95 southbound to I-26 eastbound, replacing one loop-ramp (Ramp 2). Two loop-ramps will remain operational, the loop-ramp connecting I-26 eastbound to I-95 northbound (Ramp 3) as well as the loop-ramp connecting I-26 westbound to I-95 southbound (Ramp 7).

The two loop-ramps that would be replaced with flyover ramps, carry higher traffic volumes than the loop-ramps that will be retained. The new flyover ramps would be higher speed lanes and provide more efficient movement when exiting from one interstate and merging onto the other interstate. Two-lane ramps will be provided for the I-95 northbound to I-26 westbound movement. Alternative 1 would keep the six remaining ramps as single-lane ramps. Of these ramps, LOS C or better is expected at the four lowest volume ramps, while LOS D is expected on the ramp connecting I-26 westbound to I-95 northbound (Ramp 5). LOS D is expected on the ramp connecting I-95 southbound to I-26 eastbound; see Table 2-2: Alternatives Interstate Ramps Level of service for 2050.

Alternative 1 would operate substantially better than the existing interchange under 2030 and 2050 conditions. The primary improvements are the removal of four weave segments impacting I-95 and I-26 in both directions. In addition to capacity improvements, the elimination of weave segments would also improve geometric and operational efficiency. Alternative 1 would successfully meet LOS D or better operations in 2050.

3.2 PROPERTY IMPACTS

The proposed reconfiguration for the two new proposed flyover ramps would result in no direct impacts to any residential or commercial buildings. A total of 6 tracts are impacted with no relocations being necessary. Estimated total new right of way would be 13.1 acres; see Table 2-3: Alternatives Comparison Summary.

3.3 WATERS OF THE U.S. (WOUS) IMPACTS

Approximate wetland impacts are 14 acres associated with the construction of the proposed flyover ramps. Included is 111 linear feet of stream impacts for the construction of the flyover ramps and 0.8 acres of jurisdictional pond fill; see Table 2-3: Alternatives Comparison Summary.

4 ALTERNATIVE 2

4.1 GEOMETRY / TRAFFIC OPERATIONS

Alternative 2 includes two flyover ramps; see Figure 4-1. The first flyover ramp would connect I-95 northbound to I-26 westbound, replacing one loop-ramp (Ramp 6). The second flyover ramp, would connect I-95 southbound to I-26 eastbound, replacing one loop-ramp (Ramp 2). Alternative 2 would keep the six remaining ramps as single-lane ramps. Of these ramps, LOS C is expected at the four lowest volume ramps, while LOS D is expected of the ramp connecting I-26 westbound to I-95 northbound (Ramp 5). The flyover ramps for Alternative 2 vary from Alternative 1 in that they would be constructed beyond the loop ramps, reducing the length and complexity of bridges. Two loop-ramps will remain operational, the loop-ramp connecting I-26 eastbound to I-95 northbound (Ramp 3) as well as the loop-ramp connecting I-26 westbound to I-95 southbound (Ramp 7).

The two loop-ramps that will be replaced with flyover ramps, carry higher traffic volumes than the loop-ramps that will be retained. The new flyover ramps would be higher speed lanes and provide more efficient movement when exiting from one interstate and merging onto the other interstate. The first proposed loop ramp connecting I-95 northbound to I-26 westbound movement is proposed to operate at a LOS C in 2030 and LOS D in 2050. The second proposed loop ramp connecting I-95 southbound to I-26 eastbound is proposed to operate at LOS C in 2030 and LOS D in 2050; see Table 2-2: Alternatives Interstate Ramps Level of service for 2050.

Alternative 2 would operate substantially better than the existing interchange under 2030 and 2050 conditions. The primary improvements are the removal of four weave segments impacting I-95 and I-26 in both directions. In addition to capacity improvements, the elimination of weave segments would improve geometric and operational efficiency. Alternative 2 would successfully meet LOS D or better operations in 2050.

4.2 PROPERTY IMPACTS

The proposed reconfiguration for the two new proposed flyover ramps would result in no direct impacts to any residential or commercial buildings. A total of 8 tracts are impacted with no relocations being necessary. Estimated total new right of way would be 25.5 acres; see Table 2-3: Alternatives Comparison Summary.

4.3 WOUS IMPACTS

Approximate wetland impacts are 14 acres associated with the construction of the proposed flyover ramps. Included is 148 linear feet of stream impacts for the construction of the flyover ramps and 1.0 acres of jurisdictional pond fill; see Table 2-3: Alternatives Comparison Summary.

5 ALTERNATIVE 3

5.1 GEOMETRY / TRAFFIC OPERATIONS

Alternative 3 includes 3 flyover ramps; see Figure 5-1. This alternative is similar to Alternative 2 in concept, but would include a third flyover ramp. The first flyover ramp would connect I-95 northbound to I-26 westbound, replacing one loop-ramp (Ramp 6). The second flyover ramp would connect I-95 southbound to I-26 eastbound, replacing a second loop-ramp (Ramp 2). The third flyover ramp would connect I-26 westbound to I-95 southbound, replacing a third loop-ramp (Ramp 7). The fourth loop-ramp connecting I-26 eastbound to I-95 northbound would remain operational (Ramp 3).

Three of the loop-ramps that will be replaced with flyover ramps, carry the highest traffic volumes of the existing loop-ramps. The new flyover ramps that would replace them would be higher speed lanes and provide more efficient movement when exiting from one interstate and merging onto the other interstate. Alternative 3 removes a third loop in the northwest quadrant connecting I-26 westbound to I-95 southbound and replaces it with a third flyover. Two-lane ramps will be provided for the I-95 northbound to I-26 westbound movement as well as the I-95 southbound to I-26 eastbound movement. Alternative 3 would consist of the six remaining ramps as single-lane ramps. Of these ramps, LOS C is expected at the four lowest volume ramps, while LOS D is expected on the ramp from I-26 westbound to I-95 southbound as well as the ramp from I-95 southbound to I-26 eastbound: see **Table 2-2: Alternatives Interstate Ramps Level of service for 2050**.

Alternative 3 would not meet the LOS D operation goal of the entire interchange through 2030 to 2050. Specifically, the third flyover would require the incorporation of a road segment extending the on- ramps from I-26 westbound. As currently designed, this road segment would not provide LOS D operations. There are also concerns with shifting the merge from I-26 westbound to I-95 southbound closer to the merge from I-26 eastbound to I-southbound.

5.2 Property Impacts

The proposed reconfiguration for the three new proposed flyover ramps would result in no direct impacts to any residential or commercial buildings. A total of 8 tracts are impacted with no relocations being necessary. Estimated total new right of way would be 31.0 acres; see **Table 2-3: Alternatives Comparison Summary**.

5.3 WOUS Impacts

Approximate wetland impacts are 15 acres associated with the construction of the proposed flyover ramps. Included is 170 linear feet of stream impacts for the construction of the flyover ramps and 1.0 acres of jurisdictional pond fill; see **Table 2-3: Alternatives Comparison Summary**.

6 ALTERNATIVE COMPARISON

Each of the three alternatives would satisfy the purpose and need. They would all improve operations at the interchange by eliminating operational deficiencies related to merging and weaving at the interstate ramps. Because poor LOS indicates that traffic along the ramps would be high, contributing to tighter spacing among vehicles and increased weaving and merging at the ramps, LOS for each ramp was also considered with respect to operational improvements. Table 2-2 outlines the LOS for each ramp in the design year of 2050.

Table 2-2: Alternatives Interstate Ramps Level of service for 2050

	Alternative 1	Alternative 2	Alternative 3
Ramp 1	F* / C**	F* / C**	F* / C**
Ramp 2	D	D	D
Ramp 3	A	A	A
Ramp 4	A	A	A
Ramp 5	D	D	D for a portion of ramp 5 to I-95 north F for a portion of ramp 5 to I-95 north
Ramp 6	D	D	D
Ramp 7	B	B	B
Ramp 8	A	A	A

*LOS F at I-26 eastbound (towards Charleston) ramp to I-95 southbound (towards Georgia) with the current four-lane section of I-95.

**LOS C at the I-26 eastbound (towards Charleston) ramp to I-95 southbound (towards Georgia) with a potential future widening of I-95.

Two conditions were reported for Ramp 1. I-95 southbound (to Georgia) is currently a two-lane facility. Each alternative would have a LOS of F at this ramp, as there would be high volumes of vehicles on this ramp. However, there would be no other nearby ramps at this location and vehicle weaving would not be present. If I-95 is eventually widened to three southbound lanes, the LOS at Ramp 1 under each alternative would be LOS C.

A total of three alternatives have been identified and evaluated as reasonable. Table 2-3 summarizes impact comparisons for each reasonable alternative.

TABLE 2-3: ALTERNATIVES COMPARISON SUMMARY

	No Build	Alternative 1	Alternative 2	Alternative 3
Stream Impacts (Linear Feet)	0	111	148	170
Wetland Impacts (acres)	0	14	14	15
Jurisdictional Pond Impacts (acres)	0	0.9	1.0	1.0
Right of Way	0	13.1	25.5	31.0
Allows for future capacity and lane reversals?	No	Yes	Yes	Yes
Total Number of Tracts Impacted (No Relocations)	0	6	8	8
Total Cost	$0.00	$283,000,000	$195,000.000	$216,000,000

7 PREFERRED ALTERNATIVE

Alternatives 1 and 2 were equally viable from a traffic analysis perspective. Elimination of full clover interchanges improves overall operations, increases safety, and allows for higher design speeds within a similar interchange footprint. With respect to key environmental impacts, Alternative 2 has slightly higher WOUS impacts than Alternative 1 (an increase of 37 LF stream and 0.1 acre of pond impacts). Each alternative would improve operations at the interchange by eliminating operational deficiencies related to merging and weaving at the interstate ramps. Because poor LOS indicates that traffic along the ramps would be high, contributing to tighter spacing among vehicles and increased weaving and merging at the ramps, LOS for each ramp was also considered with respect to

operational improvements. Based on the traffic analysis and Interchange Modification Report, Alternative 3 would not best meet the project purpose and need. One ramp in Alternative 3 would operate at LOS F, whereas the other alternatives would have ramps with LOS A through D

Alternative 3 was not selected as the Preferred Alternative because one ramp would operate at LOS F. Alternative 1 was also not selected. While it meets the purpose and need, it has a higher cost than any other alternative. Alternatives 2 was selected as the Preferred Alternative because it meets the project purpose and has WOUS impacts that are comparable to Alternatives 1 and 3.

FIGURE 2-1: PROJECT WEAVE AND MERGE CONFLICTS

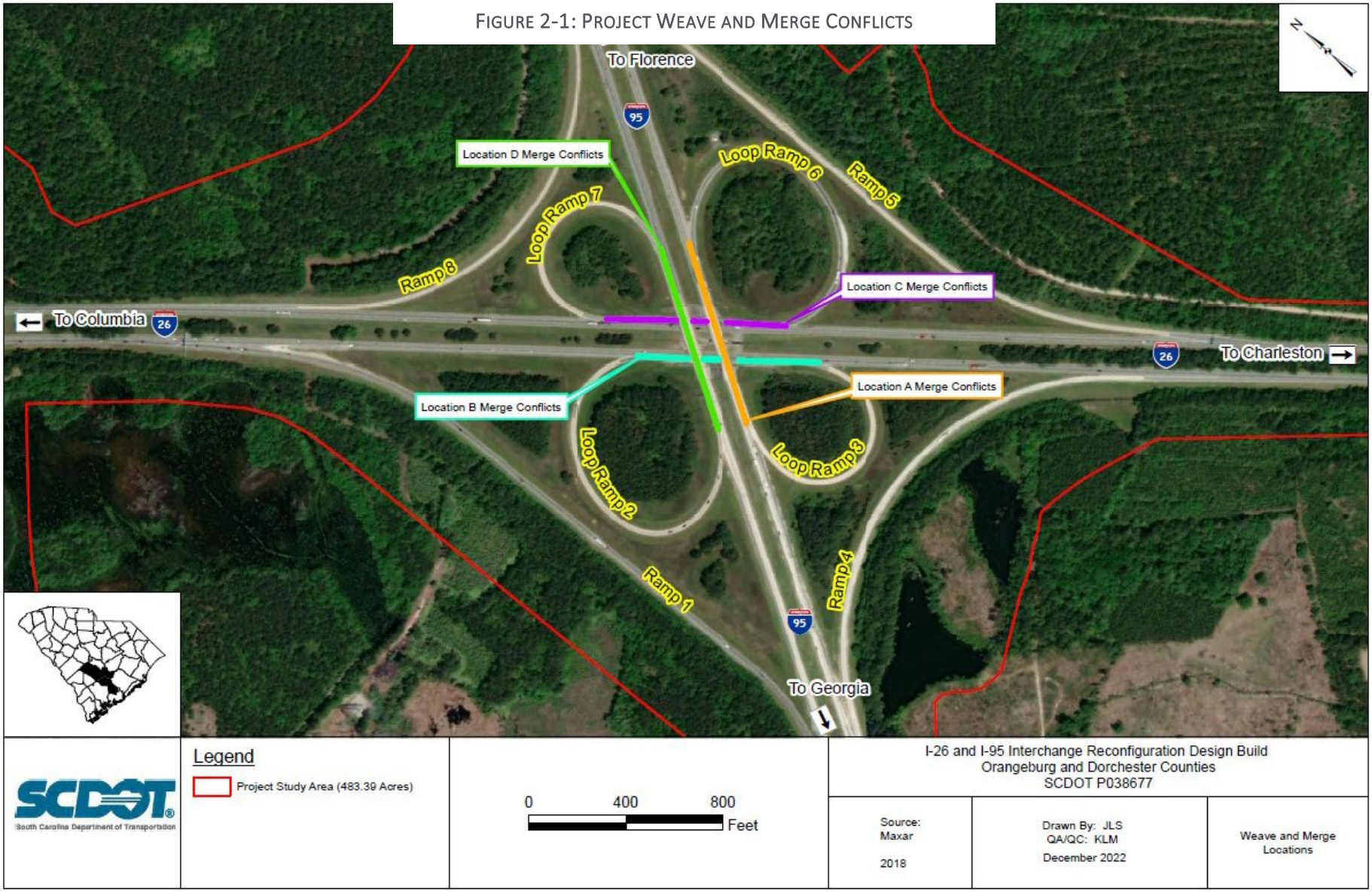


FIGURE 3-1: ALTERNATIVE 1 2050 LOS AND RAMP IDS

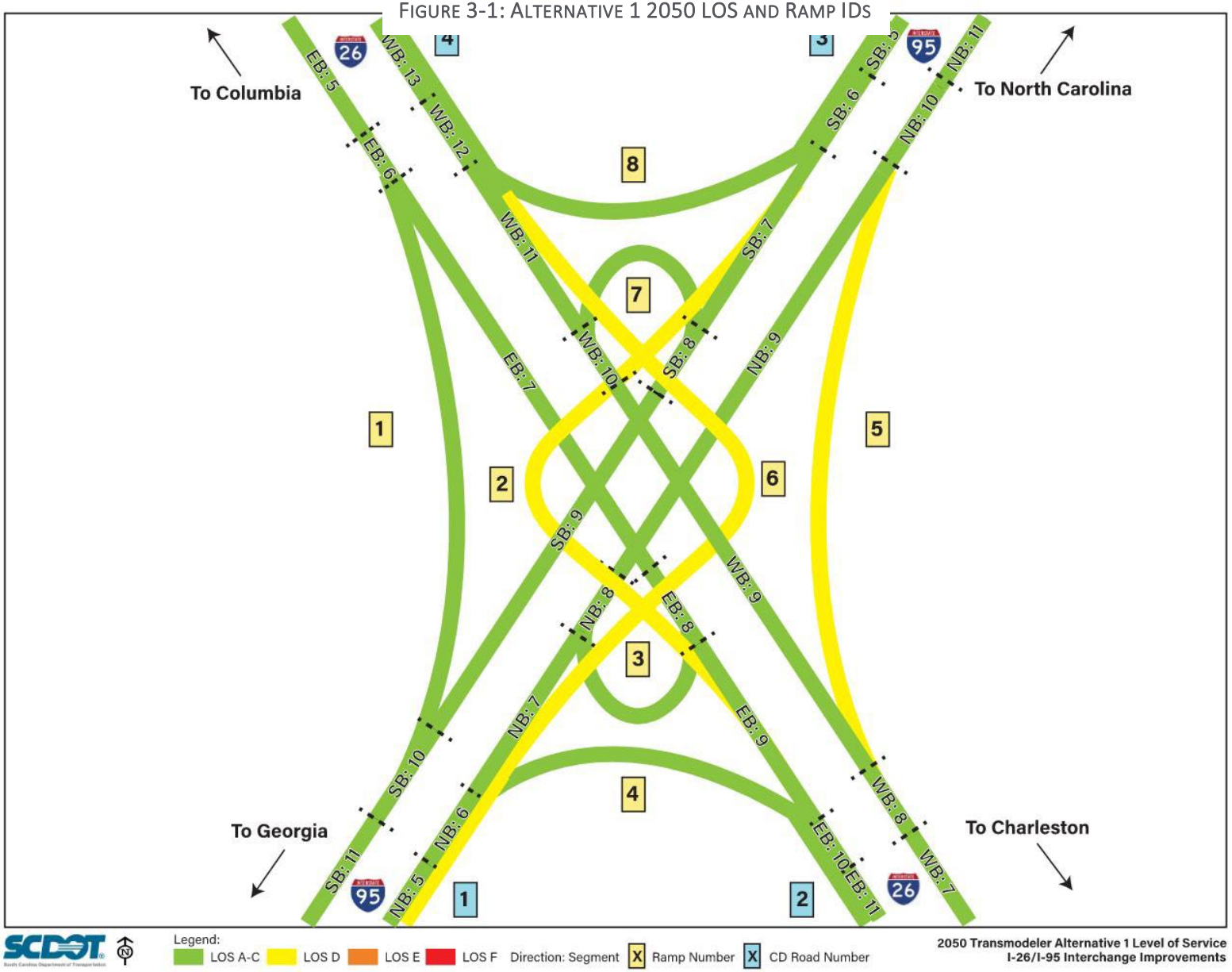


FIGURE 4-1: ALTERNATIVE 2 2050 LOS AND RAMP IDS

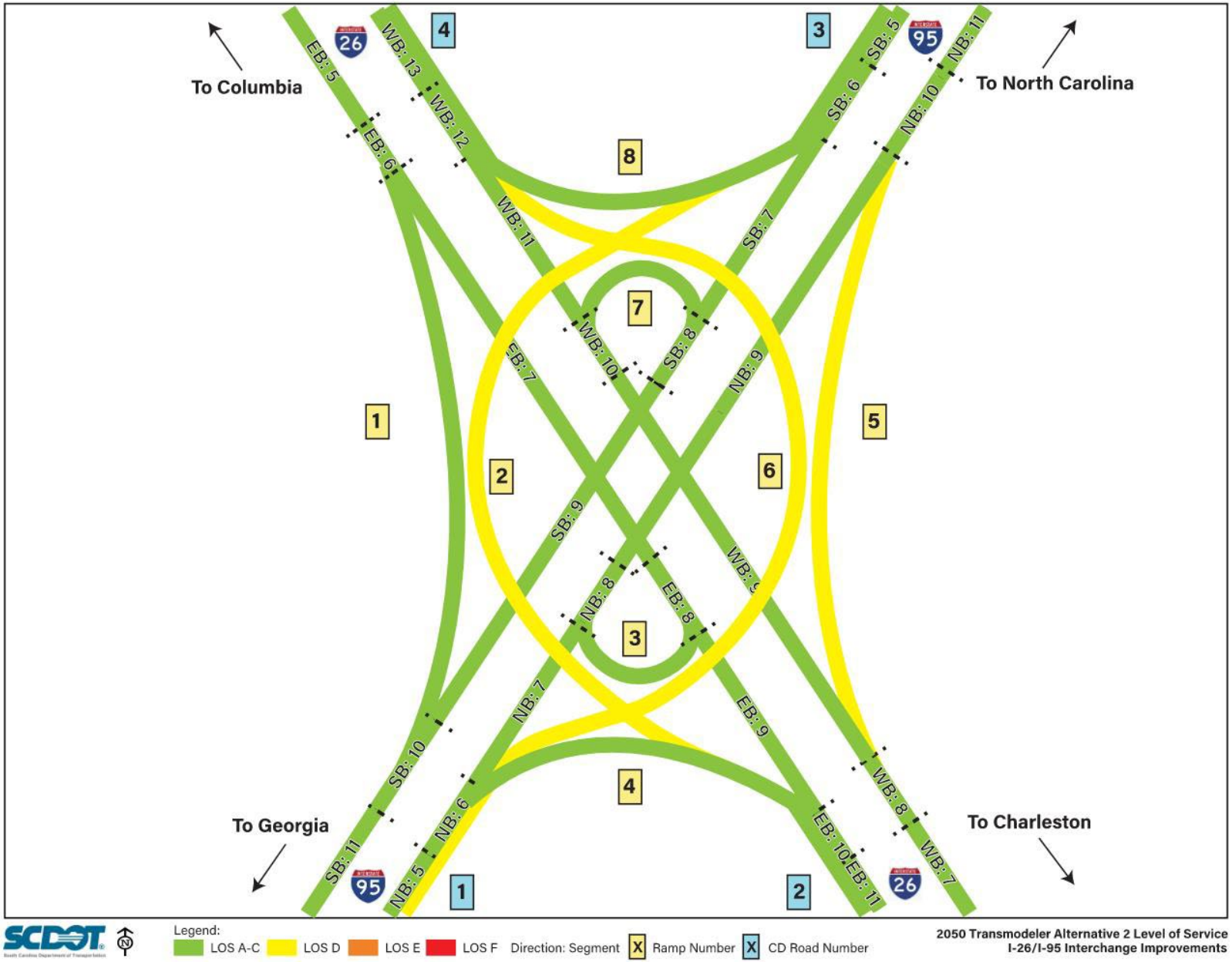


FIGURE 5-1: ALTERNATIVE 3 2050 LOS AND RAMP IDS

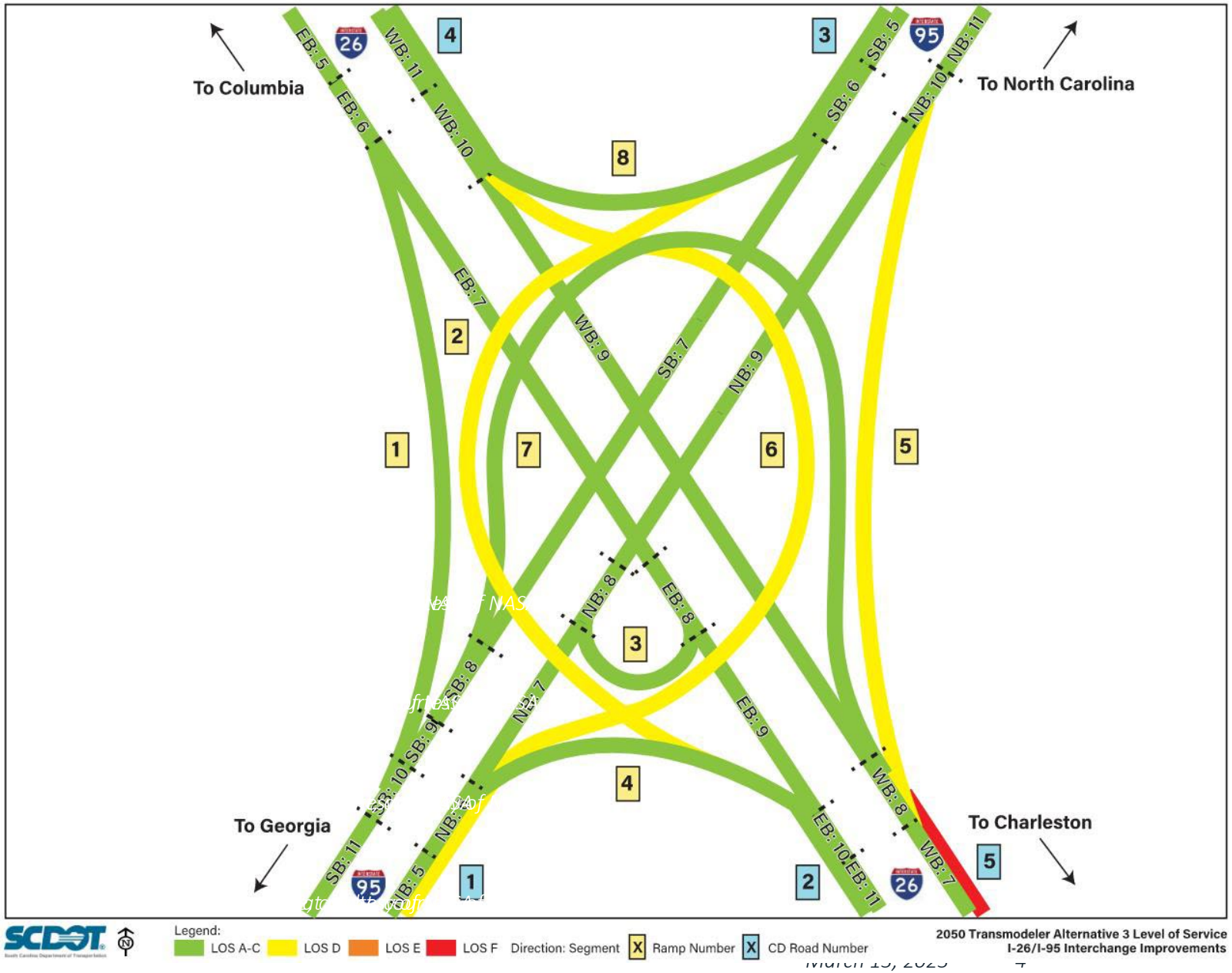


FIGURE 6-1: ALTERNATIVE 1 DESIGN

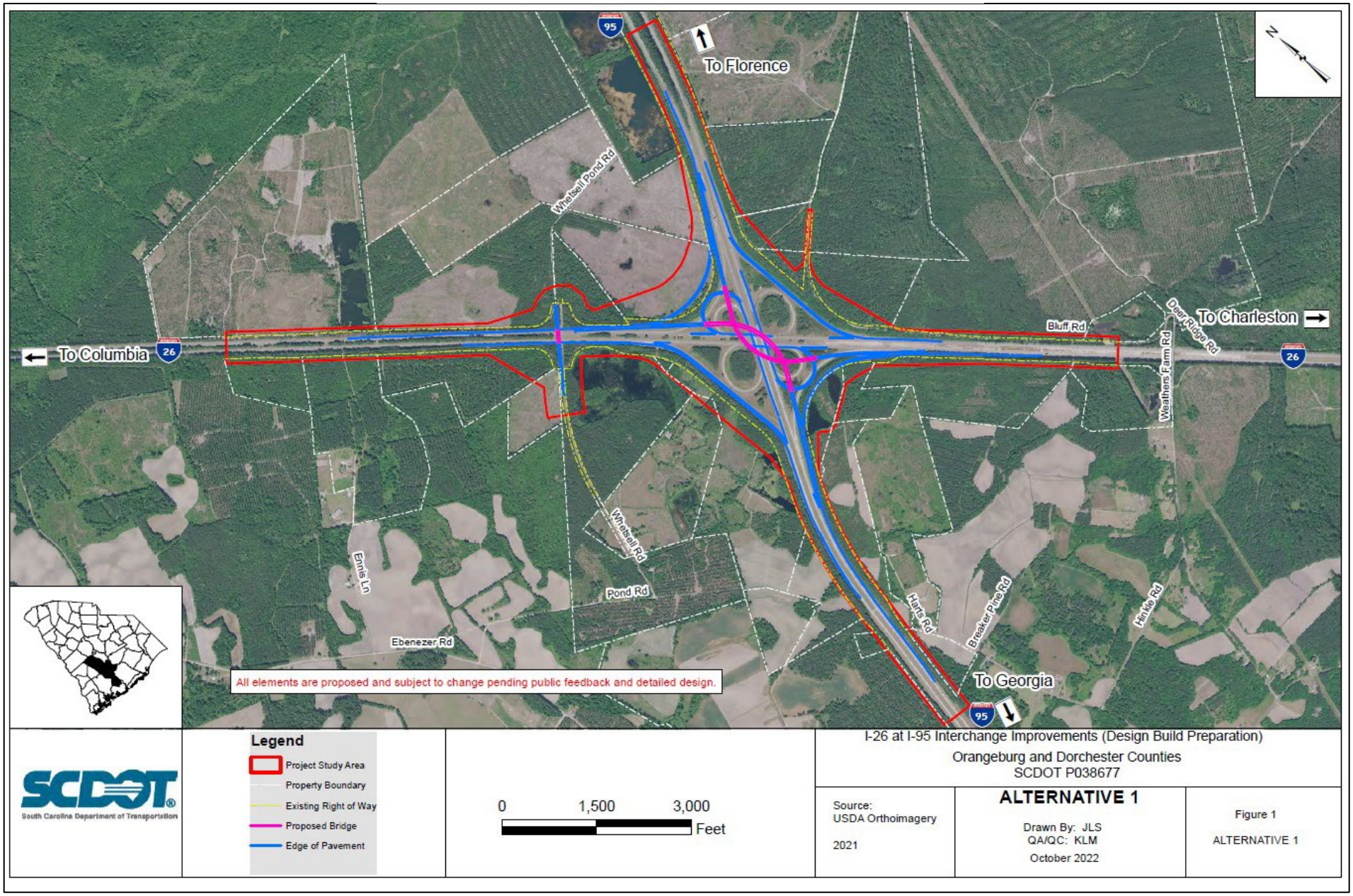


FIGURE 7-1: ALTERNATIVE 2 DESIGN

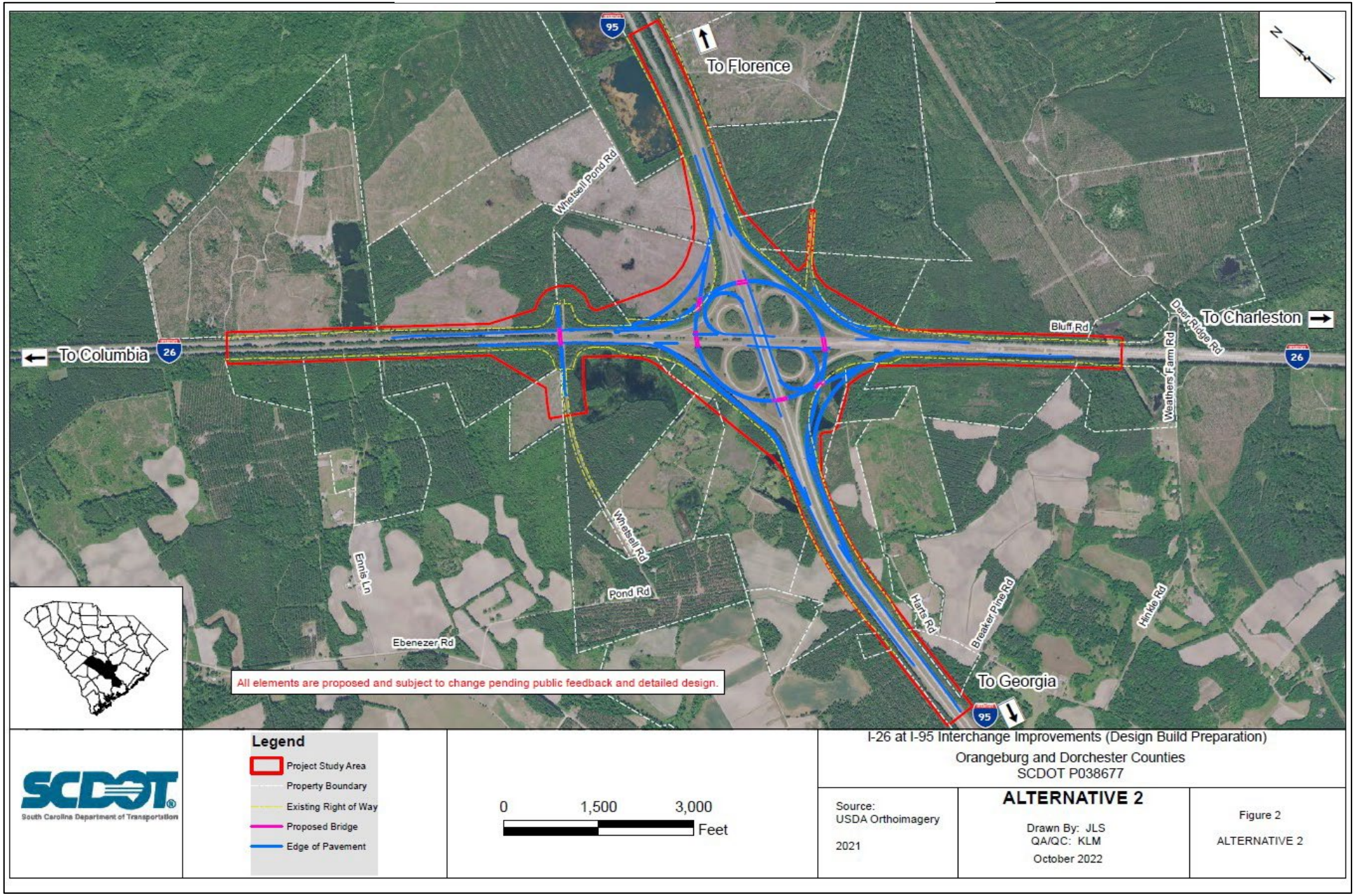
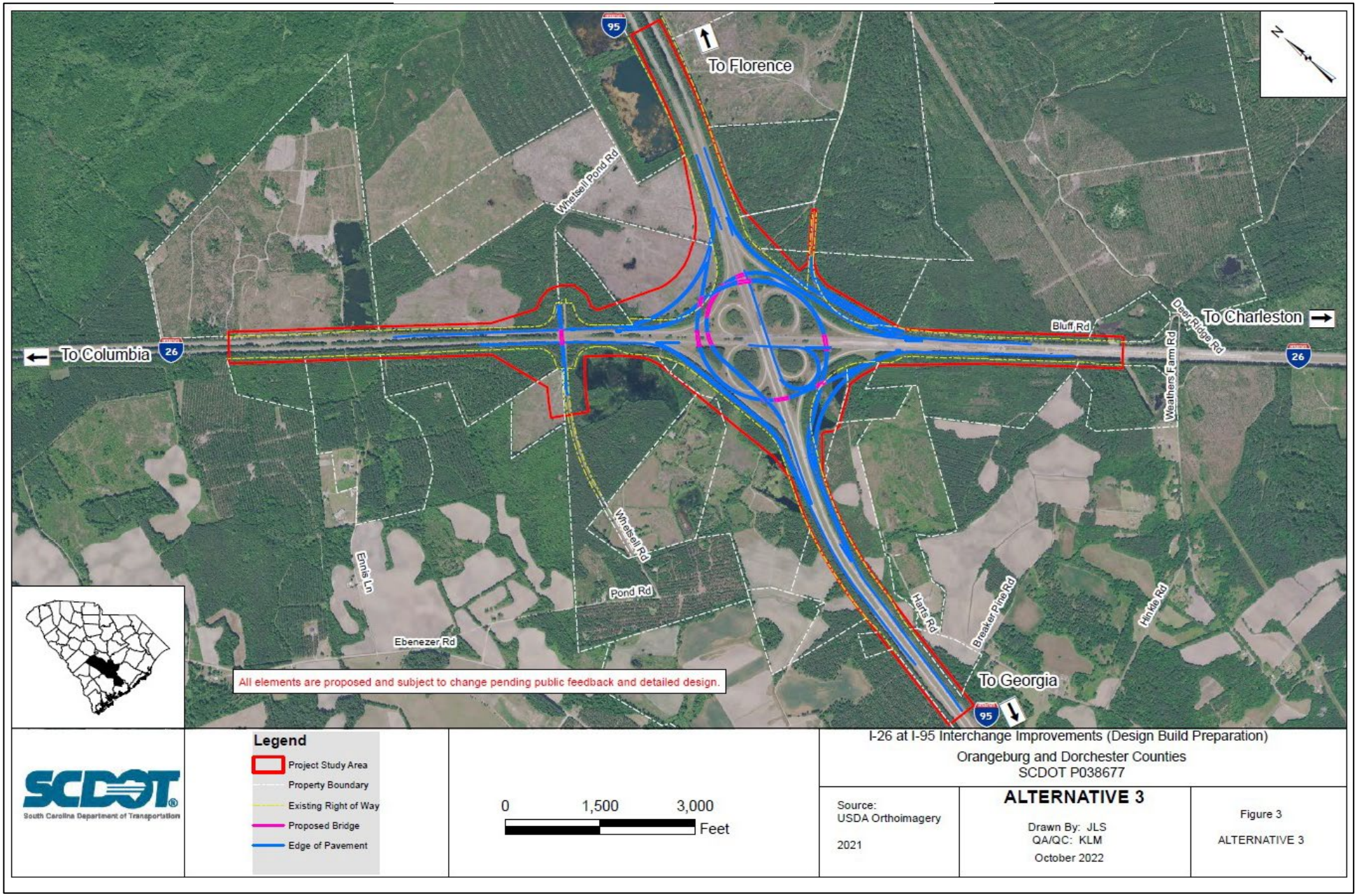


FIGURE 8-1: ALTERNATIVE 3 DESIGN



Appendix D

Public Involvement

I-26 at I-95 Interchange Improvements P038677

Public Involvement Plan **Updated 6/20/2022**

Project Description and Introduction

The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 Interchange, in Orangeburg and Dorchester Counties (Attachment A). This project will be a full interchange improvement to address the operational deficiencies of the current configuration. There are committed federal funds for these upgrades through the National Highway Performance Program. This Public Involvement Plan (PIP) details strategies and tools to be used to give members of the public key information about the project and allow opportunities to provide meaningful input. This dynamic document can be adapted to incorporate new or varying approaches as the project evolves.

Public Involvement Team Primary Contacts

Name	Phone
Brad Reynolds, PE, Project Manager, SCDOT	803-737-1440
Will McGoldrick, Environmental Lead for Alternative Delivery, SCDOT	803-737-3005
Syrees Gillens Oliver, Public Involvement Director, SCDOT	803-737-1351
Kally McCormick, Environmental Manager, CECS	843-696-7348
Brian Nickerson, PE, Design Manager, CECS	803-779-0311

A list of potential stakeholders is included in Attachment B

Demographics and Outreach Areas

SCDOT analyzed several sizes of geographic areas to best engage users. The Environmental Protection Agency Environmental Justice (EJ) Screening tool (Attachment C) was used to determine demographic data from an area within a two-mile radius of the proposed project (to include 507 households). This study region was utilized because a one-mile radius of the project would only include 132 households. The immediate project study area itself is too sparsely populated to determine a representative demographic makeup. Of the population within the two-mile area, 26% are reported minority and 26% are low-income. This does not exceed the statewide average percentages of 36% minority and 35% low income. Therefore, EJ Screen did not identify EJ communities within or near the project. A larger outreach area has been analyzed and includes the Towns of Orangeburg, Bowman, Reevesville, Harleyville, and Holly Hill. SCDOT will provide targeted correspondence to ensure larger organizations such as colleges, faith-based organizations, municipalities, and civic organization are aware of potential project impacts and can provide meaningful feedback.

Public Notification/Engagement

SCDOT proposes to notify and engage the public via the following methods:

- SCDOT project website to include project specifics, purpose and need, schedule, mapping, contact info, and a comment form.
- Targeted postal mailing with an informational flyer or postcard to approximately 100 addresses.
- Sponsored social media ads with targeted location-based geofencing.

- An informational flyer, containing a QR code link to project website, will be distributed to the stakeholder list, nearby hotels, and rest areas.
- Media blasts to local television and newspapers to include:
    - Post and Courier (Charleston)
    - The Times and Democrat (Orangeburg)
    - WIS-TV (NBC affiliate – Columbia)

These methods will continue to provide the public opportunities to review the proposed project, ask questions, and provide feedback while maintaining compliance with state and federal policy. This outreach will occur throughout the design and preconstruction phase of project development. Outreach during construction will be developed at a later date and coordinated with the selected contractor.

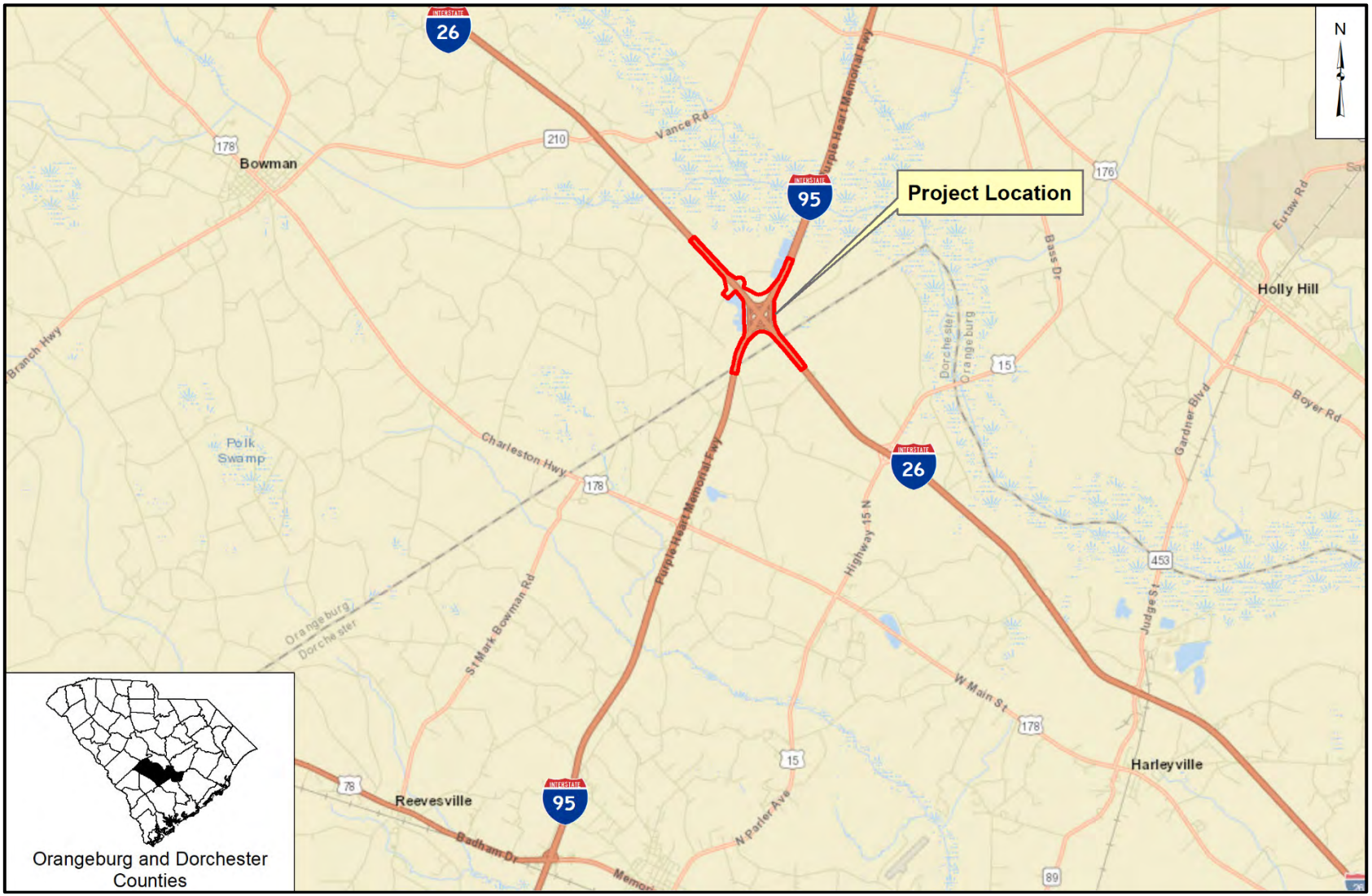
Public Meeting

Due to the sparse population and relatively low impacts to the social and natural environment, a public information meeting is not anticipated for this project. The primary project impacts are expected to be new right-of-way and wetland/stream impacts. Other outreach methods outlined above are expected to be sufficient for the project.

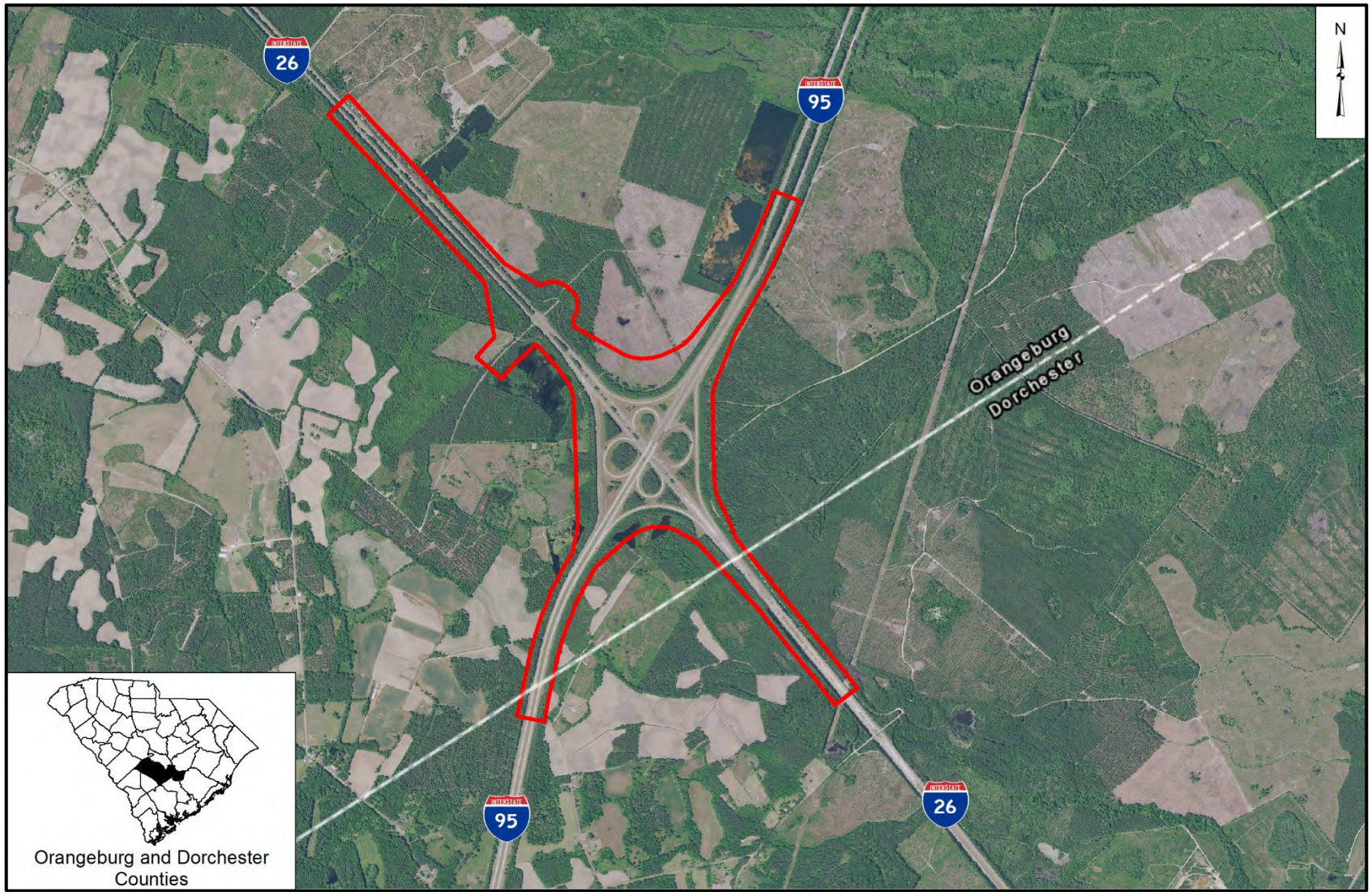
Proposed Public Involvement Schedule

- Website – August 2022
- Stakeholder email – September 2022
- Social media ads – September, October 2022
- Postal mailing to targeted addresses – October 2022
- Responses to comments received – October 2022

Attachment A – Project Location



Attachment A – Project Study Area



Attachment B – Potential Stakeholders

Organization	Address		Phone	Email
Education				
Claflin	400 Magnolia St.	Orangeburg, SC 29115	(800) 922-1276	
SC State	300 College Street NE	Orangeburg, SC 29117	(800) 260-5956	
Orangeburg Tech	3250 St Matthews Road	Orangeburg SC 29118	803-536-0311	
Orangeburg County School District	102 Founders Court	Orangeburg, SC 29118	(803) 534-5454	
Dorchester County School District 2	815 South Main Street	Summerville, SC 29483	(843) 873-2901	
Transportation				
SC Trucking Association	2425 Devine Street	Columbia SC 29205	(803)-799-4306	info@sctrucking.org
Greyhound bus	710A Buckner Road	Columbia, SC 29203	(803) 569-6522	
Cross County Connector	1437 Amelia Street	Orangeburg, SC 29115	(803)-533-1000	
Emergency Services				
Regional Medical Center	3000 St Matthews Road	Orangeburg, SC 29118	(803)-395-2200	
EMS Providers	Various			
Municipal, County, and Regional Governments				
Orangeburg County	1437 Amelia Street	Orangeburg, SC 29115	(803) 531-1302	
City Of Orangeburg	Post Office Drawer 387	Orangeburg, SC 29116	(803) 533-6000	
Town of Holly Hill	8423 Old State Road	Holly Hill, SC 29059	(803)496-3330	
Town of Bowman	PO Box 37	Bowman, SC	(803) 829-2666	
Orangeburg Lower Savannah Council of Governments	PO Box 850	Aiken, SC 29802	(803)649-7981	info@lscog.org
Berkeley, Charleston and Dorchester Council of Governments	5790 Casper Padgett Way	Charleston, SC 29406	(843)-529-0400	

Business	Address		Phone	Email
Orangeburg County Development Corporation	125 Regional Parkway, Ste 100	Orangeburg, SC 29115	803-536-0333	
Orangeburg County Chamber of Commerce	PO Box 328 155 Riverside Drive, SW	Orangeburg, SC 29116-0328	(803) 534-6821	
SC African American Chamber of Commerce – local chapter	2001 Assembly Street	Columbia, SC 29201	(803) 661-0655	
SC Hispanic Chamber of Commerce – Local	PO Box 1057	Taylors, SC 29687	(864) 643-7261	
Charleston Hispanic Association	2176 Savannah Hwy Suite B	Charleston, SC 29414	(843) 592-3666	
Civic				
Orangeburg County Council on Aging	2570 St Matthews Road NE,	Orangeburg, SC 29118	(803) 531 4663	
Dorchester Seniors, Inc.	312 N. Laurel Street	Summerville, SC 29483	(843) 871-5053	
Miscellaneous				
Triple H hunt Club	PO Box 116	Columbia, SC 29202		
Agencies				
SC DHEC, Bureau of Water	8500 Farrow Road Building 12	Columbia, SC 29147	(803) 898-4300	hightocw@dhec.sc.gov
USACE	69 Hagood Ave	Charleston, SC 29412	(893) 329-8000	Amanda.L.heath@usace.army.mil
USFWS	176 Croghan Spur Road Ste 200	Charleston, SC 29407	(843) 727-4707	mark_caldwell@fws.gov
SCDNR	1000 Assembly Street	Columbia, SC 29201	(803) 734-3893	daviss@dnr.sc.gov
FHWA	1835 Assembly Street	Columbia, SC 29201	(803) 253-3187	Jeffrey.belcher@dot.gov
EPA	61 Forsyth St, SW	Atlanta, GA 30303	(404) 562-96-20	laycock.Kelly@epa.gov
SC Department of Agriculture	1550 Henley St.	Orangeburg, SC 29115	(803) 928-8934	george.hicks@sc.usda.gov
SHPO	8301 Parklane Road	Columbia, SC 29223	(803) 896-6196	ejohnson@scdah.sc.gov
Elected Officials				
SCDOT List				

Attachment C – Environmental Justice Screening Report

1-mile radius

United States Environmental Protection Agency

EJScreen Report (Version 2.0)

1 mile Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 172

Input Area (sq. miles): 11.46

I95 and I26

EJScreen Report (Version 2.0)

1 mile Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 172

Input Area (sq. miles): 11.46

I95 and I26

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 ($\mu g/m^3$)	7.46	7.74	29	8.18	19	8.74	20
Ozone (ppb)	32.1	37.3	2	37.9	14	42.6	5
2017 Diesel Particulate Matter* ($\mu g/m^3$)	0.13	0.211	24	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	31	85	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.4	0.42	75	0.4	70-80th	0.36	80-90th
Traffic Proximity (daily traffic count/distance to road)	33	52	58	430	24	710	17
Lead Paint (% Pre-1960 Housing)	0.29	0.14	85	0.15	84	0.28	62
Superfund Proximity (site count/km distance)	0.014	0.092	9	0.083	19	0.13	10
RMP Facility Proximity (facility count/km distance)	0.082	0.45	13	0.6	14	0.75	11
Hazardous Waste Proximity (facility count/km distance)	0.1	1	12	0.62	25	2.2	17
Underground Storage Tanks (count/km^2)	0.74	2.6	45	3.5	43	3.9	41
Wastewater Discharge (toxicity-weighted concentration/m distance)	4.1E-05	0.47	30	0.45	35	12	25
Socioeconomic Indicators							
Demographic Index	26%	36%	37	37%	37	36%	43
People of Color	26%	36%	41	39%	42	40%	43
Low Income	26%	35%	37	35%	37	31%	47
Unemployment Rate	0%	6%	12	6%	11	5%	11
Linguistically Isolated	0%	1%	61	3%	51	5%	45
Less Than High School Education	23%	12%	86	13%	85	12%	84
Under Age 5	8%	6%	75	6%	73	6%	70
Over Age 64	25%	17%	85	17%	84	16%	87

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

2-mile radius

United States Environmental Protection Agency

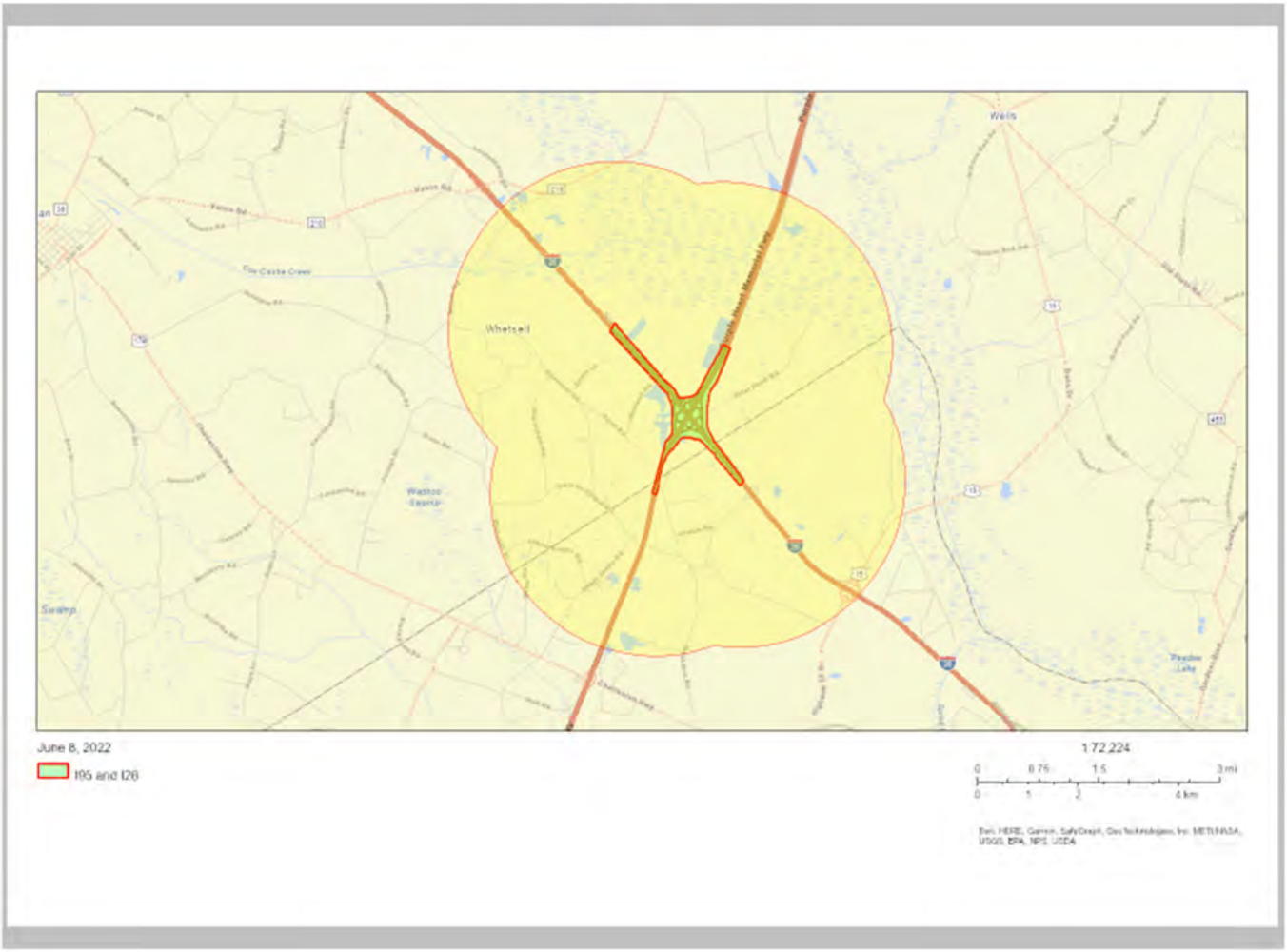
EJScreen Report (Version 2.0)

2 miles Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 507

Input Area (sq. miles): 27.72

I95 and I26



EJScreen Report (Version 2.0)

2 miles Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 507

Input Area (sq. miles): 27.72

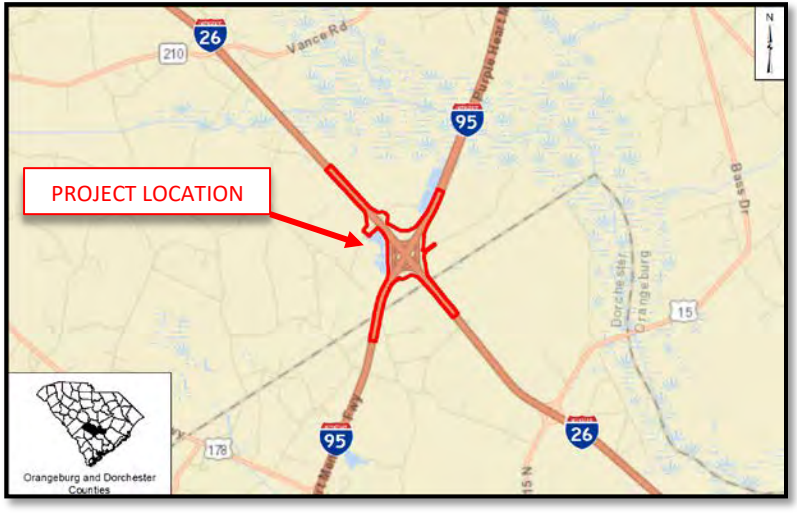
I95 and I26

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m³)	7.46	7.74	29	8.18	19	8.74	20
Ozone (ppb)	32.1	37.3	2	37.9	14	42.6	5
2017 Diesel Particulate Matter* (µg/m³)	0.13	0.211	24	0.261	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	30	31	85	31	80-90th	29	80-90th
2017 Air Toxics Respiratory HI*	0.4	0.42	75	0.4	70-80th	0.36	80-90th
Traffic Proximity (daily traffic count/distance to road)	31	52	56	430	23	710	17
Lead Paint (% Pre-1960 Housing)	0.28	0.14	85	0.15	83	0.28	61
Superfund Proximity (site count/km distance)	0.014	0.092	9	0.083	19	0.13	10
RMP Facility Proximity (facility count/km distance)	0.08	0.45	13	0.6	13	0.75	10
Hazardous Waste Proximity (facility count/km distance)	0.1	1	12	0.62	25	2.2	16
Underground Storage Tanks (count/km²)	0.68	2.6	44	3.5	42	3.9	40
Wastewater Discharge (toxicity-weighted concentration/m distance)	5.4E-05	0.47	33	0.45	37	12	27
Socioeconomic Indicators							
Demographic Index	27%	36%	40	37%	39	36%	45
People of Color	28%	36%	46	39%	45	40%	46
Low Income	26%	35%	38	35%	37	31%	47
Unemployment Rate	0%	6%	12	6%	11	5%	12
Linguistically Isolated	0%	1%	61	3%	51	5%	45
Less Than High School Education	22%	12%	83	13%	83	12%	82
Under Age 5	7%	6%	67	6%	67	6%	64
Over Age 64	25%	17%	85	17%	84	16%	86

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

PUBLIC ANNOUNCEMENT

SCDOT Interchange Improvements I-26 at I-95
Dorchester and Orangeburg Counties



Please contact SCDOT Project Manager **Brad Reynolds** for additional information.
Phone: (803) 737-1440
Email: ReynoldsBS@scdot.org

Visit our website for more information regarding the proposed project:
http://scdotgis.online/i26ati95interchange

Scan me

Please submit comments by 12/05/2022

ENVIRONMENTAL SERVICES OFFICE
PO BOX 191
COLUMBIA SOUTH CAROLINA 29202

Kally McCormick

From: McGoldrick, Will <McGoldriWR@scdot.org>
Sent: Wednesday, November 9, 2022 12:59 PM
To: Kally McCormick
Subject: FW: UPDATED - Notice of Interchange Improvement in Dorchester and Orangeburg Counties

Updated

-WM

From: scdotpublicmeeting <scdotpublicmeeting@scdot.org>
Sent: Wednesday, November 9, 2022 10:44 AM
Subject: UPDATED - Notice of Interchange Improvement in Dorchester and Orangeburg Counties

Interchange Improvement for I-26 and I-95

Notice of Interchange Improvement

NOTICE:

The South Carolina Department of Transportation (SCDOT) is providing notice of an Interchange Improvement in Dorchester and Orangeburg Counties. SCDOT'S Strategic 10-year plan is to repair and rebuild our transportation network to ensure that our citizens and businesses can travel on a safe and reliable system. As part of these safety improvements, SCDOT proposes to improve the interchange located at Exit 169B along I-95 and Exits 86A and B along I-26, approximately 8 miles east of Bowman and 11 miles west of Holly Hill. This project would be a full interchange improvement to address the operational deficiencies of the current interchange. Citizens are encouraged to visit the project website and provide written comments. Project information, including meeting materials and comment forms are available on the SCDOT project website www.scdotgis.online/i26ati95interchange (Link is not Explorercompatible).

PURPOSE:

The purpose of this notice is to provide information and solicit feedback from residents and stakeholders concerning the I-26 and I-95 Interchange Improvement. Another purpose is to gather information from the public or any interested organization on historic or cultural resources in the area. Questions and comments may be submitted online for review and consideration by the Project Team. Participants may also reach out to SCDOT Program Manager, Bradley Reynolds, PE, by phone or email.

COMMENTS:

Comments will be accepted through December 1, 2022. All formal comments received during the comment period will be considered and responded to, if requested, and will be included in the project record.

Participants can provide written comments in the following ways:

- Submit comments online at the project website: www.scdot.org/i26ati95interchange (Link is not Explorer compatible)
- Mail comments to Bradley Reynolds, Project Manager at 955 Park Street, Columbia, SC 29201
- Email your comments to ReynoldsBS@scdot.org

Contact/Accessibility:

Persons with disabilities who may require special accommodations should contact Ms. Betty Gray at 803-737-1395 or via email at GrayB@scdot.org

If you do not have access to the Internet and would like to receive project information or make a written comment, contact Bradley Reynolds at 803-737-1440 or via email at ReynoldsBS@scdot.org with your

To whom it may concern,

The South Carolina Department of Transportation (SCDOT) is proposing to improve the interchange at I-26 and I-95 in Dorchester and Orangeburg Counties. The interchange is located at Exit 169B along I-95 and Exits 86A and B along I-26, approximately 8 miles east of Bowman and 11 miles west of Holly Hill. This project would be a full interchange improvement to address the operational deficiencies of the current interchange.

The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. Goals for the project include accommodating future capacity improvements of both I-26 and I-95 and accommodating lane reversal requirements in accordance with emergency management. These improvements will address merge and weave vehicle movements along I-26 eastbound/westbound and I-95 northbound/southbound. The interchange ramps are anticipated to be updated and realigned to provide more direct movement from interstate to interstate to improve operations and safety.

The need for the improvements stems from operational issues including movements on and off the loop ramps resulting in rear-end and sideswipe crashes, resulting in travel delays. The I-26 and I-95 interchange is listed as the third highest ranked rural interstate improvement project.

The current schedule for the project is tentative right of way acquisition beginning in mid-2024 and construction beginning in late 2024. The project would maintain traffic during construction, avoiding long or costly detours. However, temporary lane closures may be necessary once construction begins.

More information related this project can be found online at the SCDOT website: www.scdotgis.online/i26ati95interchange. Here you will find the proposed alternatives being considered for the new interchange design as well as a place to share comments and concerns. There will **not** be a public meeting held for this project. Written comments can be provided by emailing your comments to OliverSG@scdot.org or mailing your comments to Syrees Gillens Oliver, SCDOT Public Involvement Director, at 955 Park Street, P.O. Box 191, Columbia, SC 29202-0191.

Additional information concerning the project may be obtained by contacting Syrees Gillens Oliver at (803) 737-1351 or by email, OliverSG@scdot.org. To speak to an interpreter, please contact SCDOT at 803-724-5862 or toll free at 888-468-8081. Para hablar con un interprete, por favor comuníquese con el SCDOT al 803-724-5862 o gratis al 888-468-8081.

Sincerely,

Syrees Gillens Oliver
Public Involvement Director, SCDOT

Proposed Interchange Improvements at I-26 & I-95

Dorchester and Orangeburg Counties

Visit our website for more information regarding the proposed project:
http://scdotgis.online/i26ati95interchange

Or by visiting: http://www.scdot.org and click on the Public Involvement Portal link.

Please contact SCDOT Project Manager Brad Reynolds for additional information.
Phone: (803) 737-1440
Email: ReynoldsBS@scdot.org

I-26 at I-95 Interchange Improvement Project, P038677

Facebook Ad Final Statistics Update

The Facebook advertisement for I-26/I-95 went live on Tuesday November 1st and has been running continuously for **30** days. In that time, the advertisement has received:

- 133,530 views
- 12,328 interactions
- 1,759 link clicks

The *views* are how many times our advertisement appeared on someone's phone screen and they either clicked on the post to read the advertisement or kept scrolling.

The *interactions* are the number of people who actually clicked on the advertisement and read it.

Link clicks are the number of people who read the Facebook post, clicked on the designated project link, and were sent to the official project website page.

Overall, the significant takeaways from the entire comment period are that 133,530 people saw the advertisement, 12,328 people read the advertisement and of those 12,328 individuals, 1,759 of them visited the official project website. From the 1,759 people who visited the website, 1 person submitted a formal comment.

I-26 at I-95 Interstate Improvement Project, P038677

Comments from Website

November 25, 2022

Full Name:
Heyward Whetsell

Address:
2820 Country Club Road
Winston-Salem, North Carolina 27104

Do you wish to receive a response to this comment?
Yes

How would you like a response?
By email

Comment:
"I am concerned that planned improvements to the I-26/I-95 intersection do not allow adequate access to my property in the NE, NW, and SW quadrants of the intersection--specifically there are no updates to the I-26 frontage roads constructed over 60 years ago. Access to my property is so limited that it cannot be used for its highest and best use as a port-centric industrial park, like those that have proliferated nearby in support of the explosive growth of the Port of Charleston. With its unique location, the intersection is ""ground zero"" for this--but the quadrants need better access via frontage roads from Highway 210 and Highway 15. Development of the intersection offers enormous job creation and tax benefits to SC and Orangeburg/Dorchester counties. Please take another look at the outdated frontage roads in light of how the use of land along the I-26 corridor has evolved, and consider ways to improve access to each quadrant of this important and valuable intersection."

Public Comments Submitted to DOT 8/10/22

I am writing as one of the landowners with property that borders I-26 east of the Highway 210 (Vance Rd.) exit. Part of my property is in the SW Quadrant of the I-95/I-26 intersection. I also have property in the NW Quadrant of the I-95/I-26 intersection that borders I-95. Since the construction of these two interstate highways more than 50 years ago, access to my property has been very limited and circuitous--its use is limited to timber farming and hunting (activities that hardly represent the highest and best uses of land at such a strategic location as the intersection of I-95 and I-26). Access to my property in the SW Quadrant is via a series of dirt roads and poorly paved roads that lead to a small state road, S 38-1302. Access to my property in the NW Quadrant is via S 38-1302 that leads to a small bridge that crosses I-26, a bridge that is too small to even accommodate 2-way traffic. After crossing this bridge from the south, I must then use a short frontage road along the westbound lane of I-26 that does not extend all the way to Vance Rd. This all means that I cannot access my property in either the SW or NW quadrants from the Vance Road exit on I-26--I must use the series of dirt roads and poorly paved roads that wind circuitously to the small state road, S 38-1302. As you plan the widening of I-26 around Exit 165 I would ask that you give consideration to expanding and improving the Vance Road exit to facilitate more direct access from Vance Road to my property in the future. As I am sure you are aware, the I-26 corridor is very important to the distribution of imported goods that enter the US through the Port of Charleston--and that the distribution of these goods is critical to the economy of SC. For some time, Orangeburg County has been aggressively developing the Global Logistics Triangle--one corner of that triangle is the I-95/I-26 intersection, which many say is the premier location on the East Coast of the US for distribution centers to facilitate the distribution of goods to the north and south on I-95 and to the west on I-26. Currently there is no way for trucks to access this corner of the Global Logistics Triangle from either I-26 or I-95, so there is no way to develop badly needed logistics and distribution facilities at this strategic location (as you may be aware there are only a handful of I-26 exits between Jedburg and Orangeburg, the stretch of I-26 that is highly desirable to investors and developers of distribution facilities). If there was access to the quadrants of the I-95/I-26 intersection, the ensuing development would create thousands of jobs in an economically depressed area of SC, and further strengthen SC's position as a leader in global distribution and logistics. Perhaps DOT is aware of this and has plans to allow interstate access in some way that has not yet been publicly disclosed, but certainly any changes to the Highway 210 (Vance Road) exit at I-26 present a timely and unique opportunity to facilitate this. I would very much appreciate the opportunity to discuss this situation with the appropriate people at DOT as you begin planning changes in the I-95/I-26 intersection and on i-26 at the Highway 210 and US 15 exits. Thank you. Heyward Whetsell, Heyward.Whetsell@gmail.com, 727-539-9742.

From: Marous, Courtney (Avison Young - US) <courtney.kuhn@avisonyoung.com>
Sent: Wednesday, August 10, 2022 2:20 PM
To: Reynolds, Bradley S.
Cc: Fraser, Chris (Avison Young - US)
Subject: Fwd: I-26 Widening
Attachments: DOT Public Comments I26 Mile Marker165_2022.08.10.pdf; I-26 I95 Interchange_AY Overview 08.2022_AY.JPG

Bradley,

I hope this finds you well! I just left you a voicemail and wanted to follow up with the items I referenced in my message.

Attached is a copy of the public comments has submitted by the ownership entity I referenced. I've also included a working exhibit for your reference.

Would you be able to call me on my cell (216)570-0910 to discuss briefly? I would so appreciate it.

Courtney L. Kuhn, CCIM
Senior Vice President
Industrial & Investment Services
courtney.marous@avisonyoung.com

Avison Young
1315 Ashley River Road
Charleston, SC 29407

T 843.725.7200
C 216.570.0910
F 843.725.7201

avisonyoung.com

Avison Young | Avison Young - South Carolina Inc.

Begin forwarded message:

From: Heyward Whetsell <heyward.whetsell@gmail.com>
Date: August 10, 2022 at 9:05:09 AM EDT
To: "Marous, Courtney (Avison Young - US)" <courtney.kuhn@avisonyoung.com>, "Fraser, Chris (Avison Young - US)" <Chris.Fraser@avisonyoung.com>
Cc: Elsie Stevens

Subject: I-26 Widening

I noticed on the DOT website that today is the last day for public comment on the proposed widening of I-26 between mile marker 146 and mile marker 165 (Vance Road). I sent the attached comments but wondered if you have any other suggestions that may be more impactful in presenting the case for allowing access to the SW and NW quadrants east of I-95 via an expanded and improved Vance Road exit.

In our last conference call, Chris I believe you mentioned a couple of folks that you know at DOT. I wondered if a timely call to them today might serve our cause. Or perhaps you have other suggestions. Not being well versed in DOT's operations, I don't know if one small voice (mine) would even be heard, or if it would help for others to also submit comments via the DOT website.

I'd appreciate any thoughts you have on this,

Heyward

South Carolina
Department of Transportation

January 3, 2023

Courtney Kuhn
Avision Young
1315 Ashley River Road
Charleston, SC 29407
courtney.marous@avisionyoung.com

Re: I-26 at I-95 Interchange Improvement Project – Comment Response

Dear Courtney Kuhn,

The South Carolina Department of Transportation (SCDOT) appreciates your interest and comments regarding the I-26 at I-95 interchange improvement project. The proposed project involves the replacement and full reconfiguration of the interchange of I-26 and I-95 in Orangeburg and Dorchester Counties in South Carolina. A range of improvement alternatives are currently being considered to reconfigure the interchange and includes a mix of flyover on ramps and loop ramps. The project intends to maintain traffic during construction and would refrain from have substantial road closures or detours. However, temporary lane closures may be necessary once construction begins.

While there is clearly limited access from the interchange to the property you referenced, the scope and limited funding for this project are for the replacement of the existing interchange to create a better functioning interstate-to-interstate connection. We looked closely at the options for improvements with this project, however the project limits do not extend to Vance Road at Exit 165 and additional access would exceed the project funds at this time.

All comments obtained through the public involvement process are being considered in the development of the project and your comment will also be retained as part of the project file and public record. Our next steps include assessing public comments, revising the conceptual design and beginning the right-of-way acqusition process. Construction is estimated to begin in late 2024 and last for approximately 36 months or 3 years.

Thank you for taking the time to provide feedback. We value your local knowledge and experience. Please feel free to contact me at ReynoldsBS@scdot.org or 803-737-1440 if you have any additional concerns or visit our website for project updates: http://scdotgis.online/i26ati95interchange

Sincerely,

Bradley S. Reynolds, PE
Alternative Delivery Program Manager
South Carolina Department of Transportation

South Carolina
Department of Transportation

January 3, 2023

Heyward Whetsell
2820 Country Club Road
Winston Salem, NC 27104
heyward.whetsell@gmail.com

Re: I-26 at I-95 Interchange Improvement Project – Comment Response

Dear Heyward Whetsell,

The South Carolina Department of Transportation (SCDOT) appreciates your interest and comments regarding the I-26 at I-95 interchange improvement project. The proposed project involves the replacement and full reconfiguration of the interchange of I-26 and I-95 in Orangeburg and Dorchester Counties in South Carolina. A range of improvement alternatives are currently being considered to reconfigure the interchange and includes a mix of flyover on ramps and loop ramps. The project intends to maintain traffic during construction and would refrain from have substantial road closures or detours. However, temporary lane closures may be necessary once construction begins.

While there is clearly limited access from the interchange to your property, the scope and limited funding for this project are for the replacement of the existing interchange to create a better functioning interstate-to-interstate connection. We looked closely at the options for improvements with this project, however the project limits do not extend to Vance Road at Exit 165 and additional access would exceed the project funds at this time.

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Sincerely,

Bradley S. Reynolds, PE
Alternative Delivery Program Manager
South Carolina Department of Transportation

Appendix E

EJ Screen Report

EJScreen Report (Version 2.0)

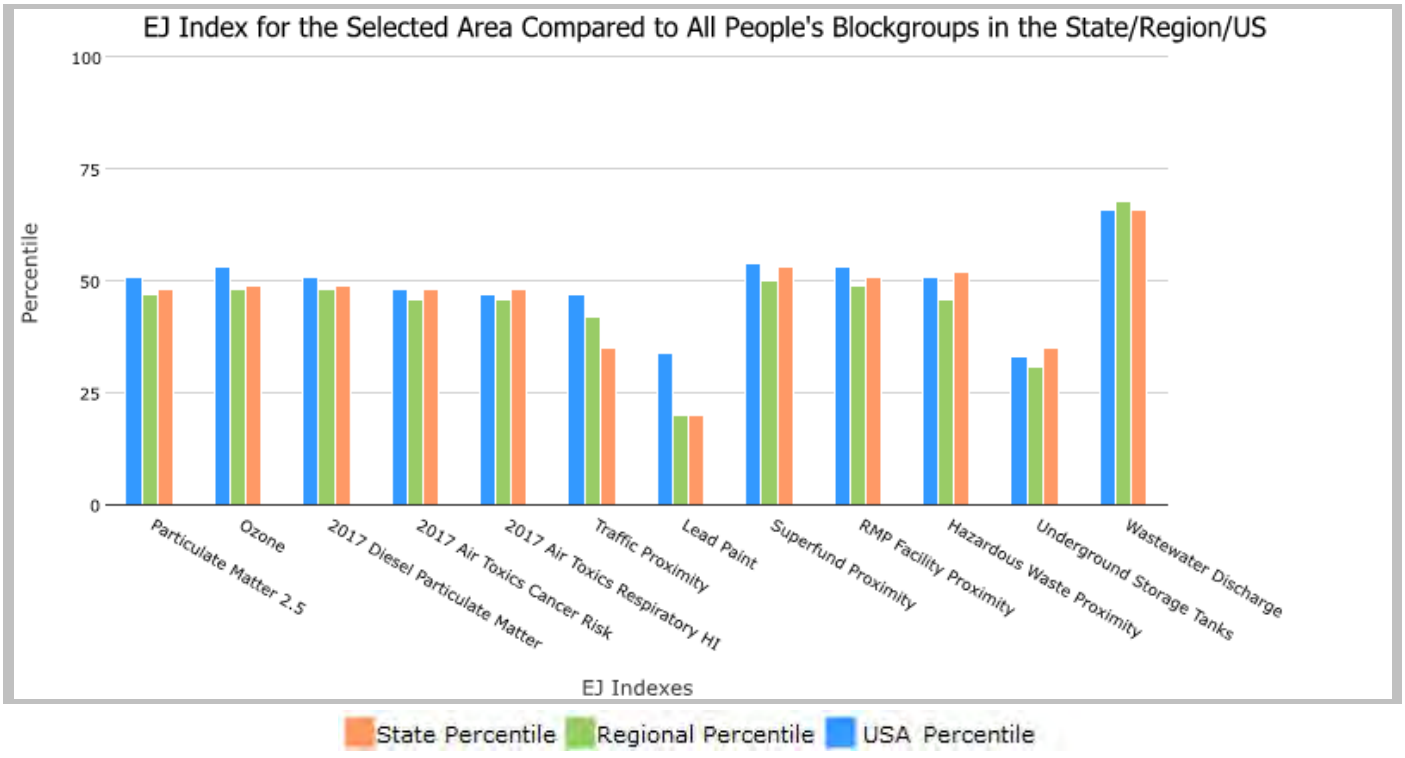
2 miles Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 507

Input Area (sq. miles): 27.72

I95 and I26

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	48	47	51
EJ Index for Ozone	49	48	53
EJ Index for 2017 Diesel Particulate Matter*	49	48	51
EJ Index for 2017 Air Toxics Cancer Risk*	48	46	48
EJ Index for 2017 Air Toxics Respiratory HI*	48	46	47
EJ Index for Traffic Proximity	35	42	47
EJ Index for Lead Paint	20	20	34
EJ Index for Superfund Proximity	53	50	54
EJ Index for RMP Facility Proximity	51	49	53
EJ Index for Hazardous Waste Proximity	52	46	51
EJ Index for Underground Storage Tanks	35	31	33
EJ Index for Wastewater Discharge	66	68	66



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

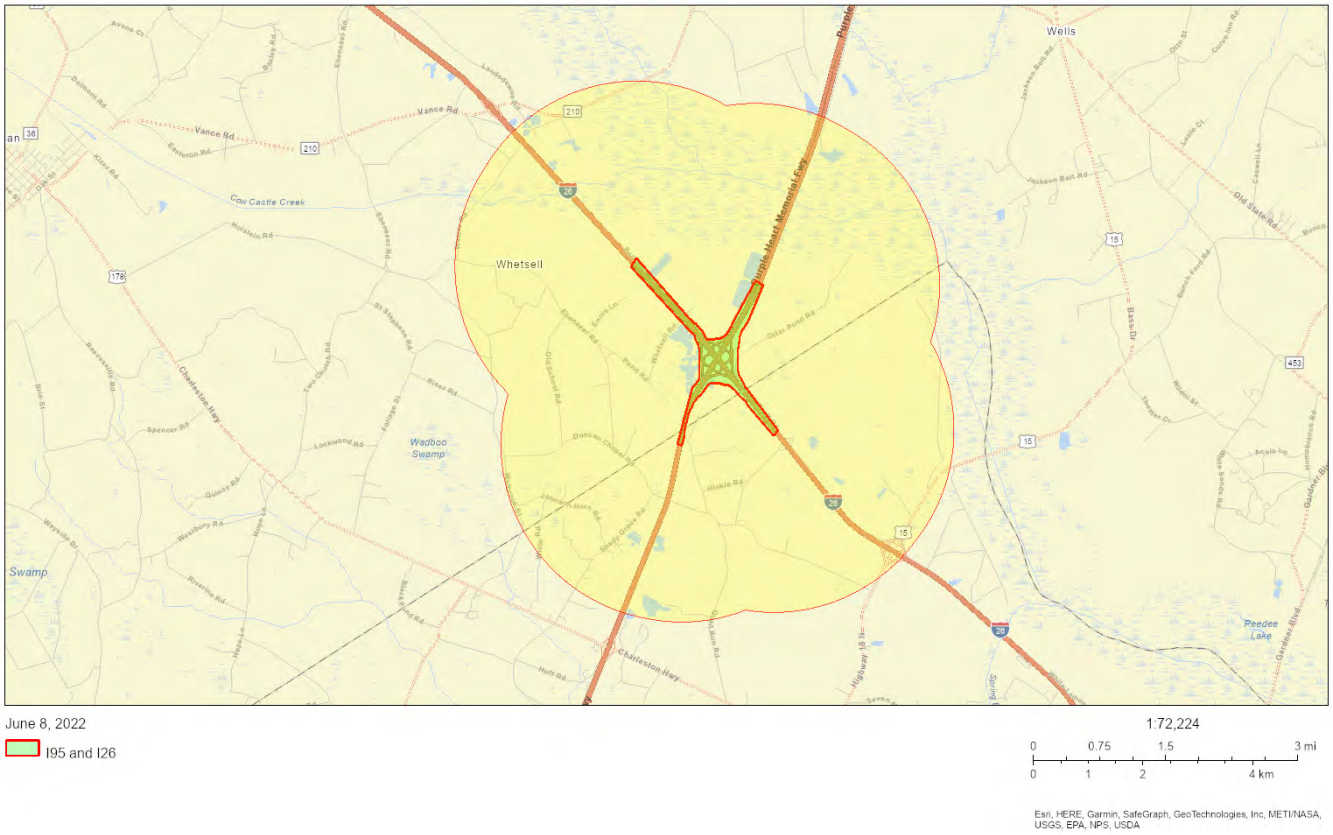
EJScreen Report (Version 2.0)

2 miles Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 507

Input Area (sq. miles): 27.72

I95 and I26



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.0)

2 miles Ring around the Area, SOUTH CAROLINA, EPA Region 4

Approximate Population: 507

Input Area (sq. miles): 27.72

I95 and I26

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	7.46	7.74	29	8.18	19	8.74	20
Ozone (ppb)	32.1	37.3	2	37.9	14	42.6	5
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Lead Paint (% Pre-1960 Housing)	0.28	0.14	85	0.15	83	0.28	61
Superfund Proximity (site count/km distance)	0.014	0.092	9	0.083	19	0.13	10
RMP Facility Proximity (facility count/km distance)	0.08	0.45	13	0.6	13	0.75	10
Hazardous Waste Proximity (facility count/km distance)	0.1	1	12	0.62	25	2.2	16
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Wastewater Discharge (toxicity-weighted concentration/m distance)	5.4E-05	0.47	33	0.45	37	12	27
Socioeconomic Indicators							
Demographic Index	27%	36%	40	37%	39	36%	45
People of Color	28%	36%	46	39%	45	40%	46
Low Income	26%	35%	38	35%	37	31%	47
Unemployment Rate	0%	6%	12	6%	11	5%	12
Linguistically Isolated	0%	1%	61	3%	51	5%	45
Less Than High School Education	22%	12%	83	13%	83	12%	82
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For additional information, see: www.epa.gov/environmentaljustice

Appendix F

Cultural Resources

MH LT
34307
NHPA

SCDOT
South Carolina
Department of Transportation

January 17, 2023

Ms. Elizabeth Johnson
Director, Historical Services, D-SHPO
State Historic Preservation Office
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223

RE: Phase I Cultural Resources Survey for the I-26 at I-95 Interchange Improvement in Orangeburg and Dorchester Counties, South Carolina

Dear Ms. Johnson:

Please find attached a copy of the above referenced report that describes cultural resources investigations conducted in advance of improvements to the I-26 at I-95 interchange in **Orangeburg and Dorchester Counties**, South Carolina.

The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 interchange to address operational deficiencies. Improvements will include realigning the interchange ramps and constructing new overpasses with additional travel lanes. The project area encompasses 481 acres, extending for 2.6 miles along I-26 from 1 mile northwest of Whetsell Road to 0.15 miles northwest of Weathers Farm Road and for 2.5 miles along I-95 from 0.14 miles northeast of Duncan Chapel Road and 2.5 miles northeast of Duncan Chapel Road. The architectural APE consists of the project area and a 300-foot viewshed beyond the existing right-of-way.

The archaeological survey resulted in the discovery of one new site, 38OR437. Site 38OR437 contains a remnant of an abandoned late-nineteenth or early-twentieth century logging railroad bed. No tracks or crossties are present and all that remains is the raised earthen rail bed. Site 38OR437 was assessed as **not eligible** for inclusion on the National Register of Historic Places (NRHP).

One new aboveground resource was identified during the architectural survey. SHPO Site No 0456 is a mid-twentieth century concrete block house. It was assessed as **not eligible** for the NRHP.

Based on the results of the background research and field investigations, the SCDOT has determined that there will be **no historic properties affected** by the proposed undertaking.

Per the terms of the Section 106 Programmatic Agreement executed on October 6, 2017, the Department is providing this information on behalf of the Federal Highway Administration. It is requested that you review the enclosed material, and, if appropriate, indicate your concurrence in the Department's findings. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,

Rebecca Shepherd
Chief Archaeologist

RES:res
Enclosures: Cultural resources survey report

I (~~do not~~) concur in the above determination.

Signed: _____ Date: 1/23/2023

ec: Shane Belcher, FHWA
Russell Townsend, Eastern Band of Cherokee Indians
Stephen J. Yerka, Eastern Band of Cherokee Indians
Elizabeth Toombs, Cherokee Nation
LeeAnne Wendt, Muscogee (Creek) Nation
Acee Watt, United Keetoowah
Whitney Warrior, United Keetoowah

cc: Wenonah G. Haire, Catawba Nation
Keith Derting, SCIAA

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427

February 21, 2023

Attention: Rebecca Shepherd
SCDOT
P.O. Box 191
Columbia, SC 29202-0191

Re. THPO #	TCNS #	Project Description
2023-66-11		Phase I Cultural Resources Survey for the I-26 at I-95 Interchange Improvement in Orangeburg and Dorchester Counties, SC

Dear Ms. Shepherd,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Caitlin Rogers for

Wenonah G. Haire
Tribal Historic Preservation Officer

CULTURAL RESOURCES FIELD REPORT
SCDOT ENVIRONMENTAL SECTION

TITLE: Phase I Cultural Resources Survey for the I-26 at I-95 Interchange Improvement in Orangeburg and Dorchester Counties, South Carolina

DATES OF RESEARCH: 8/30/2022 – 9/17/2022; 11/21/22 – 11/22/22 **ARCHAEOLOGIST:** Kaitlin Ahern; James Stewart **ARCHITECTURAL HISTORIAN:** Sean Stucker

COUNTY: Orangeburg and Dorchester **PROJECT**: Interstate I-26 at I-95 Interchange Improvement

F. A. No.: **File No.:** **PIN**: P038677

DESCRIPTION: The South Carolina Department of Transportation (SCDOT) proposes to improve the Interstate 26 (I-26) at Interstate 95 (I-95) Interchange. This project will result in a full interchange improvement that will address the operational deficiencies of the current configuration. These improvements will address merge and weave movements along both interstates, and the anticipated realignment of the interchange ramps will provide more direct movement from interstate to interstate and improve safety. The new overpasses will also allow for additional travel lanes on I-26 and will afford a 16-foot (5 m) full-depth shoulder for evacuation purposes.

The project area encompasses 481 acres; it extends for 2.6 miles (4.2 km) of I-26 and for 2.5 miles (4.0 km) of I-95 and includes the intersection of the two interstate highways. Along I-26, it begins 1 mile northwest of Whetsell Road (SR 38-1302) and extends southwest to 0.15 miles northwest of Weathers Farm Road. Along I-95, it begins 0.14 miles northeast of Duncan Chapel Road and extends northeast for 2.5 miles. The Area of Potential Effects (APE) was defined in consultation with the SCDOT; it consists of the project area and the 300-foot viewshed beyond the existing right of way (ROW). The archaeological survey examined the project area, while the architectural survey examined the entire APE.

LOCATION: The project area is located along sections of I-26 and I-95 in Orangeburg and Dorchester counties in South Carolina (Figure 1). Within Orangeburg County, it is situated in the south-central portion that borders Dorchester County, and within Dorchester County, it is situated in the north-central portion that borders Orangeburg County.

USGS QUADRANGLE: Wadboo Swamp, SC **DATE:** 2017 **SCALE:** 7.5′
UTM: NAD 83 **ZONE:**17N **EASTING:** 541705 **NORTHING:** 3687091

ENVIRONMENTAL SETTING: The project area is in the Upper Coastal Plain physiographic province, which has an area of approximately 9,200 square miles (about 23,830 sq. km) and is situated between the Piedmont and Lower Coastal Plain. Elevations in the project area range from 88 to 126 feet (27–38 m) above mean sea level, with an average slope of under 1 percent.

NEAREST RIVER/STREAM AND DISTANCE: The Four Hole Swamp River, a tributary of the Edisto River, is situated 1 mile (1.6 km) from both the northeast and northwest edges of the APE. The southwestern shore of Lake Marion is located 11.5 miles (18.5 km) to the northwest of the project area, and the western shore of Lake Moultrie is located 22.5 miles (36 km) to the east.

SOIL TYPE: Nine soil types are present in the project area. According to the Web Soil Survey, USDA soils mapped within the APE include 40.2 percent of moderately well drained Goldsboro sandy loam, 29.7 percent of somewhat poorly drained Ocilla loamy sand, 9.6 percent of poorly drained Rains sandy loam, 12.2 percent of somewhat poorly drained Lynchburg fine sandy loam, 4.3 percent somewhat poorly drained Stallings loamy sand; 0.9 percent of poorly

drained Coxville sandy loam; 0.8 percent of very poorly drained Byars loam, and 0.1 percent of poorly drained Pelham loamy sand. The remaining 2.3 percent of the survey area was covered by water.

REFERENCE FOR SOILS INFORMATION: USDA-NCRS Soil Survey Division, Custom Soil Resource Report (websoilsurvey.sc.egov.usda.gov).

GROUND SURFACE VISIBILITY: **0% _____ 1–25% _X___ 26–50% _____ 51–75% _____76–100% _____**

CURRENT VEGETATION: The project area is in a rural landscape alongside I-26 and I-95. It primarily consists of woods, wetlands, agricultural fields, and scrub vegetation (Figure 2). Wooded sections of the APE contain pine and mixed hardwoods along with low-lying undergrowth. Vegetation in the wetlands and drainage ditches includes aquatic grasses and lilies. Scrub vegetation is found in recently clear-cut sections of the APE and includes shrubs, young pine trees, and briars. Ground visibility in the wooded and scrub sections of the project area is less than 15 percent. In the wetland section of the APE, ground visibility is less than 25 percent.

INVESTIGATION:

BACKGROUND RESEARCH

Before beginning fieldwork, New South Associates, Inc. (NSA) performed a review of the South Carolina ArchSite digital files and GIS database maintained by the South Carolina Institute of Archaeology and Anthropology and the South Carolina Department of Archives and History to identify previously recorded resources near the APE.

The search radius contains at least three prior surveys, two of which are represented in ArchSite GIS data (Table 1). The 1996 *Dorchester County, South Carolina: Historic Resources Survey* (Fick and Davis 1996) is not represented on ArchSite's GIS map, but the survey is indicated therein as the source report for SHPO Site Number 0988 (and its sub resource 0988.01). The 2000 *An Intensive Architectural Survey and Archaeological Reconnaissance of the Intersection of I-95 and I-26* survey area incorporates the entire project area. The archaeological reconnaissance consisted of a windshield survey and walkover of selected areas, including the northwest section of I-26 and a section of Whetsell Pond Road (Hamby et al. 2000). An addendum to the 2000 survey, reported in *Intensive Archaeological and Architectural Survey for Proposed Access Road*, was a linear survey conducted the following year (Adams 2001).

The search radius contains no previously recorded archaeological sites, but it does include five previously recorded architectural resources, none of which are considered eligible for the NRHP (Table 2; Figure 3).

The APE does not contain any previously recorded architectural resources. One of the resources within the search radius, SHPO Site Number 0150, is barely visible in undergrowth on the east side of Whetsell Road, 525 feet (160 m) north of Pond Road. This structure appears to be in an accelerated state of decay. Because none of the resources are within the APE, official revisits were not conducted.

Table 1. Previous Cultural Resources Surveys within 0.5 Miles of APE

Survey Name	Survey Date	Consultant (Agency)	Survey Type	Authors
Dorchester County, South Carolina: Historic Resources Survey	1996	Preservation Consultants, Inc.	Intensive	Fick and Davis 1996
An Intensive Architectural Survey and Archaeological Reconnaissance of the Intersection of I-95 and I-26	2000	NSA (SCDOT)	Intensive	Hamby et al. 2000
Intensive Archaeological and Architectural Survey for Proposed Access Road	2001	NSA (SCDOT)	Intensive	Adams 2001

Table 2. Previously Identified Cultural Resources within 0.5 Miles of APE

Site/SHPO Number	Resource Type and Location	Temporal Affiliation	NRHP Recommendation	Reference
0110	Don and Molly Carns Weathers House 343 Ennis Lane, Orangeburg County	c.1900	Not Eligible	Hamby et al. 2000
0150	Partially Collapsed Hall and Parlor Whetsell Road (SR 38-1302), Orangeburg County	c. 910	Not Eligible	Hamby et al. 2000
0988	Julius Weathers House 289 Weathers Farm Road	c.1910, c.1930	Not Eligible	Fick and Davis 1996
0988.01	Smokehouse 289 Weathers Farm Road	c.1920	Not Eligible	Fick and Davis 1996
1122	Jasper Weathers, Barn 216 Hart Road	1914; 1959	Not Eligible	Hamby et al. 2000

SURVEY RESULTS

The survey identified one new archaeological site and one new building within the APE. The new resources are listed in Table 3 and discussed in detail below.

Table 3. Newly Identified Cultural Resources

Site/SHPO Site No.	Name/Address	Resource Type	Temporal Affiliation	NRHP Recommendation
0456	1418 SR 38-28 (Ebenezer Road)	Residence	c. 1958	Not Eligible
38OR437	FS-1	Logging Rail Bed	Early 20th Century (pre-1938)	Not Eligible

ARCHAEOLOGY

The intensive survey was performed in two stages. During the first stage, September 6–17, 2022, James Stewart served as Field Director, with Kaitlin Ahern, Anne Dorland, Michael McCaffery, and John Tomko assisting in the field. Stewart also supervised fieldwork during the second stage, November 21-22, 2022. Kelly Higgins assisted with second stage fieldwork. NSA preplotted shovel tests prior to archaeological fieldwork. Shovel tests were generally plotted at 30-meter intervals in well drained areas. In somewhat poorly drained and poorly drained areas, shovel tests were plotted at 60-meter intervals. NSA did not preplot shovel tests in areas determined in desktop review of LiDAR terrain data to be significantly disturbed, such as between the road prisms and in the cloverleaf. Additional untested areas included the drainage channels and side slopes of the interstate prism, borrow pits, and pine planting beds. If additional disturbances were encountered during survey work, the location was photographed and recorded as not testable. Digital records were kept for all tested or photographed locations. Shovel test notes, including soil profiles, were recorded for all excavated tests in the Memento Database application.

The survey consisted of 655 preplotted shovel tests and eight delineation shovel tests. NSA excavated 564 shovel tests (Figures 4–14). The remaining 99 preplotted shovel tests were not excavated due to the presence of surface water (n=37), road disturbances or road fill (n=20), steep slopes (n=19), paved or dirt roads (n=17), debris piles (n=5), and a hornet nest (n=1). Shovel Test 305 produced a railroad spike. No other tests produced cultural remains.

Project area soil profiles were generally consistent. A typical shovel test contained dark gray (10YR 4/1) sandy loam, 0–25 centimeters below surface (cmbs), over light gray (10 YR 7/1) sandy clay subsoil, 25–35 cmbs. Forty-two shovel tests were heavily disturbed and contained gray (10YR 5/1) sandy clay subsoil, 0–30 cmbs, often mottled with dark yellow brown (10YR 4/6) sandy clay. Soil in the clear cut on the northern side of the interchange (Figure 15) differed slightly from the rest of the project area. Clear-cut soil profiles included 25 centimeters of very dark grayish brown

(10YR 3/2) sandy loam overlying 15 centimeters of light gray (10YR 7/1) sand. A yellow brown (10YR 5/4) sandy clay subsoil continued a further 10 centimeters (40–50 cmbs) below this stratum.

SITE 38OR437

Site 38OR437 is a raised earthen railbed dating to the historic period. This site was identified in the northern quadrant of the project area, 24 meters from the end of an abandoned section of frontage road. Local vegetation includes a mix of pines and hardwoods. Some cypress trees were noted in an area of low-lying swamp on the eastern edge of the site. The understory included scrub vegetation and bay laurel. Dense leaf litter and pine straw obscured ground surface visibility. The railbed extended 243 meters from the frontage road into a recently clear cut portion of the project area. The 243-meter-long raised earthen railbed was 4.7 meters wide and 20 centimeters high (Figure 16). A 0.8-meter-wide ditch was located on either side of the bed. These dimensions suggest that the railbed was used for a narrow-gauge logging railroad operation.

Shovel Test 305 was excavated in the abandoned railroad bed. The only artifact produced by this shovel test was a railroad spike. The subsurface surrounding Shovel Test 305 was examined with a cruciform of eight 10-meter-interval shovel tests (see Figure 5). None produced artifacts. The soil profile in the railbed contained dark grayish brown (10YR 4/2) sandy loam, 0–32 cmbs over dark grayish brown (10YR 4/2) sand, 32–40 cmbs, over very pale brown (10YR 7/4) sandy clay subsoil, 40–50 cmbs (Figure 17a). Shovel tests excavated outside the bed revealed dark gray (10YR 4/1) sandy loam, 0–30 cmbs, over brown (10YR 4/3) sand, 30–40 cmbs, over yellowish brown (10YR 5/4) sandy clay subsoil, 40–50 cmbs (Figure 17b).

In the late nineteenth and early twentieth centuries, rail lines were constructed to move timber from forests all over South Carolina. At the end of logging operations, reusable parts of the lines (e.g., tracks and cross ties) were removed, and the beds were abandoned (Fetters 1990). Historic aerial photography from 1938 shows that the area surrounding the railbed was wooded (USC Libraries 2022). This area remained heavily wooded until sometime between 1995 and 2005, when portions of the woods were thinned (NETR Online 2022). Because a clear-cut forest requires substantial time to regenerate tree cover, the railbed must predate the 1938 photograph by at least one or two decades.

Site 38OR437 is a section of a late nineteenth- or early twentieth-century logging rail bed. No tracks or crossties are present on the bed. The construction of the frontage road, later tree growth, and logging activity have considerably damaged the integrity of this feature. Considering these disturbances, the railbed cannot be used for its intended purpose. The site is a poor-quality remnant of the extensive logging railroads that were used to commercially harvest the state's forests. The site is recommended not eligible under Criterion B. Site 38OR437 does not convey any associations with significant individuals and is recommended not eligible under Criterion A. The site does not possess all the elements needed to fully convey the design of the railway or represent the work of a master craftsperson, and so it is also recommended not eligible under Criterion C. There is little research potential present within Site 38OR437. Shovel testing did not locate any additional subsurface features or activity areas that would indicate this site could provide unique research contributions. Site 38OR437 is recommended not eligible under Criterion D. No further work is recommended.

ARCHITECTURE

On August 30, 2022, Architectural Historian Sean Stucker conducted a survey of the APE to identify unrecorded historic resources 50 years of age or older. Resources more than 50 years of age were surveyed in accordance with the *Survey Manual: South Carolina Statewide Survey of Historic Places* using a handheld tablet device (sixth generation iPad) with FileMaker Pro software. Resources were evaluated following the NRHP criteria, and South Carolina State Intensive Survey Forms were prepared for all newly recorded resources. The architectural survey documented one newly recorded resource and recommended it as not eligible for listing in the NRHP. No revisits were conducted for the five previously recorded resources found within the 0.5-mile search radius.

The project area is dominated by the infrastructure associated with the interchange, while the surrounding landscape outside the road ROW is rural, primarily comprising either wooded tracts or agricultural fields. The cloverleaf interchange of the two interstate highways dominates the central portion of the project area and encompasses about half of the project area's acreage (around 220 ac.). The rest of the project area extends away from the interchange in four directions along tree-lined interstate highways from which no building or built environment is visible. In a few instances, frontage roads parallel the interstates, and the northwestern leg includes the Whetsell Road Bridge over I-26, built in 1961 (Svirsky 2022). The Advisory Council on Historic Preservation (ACHP) issued a *Program Comment for Streamlining Section 106 Review for Undertakings Affecting Post-1945 Concrete and Steel Bridges* in 2012. A review of this Program Comment confirms that it applies to this post-1945 concrete-slab bridge, which relieves the SCDOT of the duty of considering the subject project's proposed effects on this resource.

Several parcels that border the project area contain buildings that are not visible from the interstate highways but that are located within the APE based on their parcel boundaries. Only one of these parcels contains an architectural resource greater than 50 years old: SHPO Site Number 0456. The resource is more than 0.6-miles (0.96 km) away from the project area and screened from the interstate by a forested area (Figure 18).

SHPO SITE NUMBER 0456 (1418 SR 38-28 [EBENEZER ROAD])

Orangeburg County tax records give 1418 Ebenezer Road as the address for SHPO Site Number 0456, a front-gabled house. However, the 246-acre property parcel does not border Ebenezer Road. SHPO Site Number 0456 is located at the southwestern corner of a large lot that is otherwise occupied by farm fields and forested areas. At its eastern extremity, the parcel abuts the southern end of the APE for about 250 feet (76 m). The building, shown on the tax assessor's GIS map and on both Google Maps and Bing Maps, is at the corner of Duncan Chapel and Jacques Hog House roads. The tax records do not list a construction date for the building. Historic imagery indicates that it was built sometime between the flyovers for the 1957 and 1958 aerial photography surveys (NETR Online 2022). The building is currently abandoned, and tax records show that it was not considered a taxed asset after 2006, at which time it was assessed at a value of $4,500.

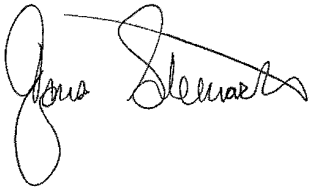
The one-story concrete-block house faces southwest and is roughly rectangular in plan with an asymmetrical façade. A screened porch with a rusted metal shed roof is appended across the two central bays flanking the porch. Both the porch and the house doors are positioned on the left (northwest) end of the porch (Figure 19). The two central bays have window openings with brick windowsills. The porch is likely original, as it seems to appear in the 1958 aerial photograph. Screening covers only the upper half of the porch structure, while the bottom half has unpainted weatherboard siding on the exterior. The same siding fills both front and rear gable ends. A rectangular wooden louver vent is centered in the front gable. The rear gable siding is in failing condition and is overgrown with vines that obstruct most of it, so it is not clear if there is a gable vent there as well. The building exterior is otherwise exposed concrete block, and the roof is clad with the same raised-seam metal panels as the porch roof. An exterior concrete-block and brick chimney is located on the northwest elevation, with window openings on either side, and an engaged porch with a rear doorway is cut into the corner of the northwest and rear elevations. One window opening is found on the rear elevation, while the southeast elevation has three window openings spaced evenly across it. There are no doors on the house, and only a couple of windows on the southeast elevation contain portions of six-pane sashes. Although the roof remains about 90 percent intact, sections of roof paneling at the rear of the house are missing (north corner) or are starting to peel up (east corner), and the roof structure above the engaged rear porch is beginning to collapse. Barring repairs, interior damage and structural decay are imminent.

SHPO Site Number 0456 is a front-gabled concrete-block house that, retains integrity in multiple aspects but is not a distinctive or noteworthy example of this common South Carolina house type. It was not found to embody the distinctive characteristics of a style, period, or method of construction, and it does not possess significance for its

engineering or materials. It is not known to be associated with events or persons significant in the past. Therefore, the resource is recommended as not individually eligible for listing in the NRHP under Criteria A, B, or C.

REMARKS AND RECOMMEDATIONS

The survey identified one new archaeological site, 38OR437, and one abandoned building, SHPO Site Number 0456. NSA recommends both of these resources as not eligible for the NRHP under all four criteria. Based on these findings, NSA recommends no further archaeological or architectural survey work within the project area or APE.

SIGNATURE:  **DATE:** January 5, 2023

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Fick, Sarah, and Steven Davis

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Hamby, Theresa M., Natalie Adams, Matt Watts-Edwards, and Alvin J. Banguilan

2000 *An Intensive Architectural Survey and Archaeological Reconnaissance of the Intersection of I-95 and I-26, Dorchester and Orangeburg Counties, South Carolina*. New South Associates, Stone Mountain, Georgia.

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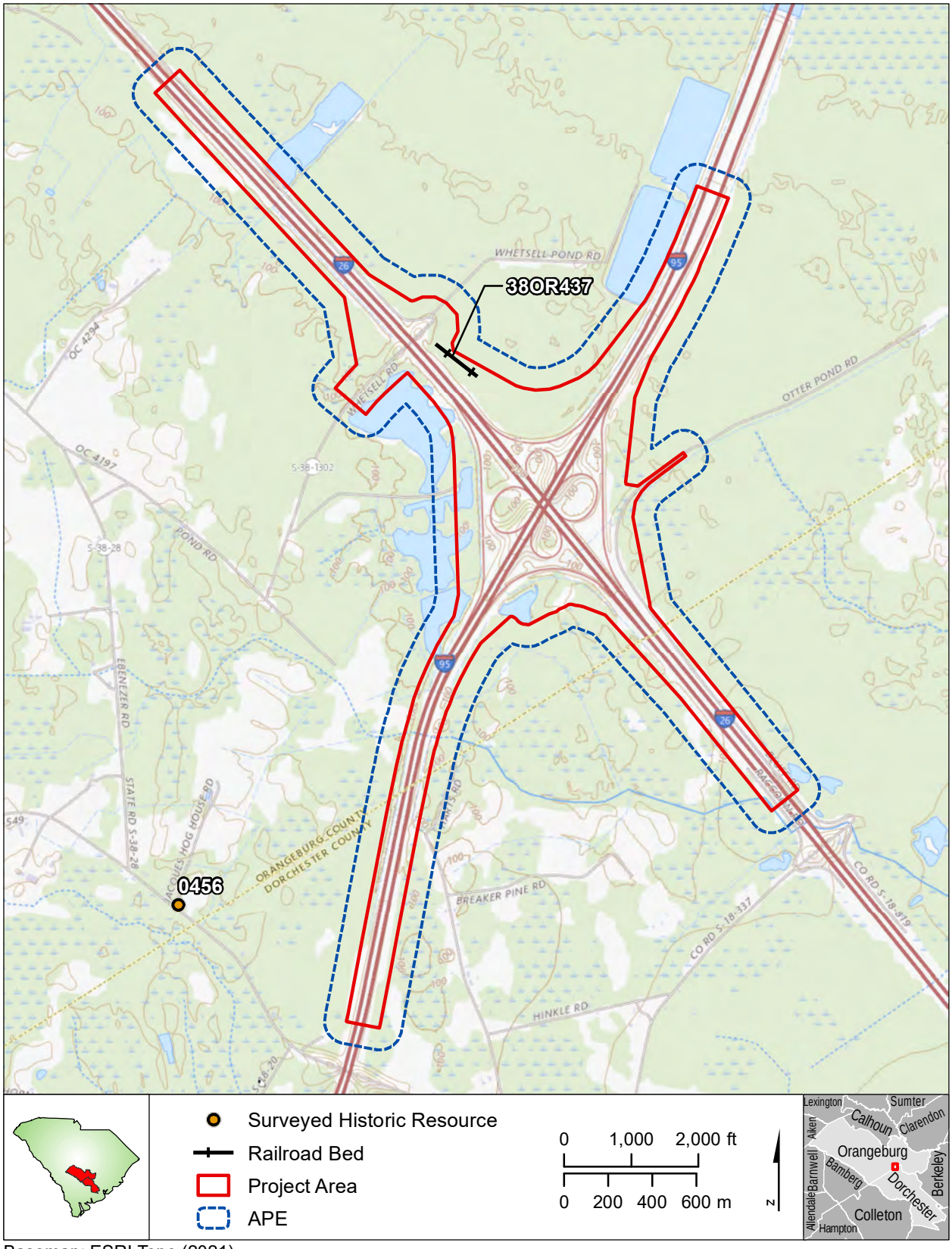
USC Libraries

2022 Aerial Photographs. University of South Carolina Libraries. https://aerialphotos.library.sc.edu/, accessed September 20, 2022.

LIST OF FIGURES

Figure 1.
Project Location Map



Basemap: ESRI Topo (2021)

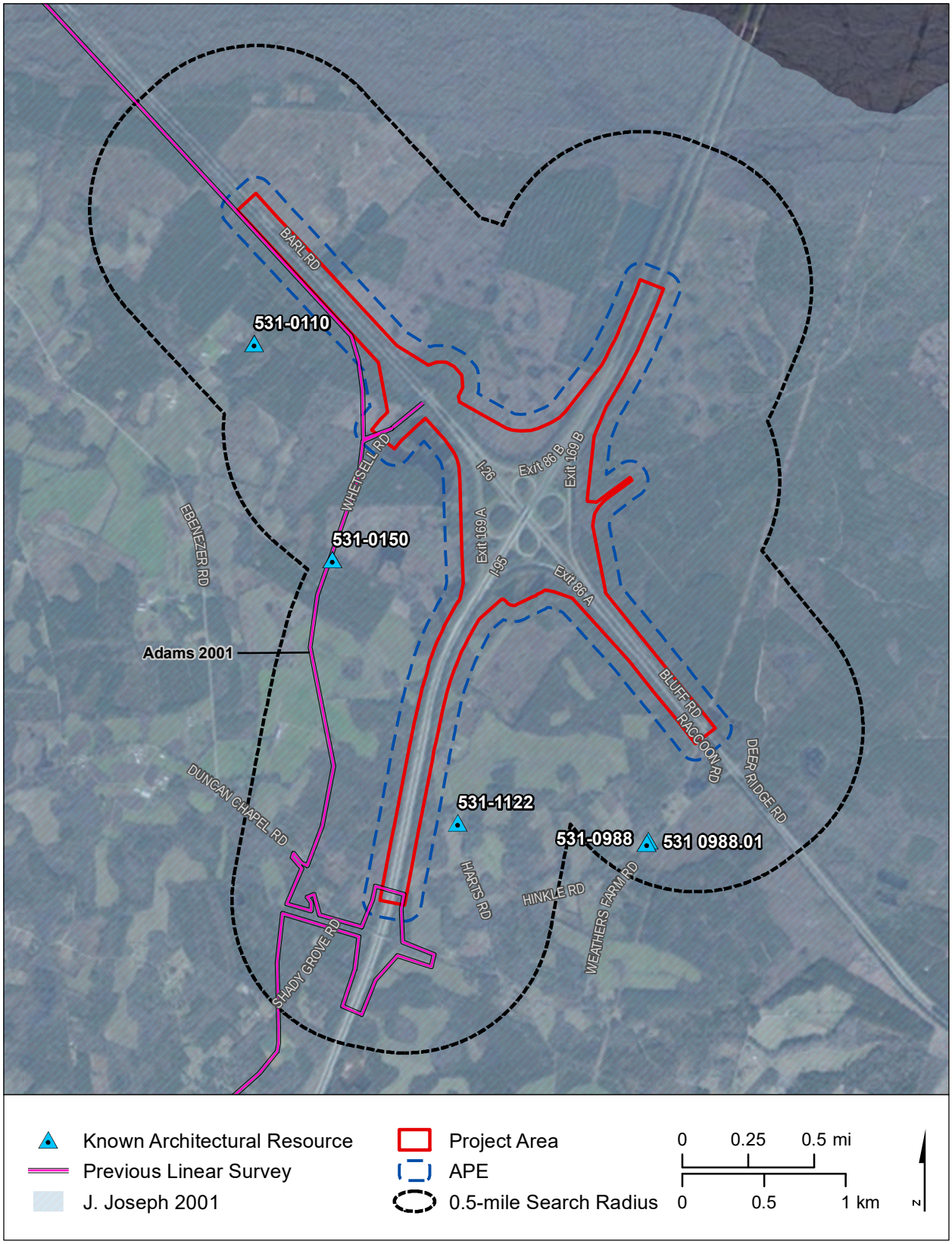
Figure 2.
Current Conditions in the Project Area

a. Wooded Area at Shovel Test 645, Facing East

b. Wetlands at Shovel Test 111, Facing North

c. Scrub Vegetation at Shovel Test 103, Facing South

Figure 3.
Previously Identified Cultural Resources and Previous Surveys within 0.5 Mile of the APE



Basemap: South Carolina Aerial Photography (2020)

Figure 4.
Archaeological Survey Results, 1 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 5.
Archaeological Survey Results, 2 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 6.
Archaeological Survey Results, 3 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 7.
Archaeological Survey Results, 4 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

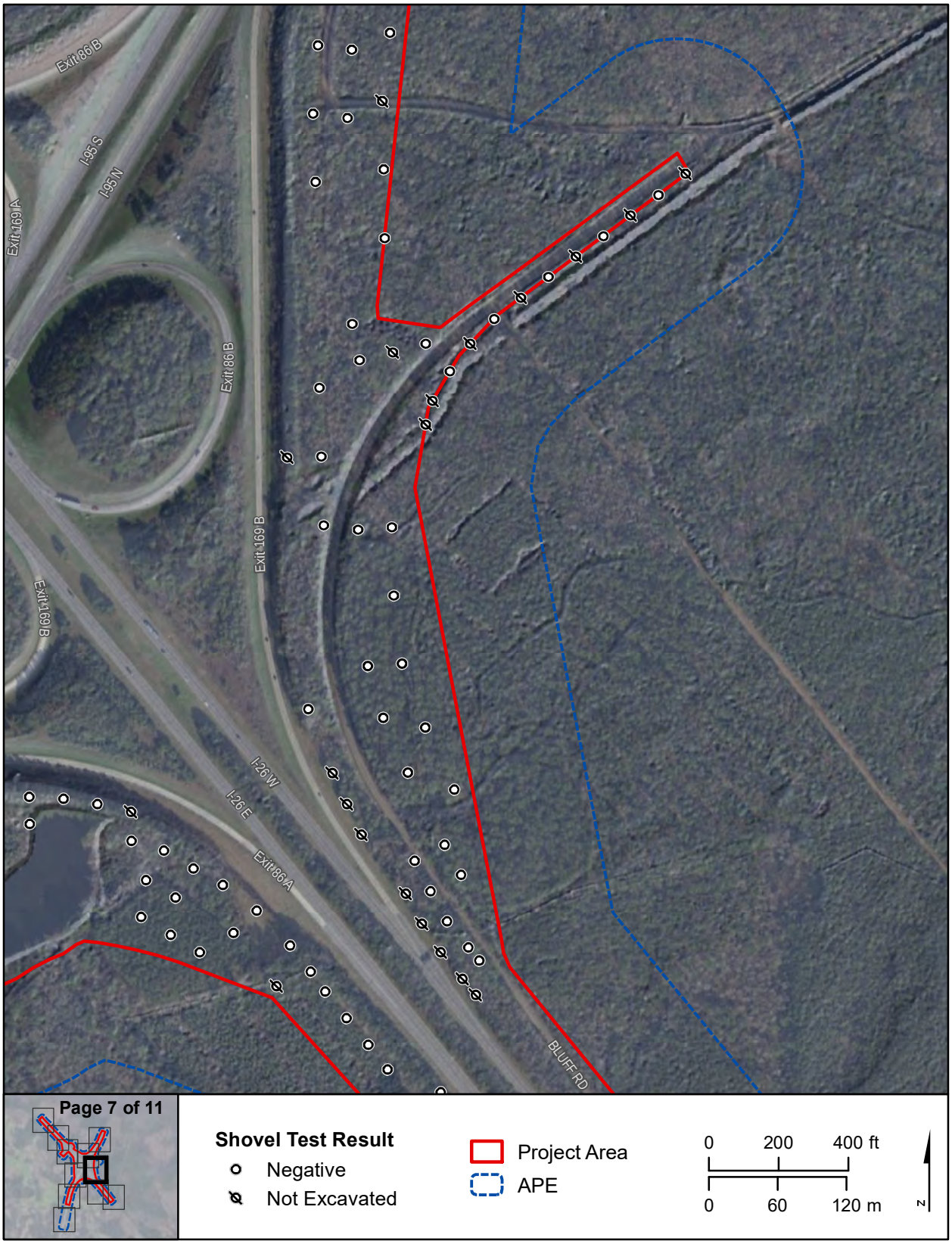
Figure 8.
Archaeological Survey Results, 5 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 9.
Archaeological Survey Results, 6 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 10.
Archaeological Survey Results, 7 of 11

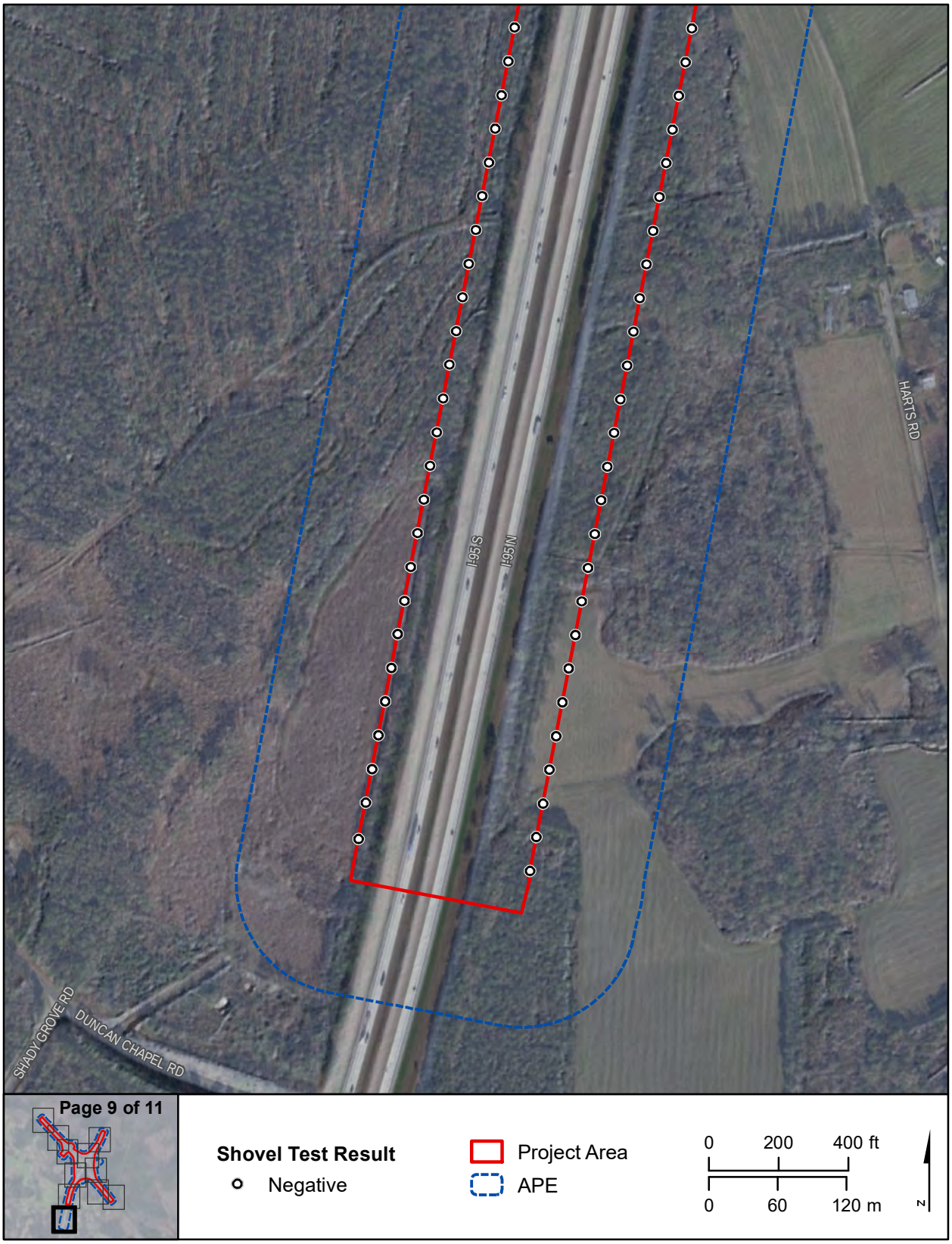


Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 11.
Archaeological Survey Results, 8 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 12.
Archaeological Survey Results, 9 of 11



Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 13.
Archaeological Survey Results, 10 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 14.
Archaeological Survey Results, 11 of 11

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

Figure 15.
Representative Soil Profile

Figure 16.
Site 38OR437 Rail Bed, Facing West

Figure 17.
Site 38OR437, Soil Profiles

a. Soil Profile of Rail Bed

b. Soil Profile of Area Adjacent to Rail Bed

Figure 18.
Architectural Survey Results

Basemap: South Carolina Aerial Photograpy (2020) over Derived Hillshade from USGS 3DEP

a. Oblique, Facing East

b. Façade (Southwest Elevation), Facing Northeast

c. Oblique, Facing North

d. Rear Oblique, Facing South

Figure 19.
SHPO Site Number 0456 (1418 SR 38-28 [Ebenezer Road])

Appendix G

PJD Request Figures

3. WATERS OF THE US SUMMARY TABLE

Feature	Latitude	Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Project Study Area (acres)	Class of Aquatic Resource
Wetlands					
Wetland A	33.325598	-80.556297	PFO	3.94	Section 404
Wetland B	33.323945	-80.551858	PFO	4.06	Section 404
Wetland C	33.322812	-80.553262	PEM	0.06	Section 404
Wetland D	33.319585	-80.551879	PSS	5.28	Section 404
Wetland E	33.326338	-80.543186	PFO	0.17	Section 404
Wetland F	33.324849	-80.544106	PFO	0.08	Section 404
Wetland H1	33.20166	-80.544245	PFO	8.81	Section 404
Wetland H2	33.320524	-80.545503	PFO	0.91	Section 404
Wetland J	33.313839	-80.542347	PSS	0.48	Section 404
Wetland K	33.314084	-80.542921	PEM	2.14	Section 404
Wetland L	33.311953	-80.541074	PEM	0.09	Section 404
Wetland M1	33.311576	-80.540341	PSS	1.69	Section 404
Wetland M2	33.309604	-80.538493	PSS	1.43	Section 404
Wetland N	33.307165	-80.536015	PEM	0.12	Section 404
Wetland O	33.314272	-80.548354	PSS	1.37	Section 404
Wetland R	33.326587	-80.541356	PFO	0.54	Section 404
Wetland S	33.325263	-80.542264	PFO	0.45	Section 404
Wetland T1	33.325774	-80.552614	PEM	0.14	Section 404
Wetland T2	33.32634	-80.554047	PSS	1.10	Section 404
Wetland U	33.297476	-80.556172	PFO	0.87	Section 404
Wetland V	33.302024	-80.555111	PFO	0.22	Section 404
Wetland X1	33.318789	-80.545926	PFO	1.16	Section 404
Wetland X2	33.316856	-80.545525	PFO	0.64	Section 404
Wetland W	33.32164	-80.552117	PSS	0.13	Section 404
Wetland Y	33.317086	-80.544645	PFO	0.88	Section 404
		Wetlands	**Total**	**36.76 Acres**	

Feature	Latitude	Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Project Study Area	Class of Aquatic Resource
Streams					
Non-wetlands waters 1	33.317945	-80.544561	Riverine	0.53 Acres / 1,393.22 LF	Section 404
	Non-wetlands Waters		**Total**	**0.53 acres / 1,393.22 LF**	

Feature	Latitude	Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Project Study Area (acres)	Class of Aquatic Resource
Non-wetland waters (Open Water)					
Non-wetlands waters 2 (Pond)	33.332062	-80.561006	PUBHx	0.52	Section 404
Non-wetlands waters 3 (Pond)	33.323645	-80.555180	PUBHx	2.39	Section 404
Non-wetlands waters 3 (Pond)	33.323300	-80.553627	PUBHx	0.48	Section 404
Non-wetlands waters 3 (Pond)	33.322237	-80.552631	PUBHx	0.75	Section 404
Non-wetlands waters 3 (Pond)	33.321271	-80.552311	PUBHx	0.03	Section 404
Non-wetlands waters 4 (Pond)	33.317260	-80.551847	PUBHx	1.28	Section 404
Non-wetlands waters 5 (Pond)	33.314564	-80.551988	PUBHx	0.98	Section 404
Non-wetlands waters 6 (Pond)	33.313089	-80.552646	PUBHx	0.22	Section 404
Non-wetlands waters 7(Pond)	33.312383	-80.553136	PUBHx	0.24	Section 404
	Non-wetlands waters (Pond)		**Total**	**6.89 Acres**	

Feature	Latitude	Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Project Study Area (acres)	Class of Aquatic Resource
Non-aquatic Resource (Pond)					
Non-aquatic Resource 8 (Pond)	33.314543	-80.549201	PUBHx	3.26	Non-Section 404
Non-aquatic Resource 9 (Pond)	33.315054	-80.546936	PUBHx	2.13	Non-Section 404
Non-aquatic Resource 10 (Pond)	33.308856	-80.554784	PUBHx	0.07	Non-Section 404
	Non-aquatic Resource		**Total**	**5.46 Acres**	

Feature	Latitude	Longitude	Class of Aquatic Resource
Non-aquatic Linear Feature 1a (Ditch)	33.335977	-80.565442	Non-Section 404
Non-aquatic Linear Feature 1b (Ditch)	33.335403	-80.56632	Non-Section 404
Non-aquatic Linear Feature 2 (Ditch)	33.331083	-80.560884	Non-Section 404
Non-aquatic Linear Feature 3 (Ditch)	33.31962	-80.551231	Non-Section 404
Non-aquatic Linear Feature 4(Ditch)	33.315501	-80.551601	Non-Section 404
Non-aquatic Linear Feature 5 (Ditch)	33.310871	-80.553927	Non-Section 404
Non-aquatic Linear Feature 6 (Ditch)	33.309251	-80.554574	Non-Section 404
Non-aquatic Linear Feature 7 (Ditch)	33.312769	-80.544023	Non-Section 404
Non-aquatic Linear Feature 8 (Ditch)	33.320018	-80.544755	Non-Section 404
Non-aquatic Linear Feature 9 (Ditch)	33.307791	-80.536854	Non-Section 404
Non-aquatic Linear Feature 10 (Ditch)	33.326773	-80.542816	Non-Section 404
Non-aquatic Linear Feature 11 (Ditch)	33.320018	-80.544755	Non-Section 404
Non-aquatic Linear Feature 12 (Ditch)	33.312013	-80.552227	Non-Section 404
Non-aquatic Linear Feature 13 (Ditch)	33.309413	-80.53869	Non-Section 404
Non-aquatic Linear Feature 14 (Ditch)	33.312874	-80.542486	Non-Section 404
Non-aquatic Linear Feature 15 (Ditch)	33.307624	-80.537442	Non-Section 404

N

Non-aquatic Linear Feature 1a (Ditch)
33.335977 -80.565442

NAD-1A

I-26

NAD-1B

NAD-1C

Non-aquatic Linear Feature 1b (Ditch)
33.335403 -80.56632

0 125 250
Feet

SCDOT
South Carolina Department of Transportation

Legend

- Photo Point
- Data Point
- Pipe
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

Non-wetlands waters 2 (Pond)(0.52 Acres)
33.332062 -80.561006

Non-aquatic Linear Feature 2 (Ditch)
33.331083 -80.560884

NWW-2

NAD-2A

I-26

Non-aquatic Linear Feature 11 (Ditch)
33.328299 -80.558389

UDP1

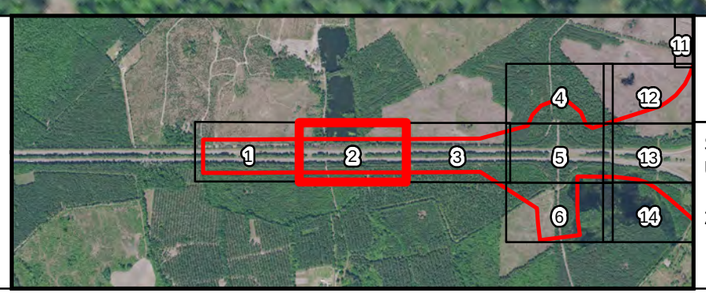
NAD-2B

Non-aquatic Linear Feature 2 (Ditch)
33.331083 -80.560884

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Pipe
- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
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AQUATIC RESOURCES

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Figure 5

N

I-26

I-26

Non-aquatic Linear Feature 11 (Ditch)
33.328299 -80.558389

UAWA-1

UAWA-1

AUDPA

AWA-1

AWDPA

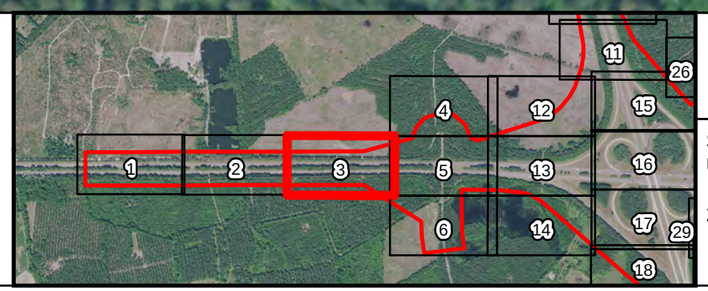
Wetland A (PFO)(3.94 Acres)
33.325598 -80.556297

0 125 250

Feet

Legend

- Photo Point
- Data Point
- Wetland
- Pipe
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

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Figure 5

N

Whetsell Pond

Wetland T1 (PEM)(0.14 Acres)
33.325774; -80.552614

Wetland T2 (PSS)(1.10 Acres)
33.32634; -80.554047

Wetland B (PFO)(4.06 Acres)
33.323945 -80.551858

0 125 250
Feet

SCDOT
South Carolina Department of Transportation

Legend

- Wetland
- Project Study Area (483.39 Acres)

I-26 and I-95 Interchange Improvement
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
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2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

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Figure 5

N

Wetland T2 (PSS)(1.10 Acres)
33.32634; -80.554047

Wetland T1 (PEM)(0.14 Acres)
33.325774; -80.552614

Wetland B (PFO)(4.06 Acres)
33.323945 -80.551858

Whetsell Pond

WDPB
WPB1
UDPB
UPB1

I-26

Non-aquatic Linear Feature 11(Ditch)
33.328299 -80.558389

Wetland A (PFO)(3.94 Acres)
33.32558; -80.556297

UAWA-1
AUDPA
AWA-1
AWDPA

Non-wetlands waters 3 (Pond)(0.48 Acres)
33.3233 -80.553627

Non-wetlands waters 3 (Pond)(0.75 Acres)
33.322237; -80.552631

NWW3-2

Non-wetlands waters 3 (Pond)(2.39Acres)
33.323645 -80.55518

UP-1
UDP1
UPC1
WPC1
UDPC
WDPC

NWW3-1
AWA-2

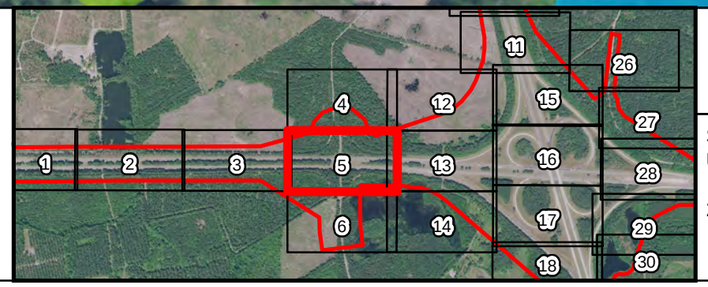
Wetland C (PEM)(0.06 Acres)
33.322812; -80.553262

0 125 250
Feet

South Carolina Department of Transportation

Legend

- Photo Point
- Data Point
- Pipe
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)



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Orangeburg and Dorchester Counties
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Source:
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AQUATIC RESOURCES

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QA/QC: KLM

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Figure 5

N

WAWA-1

NWW3-1

Wetland A (PFO)(3.94 Acres)
33.325598; -80.556297

Non-wetlands waters 3 (Pond)(2.39 Acres)
33.323645; -80.55518

Non-wetlands waters 3 (Pond)(0.48 Acres)
33.3233 -80.553627

Wetland C (PEM)(0.06 Acres)
33.322812; -80.553262

Non-wetlands waters 3 (Pond)(0.75 Acres)
33.322237; -80.552631

Whetsell

0 125 250
Feet

SCDOT
South Carolina Department of Transportation

Legend

- Photo Point
- Wetland
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
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2021

AQUATIC RESOURCES

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April 2023

Figure 5

No Aquatic Resources Identified within Mapped Limits

Non-aquatic Linear Feature 8 (Ditch)
33.320018; -80.544755

Non-aquatic Linear Feature 10 (Ditch)
33.326773 -80.542816

I-95

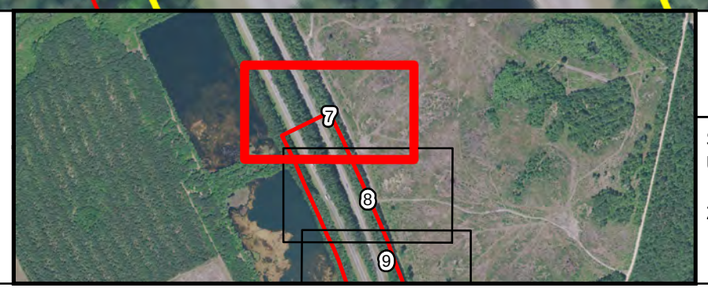
I-95

0 125 250
Feet

Legend

Non-aquatic Linear Feature (Ditch)

Project Study Area (483.39 Acres)



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I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
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2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

No Aquatic Resources Identified within Mapped Limits

Non-aquatic Linear Feature 8 (Ditch)
33.320018; -80.544755

Non-aquatic Linear Feature 10 (Ditch)
33.326773 -80.542816

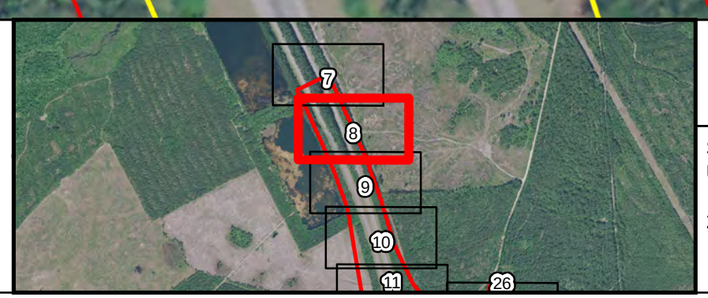
I-95

N

0 125 250
Feet

Legend

- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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Orangeburg and Dorchester Counties
SCDOT P038677

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AQUATIC RESOURCES

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QA/QC: KLM
April 2023

Figure 5

N

Non-aquatic Linear Feature 8 (Ditch)
33.320018 -80.544755

Non-aquatic Linear Feature 10 (Ditch)
33.326773 -80.542816

I95

I95

Wetland R (PFO)(0.54 Acres)
33.326581; -80.541356

Wetland S (PFO)(0.45 Acres)
33.325263; -80.542264

Wetland E (PFO)(0.17 Acres)
33.326338; -80.543186

WPE1

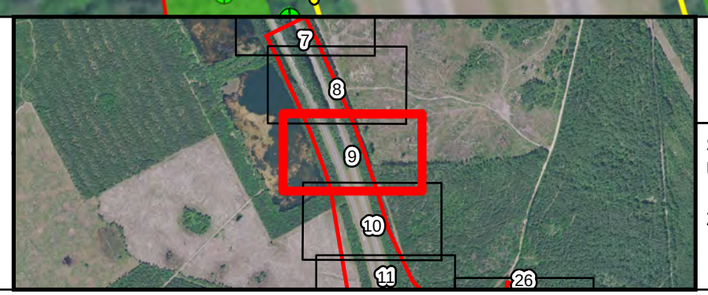
UPE1

WDPE

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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Orangeburg and Dorchester Counties
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AQUATIC RESOURCES

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Figure 5

N

WDPE

WPE1

UPE1

UDPE

Wetland E (PFO)(0.17 Acres)
33.326338 -80.543186

Non-aquatic Linear Feature 10 (Ditch)
33.326773 -80.542816

Wetland S (PFO)(0.45 Acres)
33.325263; -80.542264

Non-aquatic Linear Feature 8 (Ditch)
33.320018 -80.544755

I-95

Wetland F (PFO)(0.08 Acres)
33.324849 -80.544106

WPF1

UPF1

WDPF

UDPF

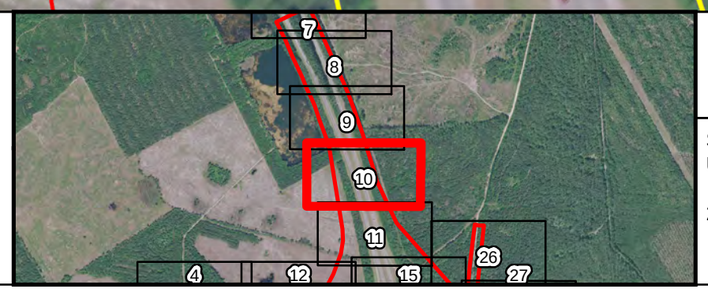
I-95

0 125 250
Feet

SCDOT
South Carolina Department of Transportation

Legend

- Data Point
- Photo Point
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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Orangeburg and Dorchester Counties
SCDOT P038677

Source:
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2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM
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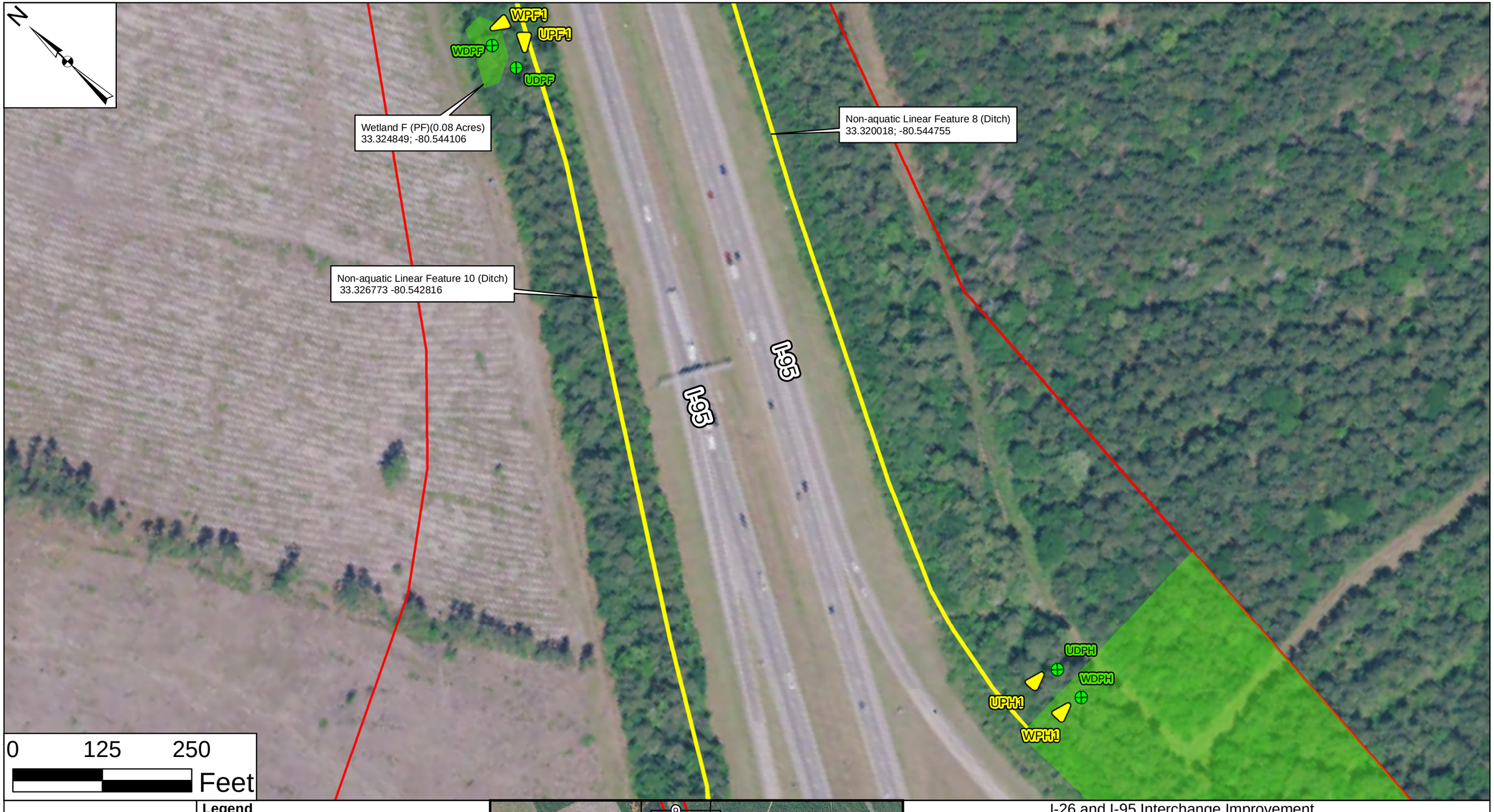
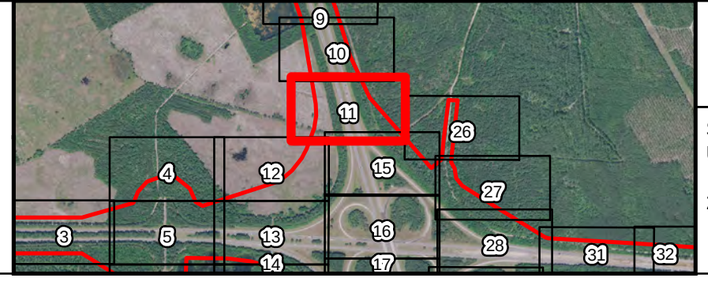
Figure 5



Legend

- Photo Point
- Data Point
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

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AQUATIC RESOURCES

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QA/QC: KLM

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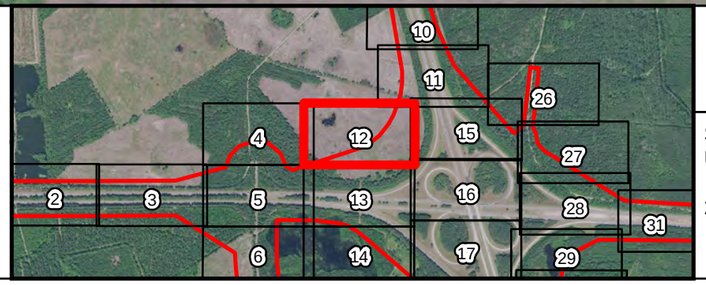
Figure 5

Legend

- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

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2021

AQUATIC RESOURCES

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QA/QC: KLM

April 2023

Figure 5

N

Wetland B (PFO)(4.06 Acres)
33.323945 -80.551858

WDPB
WPB1
UDPB
UPB1

I-26

Non-wetlands waters 3 (Pond) (0.48 Acres)
33.3233; -80.553627

Non-wetlands waters 3 (Pond)(0.75 Acres)
33.322237; -80.552631

Wetland W (PSS)(0.13 Acres)
33.321640; -80.552117

I-26

Non-aquatic Linear Feature 3 (Ditch)
33.317962; -80.551231

NWW3-2
WPC1
UPC1
UPC1
WPC1
NWW3-3
PPU2
NAD3-1
Wetland D (PSS)(5.28 Acres)
33.319858; -80.551879
UPD1
UDPD
UDP2
NWW3-4

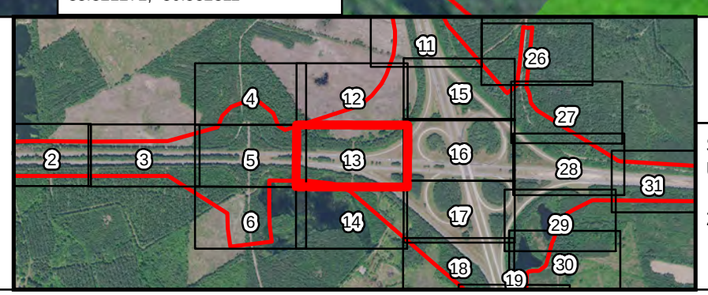
Wetland C (PEM)(0.06 Acres)
33.322812; -80.553262

Non-wetlands waters 3 (Pond) 0.03
33.321271; -80.552311

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Pipe
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)



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I-26 and I-95 Interchange Improvement
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
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2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM
April 2023

Figure 5

N

Wetland C (PEM)(0.06 Acres)
33.322812; -80.553262

Non-wetlands waters 3 (Pond)(0.75 Acres)
33.322237; -80.552631

Wetland W (PSS)(0.13 Acres)
33.321640; -80.552117

Non-wetlands waters 3 (Pond) (0.03 Acres)
33.321271; -80.552311

Wetland D (PSS)(5.28 Acres)
33.319858; -80.551879

Non-aquatic Linear Feature 3 (Ditch)
33.317962 -80.551231

Non-wetlands waters 4 (Pond)(1.28 Acres)
33.317261 -80.551847

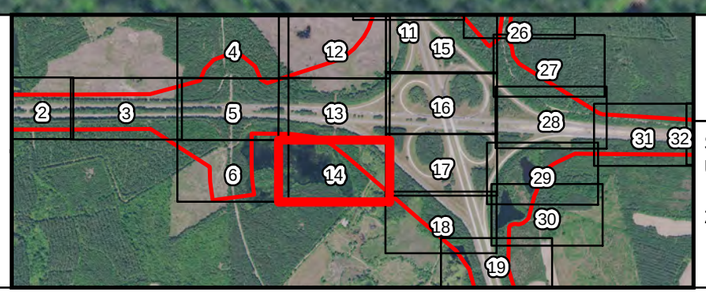
PPU2
UDP2
NWW3-4
NAD3-1
UPD1
UDPD
WDPD
WDPD1
UPD2
I-26/95 Ramp

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)

South Carolina Department of Transportation



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Orangeburg and Dorchester Counties
SCDOT P038677

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2021

AQUATIC RESOURCES

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Figure 5

N

Non-aquatic Linear Feature 10 (Ditch)
33.326773; -80.542816

Non-aquatic Linear Feature 8 (Ditch)
33.320018; -80.544755

UDPH

UPH1

WDPH

WPH1

Wetland H1 (PFO)(8.81 Acres
33.20166; -80.544245

NAD8-1

Wetland H2 (PFO)(0.91 Acres)
33.320524; -80.545503

UDPH2

WDPH2

I-95

I-95

Non-wetlands waters 1 (Stream)(0.53 Acres; 1,393.52 LF)
33.317945; -80.544561

Wetland X1 (PFO)(1.16 Acres)
33.318789; -80.545926

NWW1-1

UDP3

PPU3

0 125 250 Feet

Legend

- Data Point
- Photo Point
- Pipe
- Non-wetlands waters (Stream)
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)

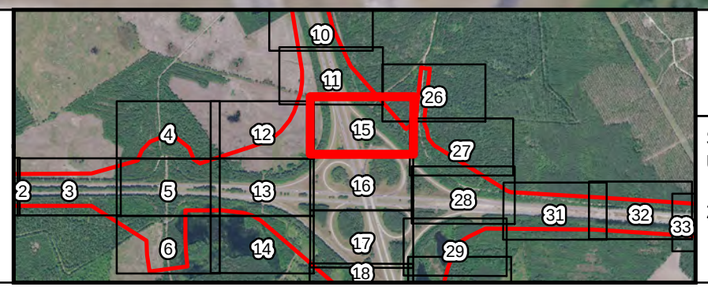

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Figure 5

N

Non-aquatic Linear Feature 10 (Ditch)
33.326773; -80.542816

I-95

Wetland H1 (PFO)(8.81 Acres
33.20166; -80.544245

Non-wetlands waters 1 (Stream)(0.53 Acres; 1,393.52 LF)
33.317945; -80.544561

NWW1-1

UDP3

PPU3

Non-aquatic Linear Feature 8 (Ditch)
33.320018; -80.544755

UP7

Wetland Y (PFO)(0.88 Acres)
33.317086; -80.544645

Wetland X1 (PFO)(1.16 Acres)
33.318789; -80.545926

Wetland X2 (PFO)(0.64 Acres)
33.316856; -80.545253

UPX2

I-26

Non-aquatic Linear Feature (Median Ditch)
33.312874; -80.542486

0 125 250
Feet

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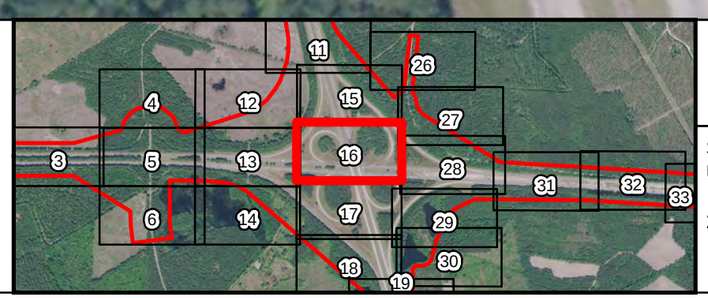
South Carolina Department of Transportation

Legend

- Data Point
- Photo Point
- Pipe
- Non-wetlands waters (Stream)
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
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2021

AQUATIC RESOURCES

Drawn By: RHH
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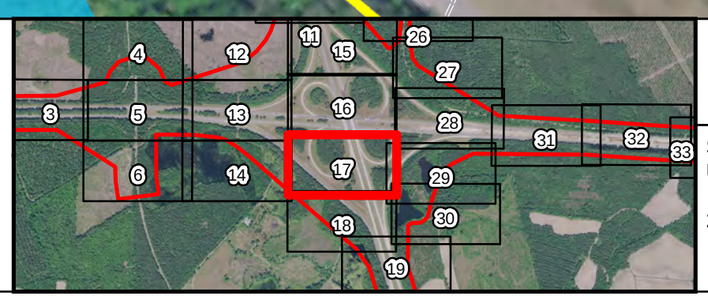
Figure 5



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Legend

- Photo Point
- Data Point
- Wetland
- Non-aquatic Resource (Pond)
- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)
- Pipe

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

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AQUATIC RESOURCES

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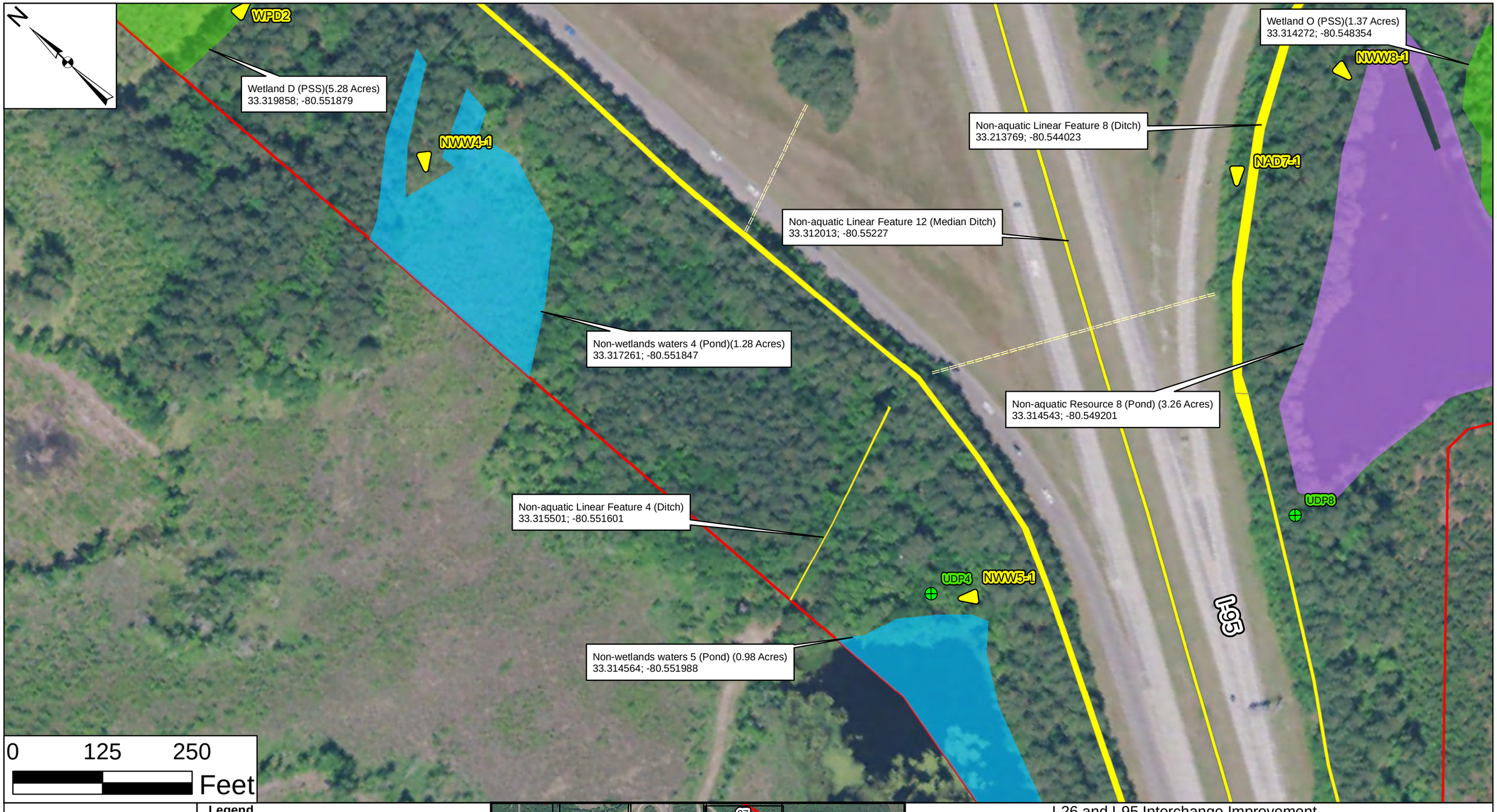
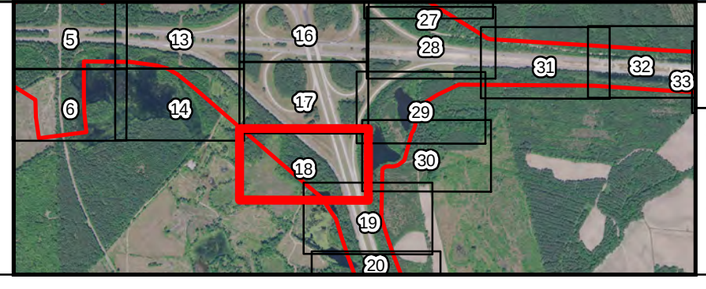
Figure 5





Legend

- Photo Point
- Data Point
- Pipe
- Non-aquatic Resource (Pond)
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)

SCDOT
South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

UDP8

Non-aquatic Resource 8 (Pond)(3.26 Acres)
33.314543; -80.549201

UDP5

NWW5-1

Non-aquatic Linear Feature 12 (Median Ditch)
33.312013; -80.55227

Non-wetlands waters 5 (Pond)(0.98 Acres)
33.314564; -80.551899

I-95

Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

Non aquatic Linear Feature (Ditch)
33.317962; -80.551231

NWW6-1

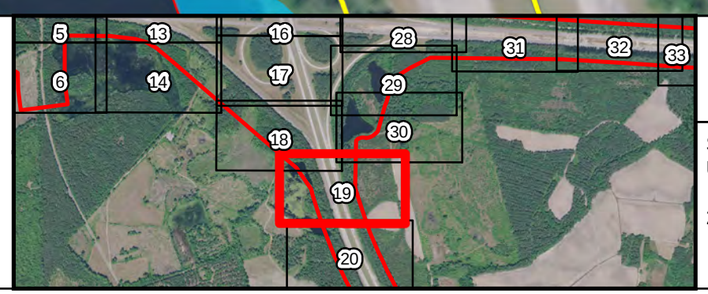
Non-wetlands waters 6 (Pond)(0.22 Acres)
33.313089; -80.552646

Non-wetlands waters 7 (Pond)(0.24 Acres)
33.312383; -80.553136

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Non-aquatic Resource (Pond)
- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)



South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM
April 2023

Figure 5

N

Non-wetlands waters 6 (Pond)(0.22 Acres)
33.313089; -80.552646

Non-wetlands waters 7 (Pond)(0.24 Acres)
33.312383; -80.553136

Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

Non aquatic Linear Feature (Ditch)
33.317962; -80.551231

Non-aquatic Linear Feature 5 (Ditch)
33.310871;-80.553927

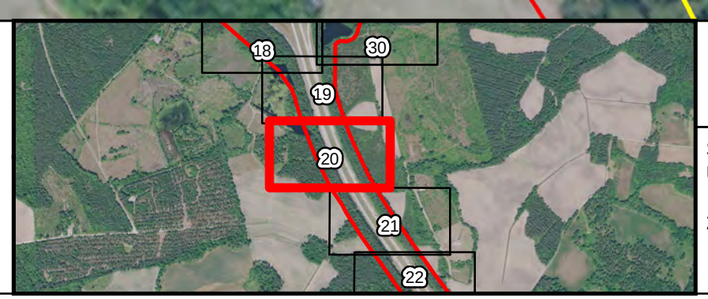
I-95

0 125 250
Feet

South Carolina Department of Transportation

Legend

- Non-aquatic Linear Feature (Ditch)
- Non-wetlands waters (Open Water)
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
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April 2023

Figure 5

N

Non-aquatic Linear Feature 6 (Ditch)
33.309251; -80.554574

NAD6-1

UDP6

NWW-10

Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

I-95

Non-aquatic resource 10 (Pond)(0.07 Acres)
33.308856 -80.554784

Non-aquatic Linear Feature 12 (Median Ditch)
33.312013; -80.55227

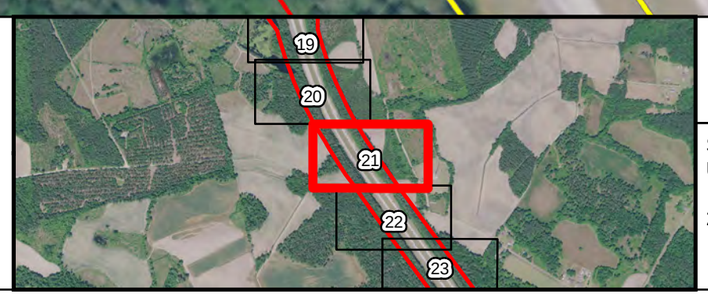
I-95

Non aquatic Linear Feature (Ditch)
33.317962; -80.551231

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Non-aquatic Linear Feature (Ditch)
- Non-aquatic Resource (Pond)
- Project Study Area (483.39 Acres)



South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

No Aquatic Resources within Mapped Extents

Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

Non aquatic Linear Feature (Ditch)
33.317962; -80.551231

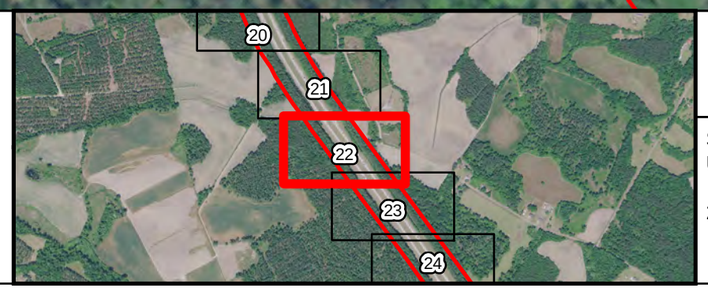
Non-aquatic Linear Feature 13(Median Ditch)
33.309413; -80.53869

N

0 125 250
Feet

Legend

- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

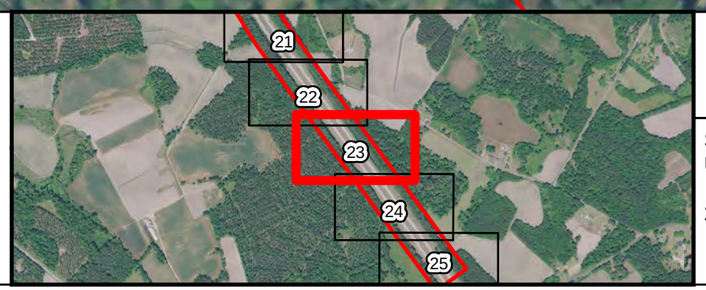
2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5



Legend

- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)

South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties

SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

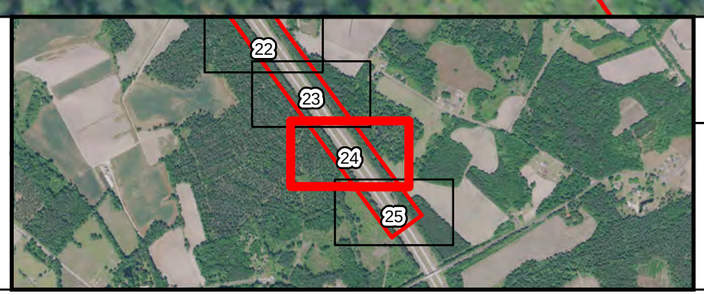
Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

Legend

- Wetland
- Project Study Area (483.39 Acres)



South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

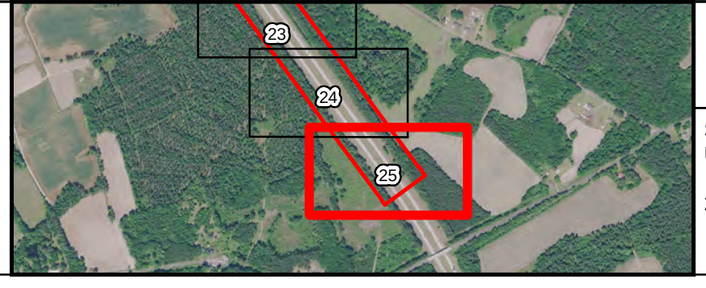
Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

Legend

- Wetland
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

Non-wetlands waters 1 (Stream)(0.53 Acres; 1,393.52 LF)
33.317945; -80.544561

Wetland H1 (PFO)(8.81 Acres
33.20166; -80.544245

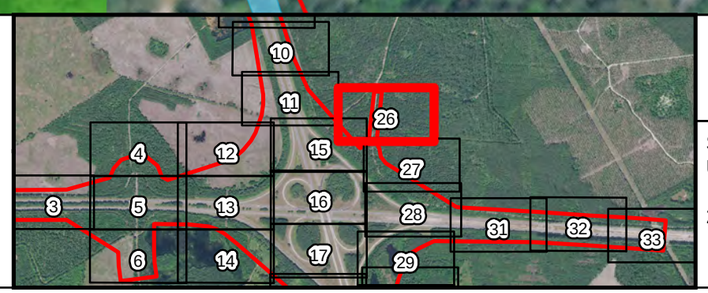
NWW8-1

0 125 250
Feet

SCDOT
South Carolina Department of Transportation

Legend

- Photo Point
- Data Point
- Wetland
- Non-wetlands waters (Stream)
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

Non-wetlands waters 1 (Stream)(0.53 Acres, 1,393.52 LF)
33.317945; -80.544561

NWW1-1

UDP3

PPU3

I-95 Ramp

Non-aquatic Linear Feature 8 (Ditch)
33.320018; -80.544755

Wetland H1 (PFO)(8.81 Acres
33.20166; -80.544245

Wetland Y (PFO)(0.88 Acres)
33.317086; -80.544645

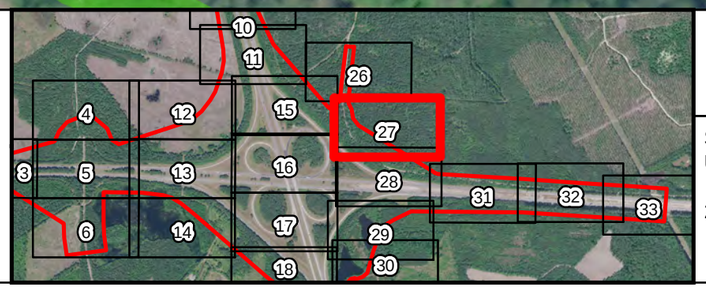
Wetland X1 (PFO)(1.16 Acres)
33.318789; -80.545926

Wetland X2 (PFO)(0.64 Acres)
33.316856; -80.545253

0 125 250
Feet

Legend

- Data Point
- Photo Point
- Pipe
- Non-wetlands waters (Stream)
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



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I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

Wetland H1 (PFO)(8.81 Acres
33.20166; -80.544245

Non-aquatic Linear Feature 8 (Ditch)
33.320018; -80.544755

Wetland Y (PFO)(0.88 Acres)
33.317086; -80.544645

Wetland X1 (PFO)(1.16 Acres)
33.318789; -80.545926

UPX2

PUPX2

Wetland K (PEM)(2.14 Acres)
33.314084; -80.542921

Wetland J (PSS)(0.48 Acres)
33.313839; -80.542347

Wetland X2 (PFO)(0.64 Acres)
33.316856; -80.545253

Non-aquatic Linear Feature 14 (Median Ditch)
33.312874; -80.542486

I-26

Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

NAD7-3

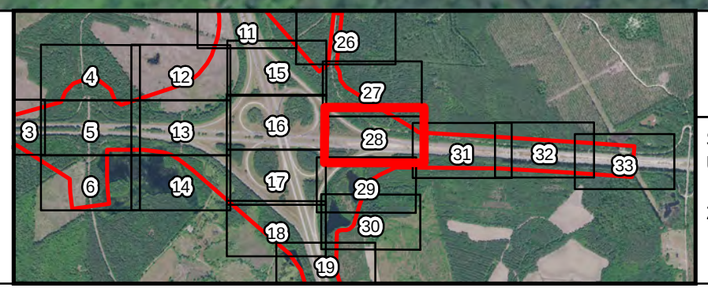
UDP9

0 125 250
Feet

South Carolina Department of Transportation

Legend

- Data Point
- Photo Point
- Pipe
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

NAD7-3

UDP9

NWW9-1

NAD7-2

Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

Wetland O (PSS)(1.37 Acres)
33.314272; -80.548354

Non-aquatic Resource 9 (Pond) (2.13 Acres)
33.315054; -80.546936

NWW8-1

I-95

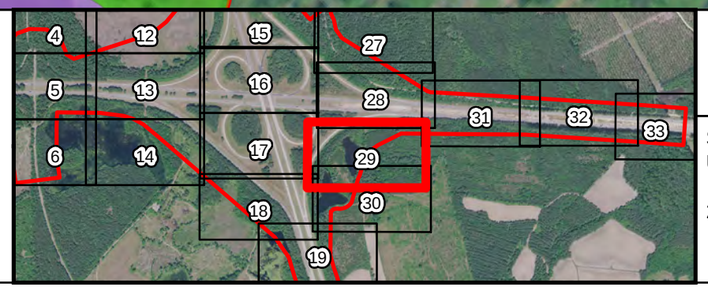
NAD7-1

Non-aquatic Resource 8 (Pond) (3.26 Acres)
33.314543; -80.549201

0 125 250
Feet

Legend

- Data Point
- Photo Point
- Pipe
- Wetland
- Non-aquatic Resource (Pond)
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



SCDOT
South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM
April 2023

Figure 5

N

Wetland O (PSS)(1.37 Acres)
33.314272; -80.548354

NWW8-1

Non-aquatic Resource 9 (Pond) (2.13 Acres)
33.315054; -80.546936

NAD7-1

Non-aquatic Resource 8 (Pond) (3.26 Acres)
33.314543; -80.549201

I-95

UDP8

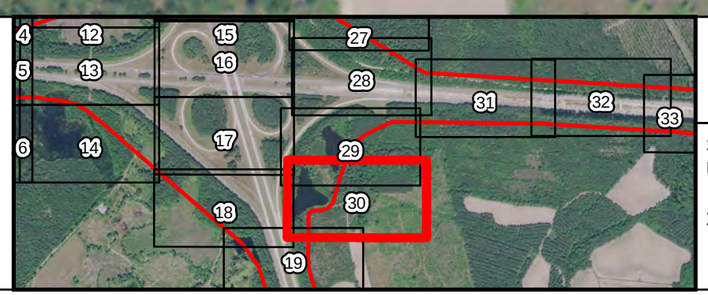
Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

0 125 250
Feet

SCDOT
South Carolina Department of Transportation

Legend

- Pipe
- Photo Point
- Data Point
- Wetland
- Non-aquatic Resource (Pond)
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



I-26 and I-95 Interchange Improvement
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

N

Wetland J (PFO)(0.48 Acres)
33.313839; -80.542347

Wetland K(PEM)(2.14 Acres)
33.314084; -80.542921

Wetland M1 (PSS)(1.69 Acres)
33.311576; -80.540341

Wetland L (PEM)(0.09 Acres)
33.311953; -80.541074

Non-aquatic Linear Feature 13 (Ditch)
33.309413; -80.53869

Non-aquatic Linear Feature 14 (Median Ditch)
33.312874; -80.542486

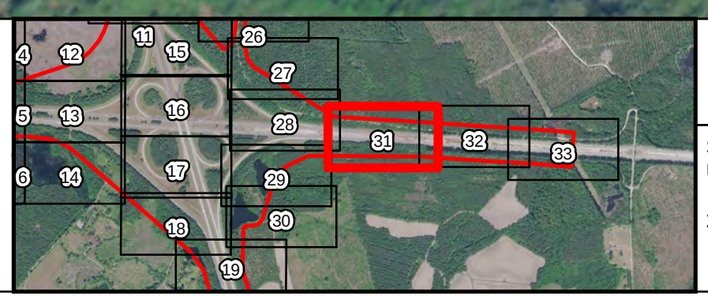
Non-aquatic Linear Feature 7 (Ditch)
33.312769; -80.544023

UDPJ
WDPJ
UPJ1
WPJ1
UPK1
WDPK
UDPK
WPK1
UDPL
WDPL
UPL1
WPL1
WPM1
WDPM
UPM1
UDPM
NAD7-4
I-26
I-26

0 125 250
Feet

Legend

- Photo Point
- Data Point
- Pipe
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



SCDOT
South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

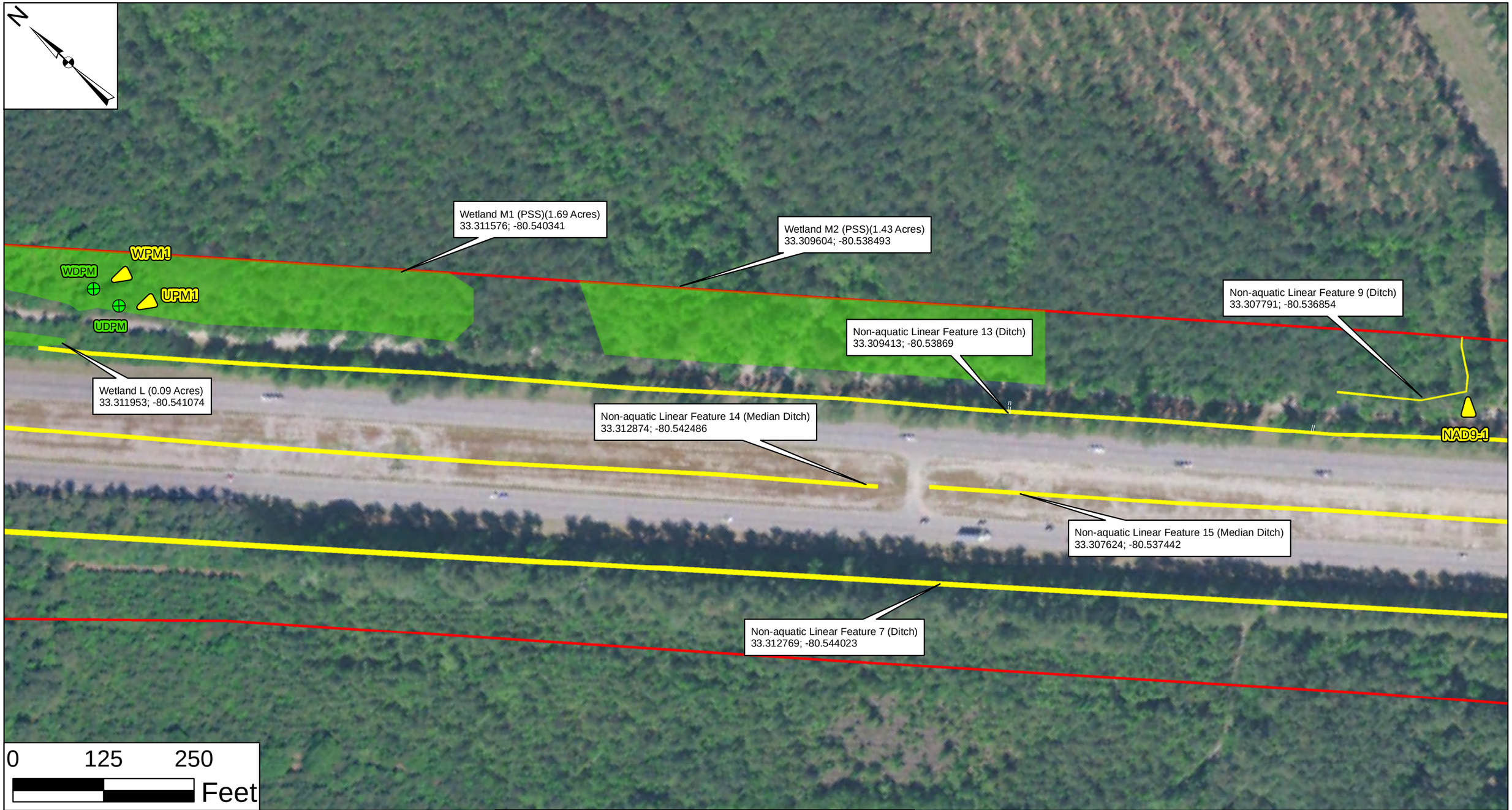
2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

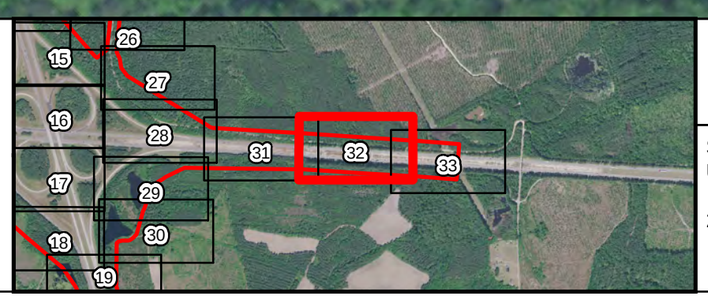
April 2023

Figure 5



Legend

- Photo Point
- Data Point
- Pipe
- Wetland
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

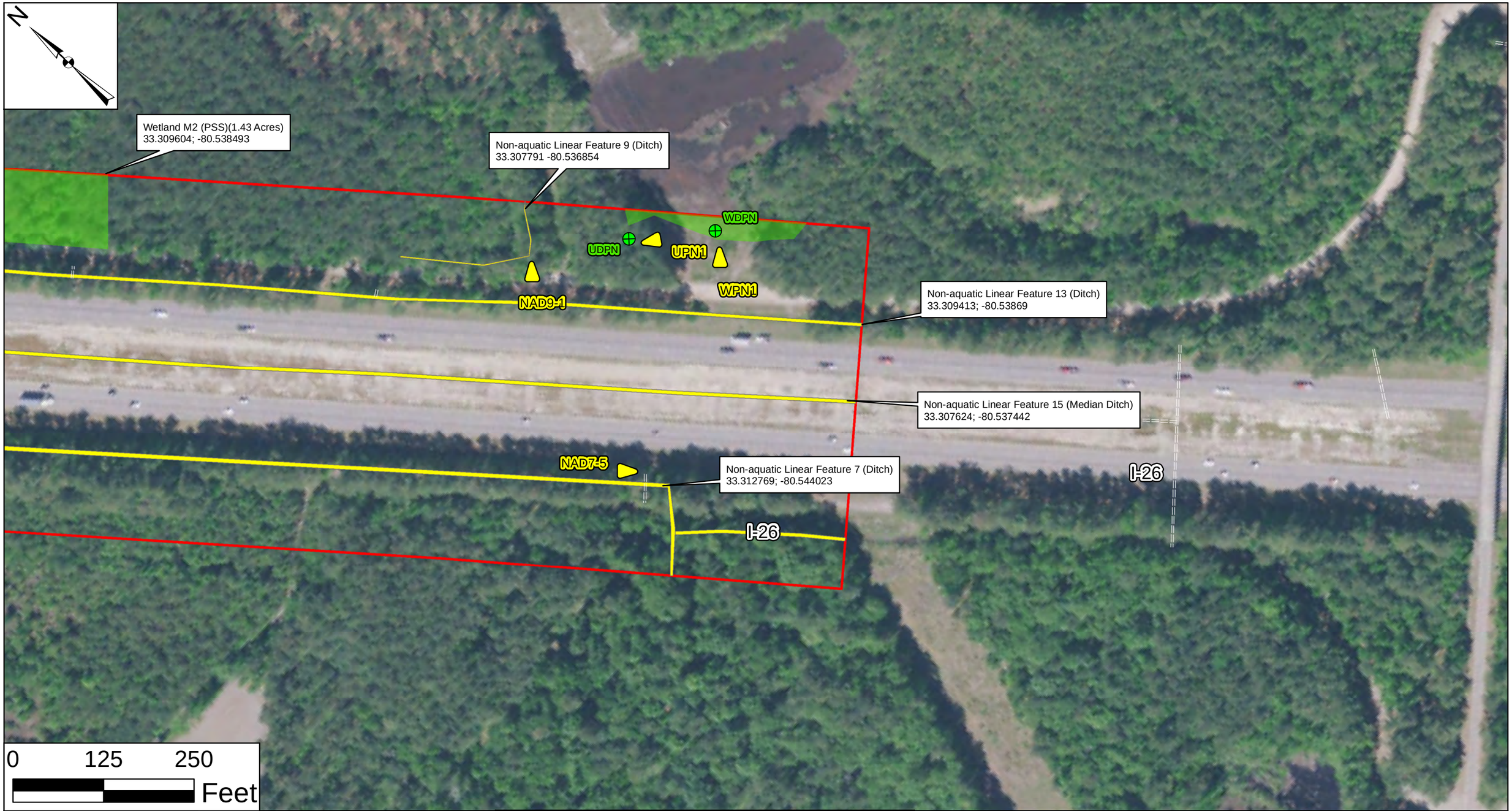
2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

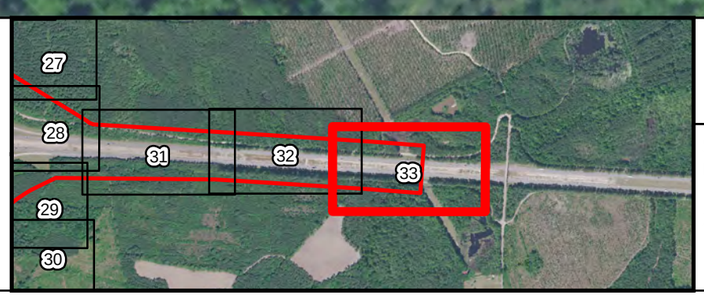
April 2023

Figure 5



Legend

- Photo Point
- Data Point
- Wetland
- Pipe
- Non-aquatic Linear Feature (Ditch)
- Project Study Area (483.39 Acres)



South Carolina Department of Transportation

I-26 and I-95 Interchange Improvement

Orangeburg and Dorchester Counties

SCDOT P038677

Source:
USDA Orthoimagery

2021

AQUATIC RESOURCES

Drawn By: RHH
QA/QC: KLM

April 2023

Figure 5

Appendix H

Floodplains

South Carolina Department of Transportation
Location and Hydraulic Design of Encroachments on Floodplains Checklist

23 CFR 650, this regulation shall apply to all encroachments and to all actions which affect base floodplains, except for repairs made with emergency funds. Note: These studies shall be summarized in the environmental review documents prepared pursuant to 23 CFR 771.

I. PROJECT DESCRIPTION

The South Carolina Department of Transportation (SCDOT) proposes to improve the interchange on I-26 at I-95 in Dorchester and Orangeburg Counties. The interchange is located at Exit 169B along I-95 and Exit 86A&B along I-26 approximately 8 miles east of Bowman and 11 miles west of Holly Hill. The interchange is located in Orangeburg County; however, project limits extend into Dorchester County. This project will be a full interchange improvement to address the operational deficiencies of the current configuration. The interchange ramps are anticipated to be realigned to provide more direct movement from interstate to interstate and improve operations and safety. The new overpasses will allow additional travel lanes on I-26 as well as a 16' full depth shoulder for evacuation purposes. The PSA encompasses an area approximately 483.39 acres in size, generally centered on the existing I-26 at I-95 interchange and adjacent side streets.

A. Narrative Describing Purpose and Need for Project
   a. Relevant Project History:
   b. General Project Description and Nature of Work (attach Location and Project Map):
   c. Major Issues and Concerns:

The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. Goals for the project include accommodating future capacity improvements of both I-26 and I-95 and accommodating lane reversal requirements in accordance with emergency management. The need for the improvements stems from operational issues including weaving movements from on and off ramp loop ramps resulting in rear-end and sideswipe crashes and travel delays due weaving and merging. The cloverleaf on and off loop ramps can result in increased travel times as well.

B. Are there any floodplain(s) regulated by FEMA located in the project area?
   Yes [X] No [ ]
   (Small portion of Zone AE at northern end of project, along I-95 southbound. No improvements proposed in this portion of the project area.)

C. Will the placing of fill occur within a 100-year floodplain?
Yes☐ No☒

D. Will the existing profile grade be raised within the floodplain?

No

E. If applicable, please discuss the practicability of alternatives to any longitudinal encroachments.

N/A

F. Please include a discussion of the following: commensurate with the significance of the risk or environmental impact for all alternatives containing encroachments and those actions which would support base floodplain development:

a. What are the risks associated with implementation of the action?

N/A

b. What are the impacts on the natural and beneficial floodplain values?

N/A

c. What measures were used to minimize floodplain impacts associated with the action?

N/A

d. Were any measures used to restore and preserve the natural and beneficial floodplain values impacted by the action?

N/A

G. Please discuss the practicability of alternatives to any significant encroachments or any support of incompatible floodplain development.

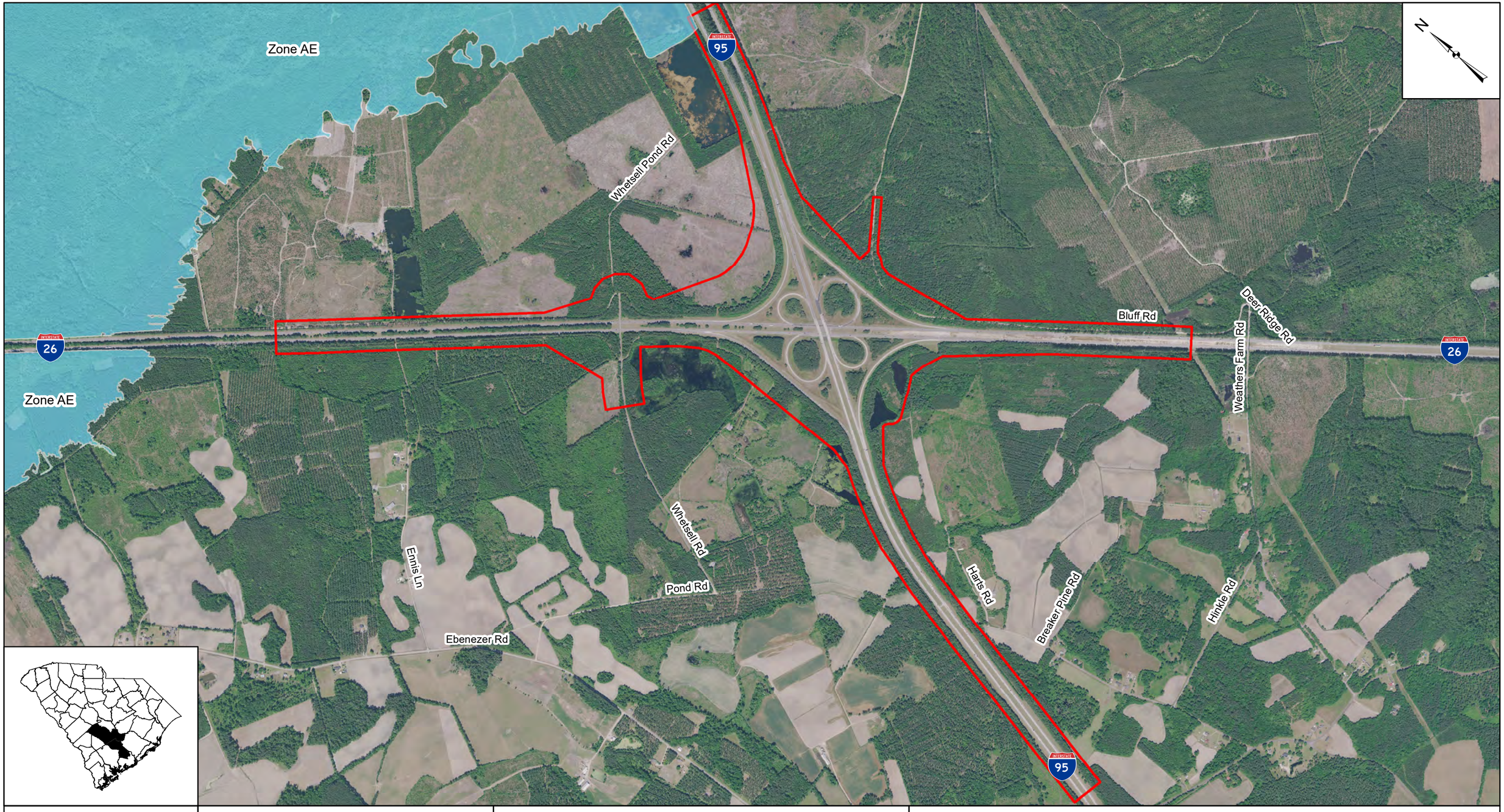
N/A

H. Were local, state, and federal water resources and floodplain management agencies consulted to determine if the proposed highway action is consistent with existing watershed and floodplain management programs and to obtain current information on development and proposed actions in the affected? Please include agency documentation.

N/A

01/06/23

Hydraulic Engineer Date



SCDOT
South Carolina Department of Transportation

Legend

- Project Study Area (483.39 Acres)
- FEMA Flood Zone AE

0 1,750 3,500 Feet

I-26 and I-95 Interchange Reconfiguration Design Build
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

Drawn By: JLS
QA/QC: KLM

December 2022

FEMA Floodplain Map

Appendix I

USFWS Coordination and Biological Assessment

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
Phone: (843) 727-4707 Fax: (843) 727-4218

In Reply Refer To: April 05, 2023
Project code: 2023-0063426
Project Name: 2022-0089182 I-26 at I-95 Interchange Improvements

Federal Nexus: yes
Federal Action Agency (if applicable): South Carolina Department of Transportation

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for '2022-0089182 I-26 at I-95 Interchange Improvements'

Dear Sarah Nystrom:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 05, 2023, for '2022-0089182 I-26 at I-95 Interchange Improvements' (here forward, Project). This project has been assigned Project Code 2023-0063426 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter.

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of “May Affect, Not Likely to Adversely Affect” the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Canby's Dropwort *Oxypolis canbyi* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Pondberry *Lindera melissifolia* Endangered
- Red-cockaded Woodpecker *Picoides borealis* Endangered
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the South Carolina Ecological Services and reference Project Code 2023-0063426 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

2022-0089182 I-26 at I-95 Interchange Improvements

2. Description

The following description was provided for the project '2022-0089182 I-26 at I-95 Interchange Improvements':

> The SCDOT proposes to improve the I-26 at I-95 interchange located in Orangeburg and Dorchester Counties. The latitude and longitude at the center point of the project is 33.319, -80.548. The project is expected to be bid in Summer 2023.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.316779100000005,-80.54701647719901,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Your project overlaps with an area where northern long-eared bats may be present year-round. Time-of-year restrictions may not be appropriate for your project due to bats being active all year.

   Do you understand that your project may impact bats at any time during the year and time-of-year restrictions may not apply to your project?

   Yes

3. Do you have post-white nose syndrome occurrence data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed acoustic detections. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   No

4. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   Yes

7. FHWA, FRA, and FTA have completed a range-wide programmatic consultation for transportation- related actions within the range of the Indiana bat and northern long-eared bat.

   Does your proposed action fall within the scope of this programmatic consultation?

   Note:If you have **previously consulted** on your proposed action with the Service under the NLEB 4dRule, answer 'no' to this question and proceed with using this key. If you have **not yet consulted** with the Service on your proposed action and are unsure whether your proposed action falls within the scope of the FHWA, FRA, FTA range-wide programmatic consultation, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key in IPaC to determine if the programmatic consultation is applicable to your action. Return to this key and answer ‘no’ to this question if it is not.

   No

8. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

9. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

10. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

    If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer "No" below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project's action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a "no effect" determination for the northern long-eared bat.

    Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer "No" and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

11. Your project overlaps with an area where northern long-eared bats may be present year-round.

    Is suitable northern long-eared bat habitat present within 1000 feet of project activities?

    Yes

12. Will the action cause effects to a bridge?

    Yes

13. Will the proposed action result in the cutting or other means of knocking down, bringing down, or trimming of any trees suitable for northern long-eared bat roosting?

    Note: Suitable northern long-eared bat roost trees are live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities.

    Yes

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

220

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the inactive (hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

0

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the active (non-hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

220

Will all potential northern long-eared bat (NLEB) roost trees (trees ≥3 inches diameter at breast height, dbh) be cut, knocked, or brought down from any portion of the action area greater than or equal to 0.1 acre? If all NLEB roost trees will be removed from multiple areas, select 'Yes' if the cumulative extent of those areas meets or exceeds 0.1 acre.

Yes

Enter the extent of the action area (in acres) from which all potential NLEB roost trees will be removed. If all NLEB roost trees will be removed from multiple areas, entire the total extent of those areas. Round up to the nearest tenth of an acre.

6.6

For the area from which all potential northern long-eared bat (NLEB) roost trees will be removed, on how many acres (round to the nearest tenth of an acre) will trees be allowed to regrow? Enter '0' if the entire area from which all potential NLEB roost trees are removed will be developed or otherwise converted to non-forest for the foreseeable future.

0

Will any snags (standing dead trees) ≥3 inches dbh be left standing in the area(s) in which all northern long-eared bat roost trees will be cut, knocked down, or otherwise brought down?

No

Will all project activities by completed by April 1, 2024?

No

IPAC USER CONTACT INFORMATION

Agency: South Carolina Department of Transportation
Name: Sarah Nystrom
Address: 955 Park St Rm 506
City: Columbia
State: SC
Zip: 29202-0191
Email sarah_nystrom@fws.gov
Phone: 8037371326

South Carolina
Department of Transportation

November 28, 2022

Melanie Olds
US Fish and Wildlife Service
South Atlantic-Gulf Region
South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

Re: 2022-0089182 Section 7 USFWS Consultation Request for I-26 at I-95 Interchange Improvements, Orangeburg & Dorchester Counties, South Carolina; SCDOT PIN P038677

Dear Ms. Olds,

On behalf of The South Carolina Department of Transportation (SCDOT) and the Federal Highway Administration (FHWA), please find an informal consultation request for species under US Fish and Wildlife Services (USFW) jurisdiction in compliance with Section 7 of the Endangered Species Act (ESA) for the above referenced project. A Non-Programmatic Categorical Exclusion is currently being prepared for this project.

This submittal is being provided directly to you for your review and comment. Attached you should find a copy of the Biological Assessment documenting all federal and state threatened or endangered species with effect determinations based on possible construction activities and NLEB IPAC results.

Please contact myself at 803-737-1326 or mcgoldriwr@scdot.org or Shane Belcher with FHWA with any questions or comments.

Sincerely,

Will McGoldrick
Alternative Project Delivery Env Program Mgr

KLM:wrm

Enclosures: Biological Assessment

ec: Shane Belcher, FHWA
Kally McCormick, CECS

File: ENV/Design-Build

Post Office Box 191
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
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I-26 AT I-95 INTERCHANGE IMPROVEMENT

BIOLOGICAL ASSESSMENT

FOR US FISH AND WILDLIFE SERVICE

P038677

Prepared For:

SCDOT
South Carolina Department of Transportation

Prepared By:

Civil Engineering
Consulting Services, Inc.

November 22, 2022

Table of Contents -

Tables

Appendices

1. Project Overview

1.1 Federal Nexus

The purpose of this Biological Assessment (BA) is to address the effect of the I-26 at I-95 Interchange Improvements on U.S. Endangered Species Act (ESA) listed species, listed as endangered or threatened, or their designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). Those species under the jurisdiction of the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS) include Atlantic sturgeon and shortnose sturgeon. There are no major waterways within the project study area, no suitable habitat, and no records of the Atlantic sturgeon or shortnose sturgeon present within the project boundaries.

The South Carolina Department of Transportation (SCDOT), on behalf of the Federal Highway Administration (FHWA), is pursuing informal consultation under Section 7 of the ESA on the impacts to species that will result from the proposed I-26 at I-95 interchange improvements project. Section 7 of the ESA assures that, through consultation with USFWS, federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species, or result in the destruction or adverse modification of critical habitat.

1.2 Project Description

The SCDOT proposes to improve the I-26 at I-95 interchange located in Orangeburg and Dorchester Counties (**Appendix A, Figure 1**). The purpose of this project is to improve mobility and operations at the system interchange of I-26 and I-95. Goals for the project include accommodating future capacity improvements of both I-26 and I-95 and accommodating lane reversal requirements in accordance with emergency management. The need for the improvements stems from operational issues including weaving movements from on and off ramp loop ramps resulting in rear-end and sideswipe crashes and travel delays due weaving and merging. The cloverleaf on and off loop ramps can result in increased congestion. The I-26 and I-95 interchange is listed as the third highest ranked rural interstate improvement project. Level of Service (LOS) is the term used to refer to automobile congestion and travel time delay. LOS A generally represents the best, free-flow operating conditions, and LOS F represents the worst operating conditions. Several of the ramps and loops at the interchange are operating at LOS F currently, and additional ramps and loops will operate at LOS D and F in the future if no improvements are made. This project would include a full interchange improvement to address the operational deficiencies of the current configuration. Improvements include ramp realignments and reconfigurations to improve vehicular and freight mobility from interstate to interstate. Potential new overpass ramps

would allow improve traffic flow on I-26 and 16-foot full depth shoulder would be provided for evacuation purposes. These improvements would address merge and weave movements along I-26 eastbound/westbound and I-95 northbound/southbound.

1.3 Project Area and Setting

The project is located primarily in Orangeburg County, with a small section of the southeastern end of the project in Dorchester County. A project study area (PSA) has been established to encompass all potential impacts of the project (see **Appendix A, Figure 1**). The PSA encompasses an area approximately 482 acres in size, generally centered on the existing I-26 at I-95 interchange and adjacent side streets. A large portion of the land within this PSA is underdeveloped farmland and hunting land. One freshwater stream and numerous wetlands are present in the PSA, including forested wetlands, scrub-shrub wetlands, and emergent wetlands.

1.4 Consultation History

The USFWS South Carolina list of at-risk, candidate, endangered, and threatened species by county was reviewed for both Orangeburg and Dorchester Counties **(Appendix B)**. A request was submitted through the USFWS Information, Planning, and Conservation (IPaC) online database for information pertaining to designated protected species critical habitats. USFWS provided a verification letter on September 27, 2022 related to the Programmatic Biological Opinion for the northern long-eared bat (*Myotis septentrionalis*) concluded that the project action may affect the northern long-eared bat; however, any take that may occur as a result of the action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). **See Appendix C**.

2. Federally Listed, Proposed, and At-Risk Species, Including Designated Critical Habitat

The PSA is located within the known or expected range of five species listed under the ESA within the jurisdiction of USFWS (Table 1). Two additional endangered species (shortnose sturgeon and Atlantic sturgeon) fall within the jurisdiction of NOAA-NMFS. There is no Critical Habitat within the PSA.

The term “Candidate” includes species under consideration for which there is sufficient information to support listing but development of a proposed listing regulation is precluded by other higher priority listing activities. There are two Candidate species considered in this project. “At-Risk Species” (ARS) is an informal term that refers to those species which may be in need of concentrated conservation actions, and have been petitioned for listing as threatened or endangered. There are seven At-Risk species

considered in this project. The USFWS designations of candidate and at-risk do not provide federal protection and require no Section 7 consultation under the ESA, however they are considered here for potential natural resources impacts. The bald eagle (*Haliaeetus leucocephalus*) is protected under the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA).

Table 1. Endangered, Threatened, At-Risk, and Candidate Species.

Species	USFWS County Known or Likely Occurrence	Federal Protection Status
Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Dorchester, Orangeburg	Endangered
Shortnose sturgeon (*Acipenser brevirostrum*)	Dorchester, Orangeburg	Endangered
Canby's dropwort (*Oxypolis canbyi*)	Orangeburg	Endangered
Pondberry (*Lindera melissifolia*)	Dorchester, Orangeburg	Endangered
American wood stork (*Mycteria americana*)	Dorchester, Orangeburg	Threatened
Red-cockaded woodpecker (*Picoides borealis)*	Dorchester, Orangeburg	Threatened
+Northern long-eared bat (*Myotis septentrionalis*)	Dorchester	Threatened
Monarch Butterfly *(Danaus plexippus)*	Dorchester, Orangeburg	Candidate
Gopher Tortoise *(Gopherus polyphemus)*	Dorchester	Candidate
++Tricolored bat (*Perimyotis subflavus)*	Dorchester, Orangeburg	At-Risk Species
Boykin's lobelia (*Lobelia boykinii*)	Orangeburg	At-Risk Species
Carolina-birds-in-a-nest (*Macbridea caroliniana*)	Orangeburg	At-Risk Species
Bog asphodel (*Narthecium Americanum*)	Dorchester	At-Risk Species
Gopher frog (*Lithobates captio)*	Dorchester, Orangeburg	At-Risk Species
Eastern diamondback rattlesnake (*Crotalus adamanteus*)	Dorchester, Orangeburg	At-Risk Species
Spotted turtle (*Dermochelys coriacea*)	Dorchester	At-Risk Species
Bald Eagle *(Haliaeetus leucocephalus)**	Dorchester, Orangeburg	BGEPA

Table 1 Notes:

+ On March 22, 2022, the USFWS issued a public notice proposing to list the northern long-eared bat as endangered. The comment period ended on May 23, 2022 and a final decision is expected in November 2022.

++On September 13, 2022, the USFWS issued a public notice proposing to list the tricolored bat as endangered. The comment period ends on November 14, 2022 and a final decision is expected within 12 months or sooner.

At-Risk Species: Species that the USFWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist.

Candidate: USFWS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species.

**BGEPA: Federally protected under the Bald and Golden Eagle Protection Act*

The following sections detail the seven threatened or endangered species within known listings or likely occurrences in Dorchester and Orangeburg Counties. The two candidate species of the counties are also considered below. Additionally, because of the pending potential future listing of the tricolored bat, this species is also included.

2.1 American wood stork

American wood storks are a threatened species under the ESA. They are the largest wading bird and only stork species that breeds in the United States. These birds are large, long legged with a head to tail length of up to 45 inches and a wingspan of up to 65 inches. Adult wood storks are white except for the primary and secondary wing feathers and the tail feathers, which are black with a greenish sheen. Adults also have an unfeathered head and neck with a long, thick black bill. The breeding range of the wood stork extends down the southeastern coast of the United States, including South Carolina. American wood storks are colonial nesters with colonies ranging from less than 12 to more than 500 in size. Nesting occurs in small to large trees typically on small islands surrounded by standing water, or in extensive forested and flooded wetlands. The species generally forages in water six to ten inches deep. They feed in freshwater marshes, narrow tidal creeks, or flooded tidal pools. Suitable foraging and nesting habitat exists within the forested wetlands and upland forests near open water located within the PSA including open ponds and wetlands. During surveys, a lone American wood stork was seen flying approximately 3 miles southeast of the I-26 at I-95 project. The closest known nesting population is approximately 23.7 miles southwest of the PSA. **There is suitable habitat present, but no active nesting rookeries or birds were found during surveys.**

2.2 Red-cockaded woodpecker

The Red-cockaded woodpecker is listed as endangered and is protected under the ESA. The red-cockaded woodpecker has a distinguishable back patterning barred with black and white horizontal stripes. They also have a black cap and nape that encircle large white cheek patches. Males of the species have a notable red streak on each side of their black cap called a cockade. Red-cockaded woodpeckers are rare forest birds native to the southeastern United States. These birds are non-migratory and territorial. They tend to live in family groups which include a breeding pair, their offspring, and helpers. They prefer to forage on pine trees with a strong preference to large trees. They are known to occasionally forage on hardwoods and even eat cornworms in cornfields. The nesting season for these birds is from April to June. The pine forests in and near the project site are frequently logged, resulting in relatively small, young growth trees. No longleaf pine is present. **Evidence of the Red-cockaded woodpecker was not noted within the PSA, no birds were detected during surveys, and suitable habitat is not present**.

2.3 Northern long-eared bat

On March 22, 2022, the USFWS issued a public notice proposing to list the northern long-eared bat as endangered. The comment period ended on May 23, 2022 and final decision is expected in November 2022. The northern long-eared bat is a threatened species that is a medium-sized and medium to dark brown on the back and tawny to pale-brown on the underside. The species is distinguished by its long ears. During the winter months, the northern long-eared bat can be found hibernating in caves and mines. They use areas in various sized caves or mines with constant temperatures, high humidity, and no air currents. During the summer, northern long-eared bats roost underneath bark and in cavities or in crevices of both live trees and dead trees. Individuals of the species have also been found rarely roosting in structures, like barns and sheds. Habitat conducive to seasonal occupation for northern long-eared bat is located within the PSA. The PSA contains potentially suitable summer roosting and foraging habitat for this species within forested areas. The preferred winter hibernation habitat for this species does not exist within the PSA or its immediate vicinity. As discussed in further detail in Section 2.5, a total of 20 bats (18 Rafinesque's big-eared bat and 2 unidentified bats) were found in box culverts in the project site during a day roost survey in September 2022. **While the forested areas onsite are considered suitable habitat, the narrow nature of these areas is a limiting factor for the suitability of this habitat. No northern long-eared bats were identified during field surveys and there are no known populations or hibernacula within the PSA.**

2.4 Tricolored bat

On September 13, 2022, the USFWS issued a public notice proposing to list the tricolored bat as endangered. The comment period ends on November 14, 2022 and a final decision is expected within 12 months or sooner. The tricolored bat is a is small-sized bat weighing an average of 6 g (0.2 oz.). For their size they have large feet, 7.3-9.9 mm (0.29-0.39 in.). They are not as colorful as the term "tricolored" implies. Tri-color refers to the banding on the hairs; from the base to tip each hair appears dark, light and dark. Most pipistrelles are buff-yellowish but can appear brown. The radius bone visible through the skin appears pink. The face and ears also have a pinkish color. The tricolored bat is distributed throughout the state. These bats will use T-beam bridges, buildings, large culverts, mines, tunnels, caves, and hollow trees for roosts and have suitable habitat within the PSA. In winter these bats often use abandoned mines and caves, and they are abundant in the incomplete Blue Ridge Railroad tunnels. Although considered colonial bats, individuals are often not physically clumped together. While hibernating, tricolored bats hang singly but can be near conspecifics. Frequently they are covered in condensation while hibernating. During summer tricolored bats can be found under certain bridges and in buildings in the summer. In South Carolina, females often form small maternity colonies (3-5 individuals) in clusters of live or dead leaves in trees. Tricolored bats may switch roost sites in summer but their roosts are typically close together. There is a known colony of tricolored bats approximately 33 miles north from this project, along I-26. On this project, there are 4 large box culverts that serve as suitable habitat (**Appendix A, Figure 2**). While no tricolored bats were able to be positively identified during day roost surveys, a total of 20 bats were found within three box culverts in the PSA. Eighteen of these bats were identified as Rafinesque's big-eared bat (*Corynorhinus rafinesquii)* (see Section 2.5 for additional information). Two individuals could not be identified to species; however, they were confirmed to *not* be Rafinesque's big-eared bat. While the box culverts of this project are suitable habitat, existing overpasses or bridges within the PSA are too tall in height with high levels of sunlight present beneath the bridge to support roosting bats. Additionally, seams and gaps in the bridge that could support bats are not present. **In conclusion, there is potential for the tricolored bat to be present within the project site and suitable habitat is available.**

2.5 Rafinesque's big-eared bat (State endangered only)

While not a federally protected species, Rafinesque's big-eared bat is discussed here to provide clarity on bats that were identified within the PSA during field surveys. State of South Carolina endangered species are "wildlife whose prospects of survival or recruitment within the state are in jeopardy or are likely within the foreseeable future to become so" (South Carolina Code of Laws Section 50-15-10). State threatened species are "likely to become endangered and in need of management". The Rafinesque's big-eared bat

occurs in a variety of habitats within the southeastern United States and hibernate rather than migrate. Rafinesque's big-eared bats characteristically roost in dilapidated buildings or tree cavities near water and have been known to day roost under bridges and culverts. Day roost surveys were conducted on September 14, 2022 from 9:30 am to 4:00 pm. Approximately 18 bats were detected utilizing multiple box culverts within the PSA, demonstrating the suitability of these structures for use by bats. Existing overpasses or bridges within the PSA are too tall in height with high levels of sunlight present beneath the bridge to support roosting bats. Additionally, seams and gaps in the bridge that could support bats are not present. Known habitat for Rafinesque's big-eared bat is present within the PSA. Specifically, roosting and day roosting habitat for the bat may exist in tree cavities near waterbodies and structures. **Suitable habitat exists for Rafinesque's big-eared bat and they have been documented roosting inside box culverts within the PSA.** However, state listed species are not provided protection under the federal ESA.

Rafinesque's big-eared bats roosting in a box culvert on I-26. September 14, 2022

2.6 Canby's dropwort

Canby's dropwort is an endangered perennial herbaceous plant with tuberous roots and pale, fleshy rhizomes and erect stems up to 39 inches tall. The flowers are small and white with five petals that grow in umbels or flat-topped clusters. Canby's dropwort grows in wide range of habitats, including moist areas in the coastal plain and sandhills, wet meadows, wet pineland savannas, ditches, sloughs, and around the edges of Cypress-pine ponds. The plant seems to be more prolific when the habitat has been burned. **Suitable habitat for Canby's dropwort exists within ditches and other open wet areas (i.e., grass and sedge fields) located within the PSA. Surveys were conducted during the flowering period and this species was not observed.**

2.7 Pondberry

Pondberry is an endangered deciduous shrub that grows up to six feet tall and spreads by underground stolons. The leaves are ovately to elliptically shaped, thin, membranaceous and drooping and have a strong sassafras-like odor when brushed. The flowers are pale yellow and bloom in the spring before the appearance of leaves. Fruits are bright red and oval-shaped and mature in the fall. Pondberry generally occupies wetland habitats that are normally flooded or saturated during the dormant season, but infrequently flooded during the growing season for extended periods. The plant is typically associated

with bottomland hardwoods in the inner coastal plain, and margins of sinks, ponds, and other depressions in the outer coastal plain. **Suitable habitat for pondberry exists within freshwater depressional wetlands and along the margins of ponds located within the PSA. Surveys were conducted and this species was not observed.**

2.8 Gopher tortoise

The gopher tortoise is listed as a candidate species and is not currently protected by the ESA. The gopher tortoise is one group of North American land tortoises that originated 60 million years ago. The gopher tortoises burrow and these burrows are often utilized by other species within an ecosystem, making them a keystone species. These tortoises prefer dry-landscapes as well as forests of longleaf pine trees. They are found in south-western South Carolina down to the Florida peninsula. The gopher tortoise is diurnal and active any time of the year with activity peaking in May or June. The mating season for these tortoises is from April through November with peaks in August and September. **Suitable habitat for the gopher tortoise is not present within the PSA and gopher tortoises were not identified during field surveys.**

2.9 Monarch Butterfly

The monarch butterfly is listed as a candidate species and is not currently protected by the ESA. This invertebrate is among the most easily recognizable butterfly species in North America. The wings of these butterflies are a deep orange with black borders and veins with white spots along the edges. The underside of the wings is a pale orange. Monarch caterpillars are striped with yellow, black, and white bands and reach lengths of two inches or five centimeters. They are a migratory insect and have two populations within North America divided by the Rocky Mountains; the eastern population and the western population. The eastern population contains the majority of the monarch population. The eastern population travels to Mexico during the winter for the eastern population and around March the eastern population beings its journey north to southern Canada during the summer months. Monarch caterpillars feed exclusively on milkweed leaves and then evolve to feeding on nectar from a wide range of blooming native plants as adult butterflies. Milkweed is native to South Carolina and is not present in PSA. **Based on the lack of milkweed in the PSA, suitable habitat is not present for the monarch caterpillar or butterfly.**

2.10 Atlantic Sturgeon

Atlantic sturgeon is listed as endangered and is protected under the ESA. Atlantic sturgeon is among the longest-lived fish with a lifespan approaching 50 years or greater. The Atlantic sturgeon is also the largest fish inhabiting freshwaters on the Atlantic Coast. These fish are shaped like sharks and have a deeply

forked tail in which the upper lobe is longer than the lower. A single small dorsal fin is located far back toward the tail and a single anal fin is directly beneath on the underside. Coloration is dark bronze to brownish, lighter on the sides and white below. This fish is a benthic feeder and primarily prey on small invertebrates. **There is no suitable habitat within the PSA for the Atlantic sturgeon.**

2.11 Shortnose Sturgeon

Shortnose sturgeon (*Acipenser brevirostrum*) is listed as endangered under the ESA. The shortnose sturgeon are smaller than their Atlantic sturgeon counterpart. They have a similar age range of 50 years or greater. These fish are also similar in build in that they are also shaped like sharks and have a deeply forked tail in which the upper lobe is longer than the lower. They single small dorsal fin is located far back toward the tail and a single anal fin is directly beneath on the underside. Coloration is generally brownish above with pink or salmon tones, lighter on the sides, and white below. Due to the coloration the shortnose sturgeon is commonly referred to by fisherman as 'Salmon sturgeon'. This fish is a benthic feeder and primarily prey on small invertebrates. **There is no suitable habitat within the PSA for the shortnose sturgeon**.

2.12 Bald Eagle

Bald eagles were listed as endangered species in 1978. Bald eagles were removed from the endangered species list in August 2007 because their populations recovered sufficiently. Bald eagles are now protected under the MBTA and the BGEPA. The bald eagle gets its name from the distinctive white head of mature adults (6 years of age). Bald eagle breeding habitat is generally within approximately 2.5 miles of water bodies including rivers, lakes, reservoirs, bays, and other areas with abundant fish and/or waterfowl populations. Nesting areas usually occur in large tall trees able to support their four to six-foot-wide nests, and may be used year after year or may be alternated with another nest in successive years. Additionally, nesting sites are primarily chosen in areas with limited disturbance. Eggs are laid between October and March with clutch sizes of 1 to 3 eggs. Chicks usually fledge by 12 weeks but often remain in the same territory for an additional 6 weeks as they are still dependent on the adults for food. **Suitable habitat exists for the bald eagle; however, no birds or nests were present during surveys and the nearest known active eagle nest is 2.2 miles to the north.**

3. Environmental Baseline

The majority of PSA is comprised of existing roadway. Areas which are not developed were classified based upon vegetation and land form types. Vegetative terrestrial communities within the PSA were distinguished by dominant plant species and community types, location in the landscape, past

disturbances, and hydrologic characteristics. Only those habitats which were located directly within the PSA are characterized. The PSA was examined through current and historical Google Earth imagery, USDA ortho imagery, and USGS topographic maps to discern areas with similar signatures, and the data were verified and classified through on-site field review.

Specific surveys for commonly occurring wildlife species were not conducted; however, wildlife readily observed and documented during the field reviews, or those likely to occur within the PSA, are summarized below.

Common bird species either observed during field reviews or known to occur within the PSA include hooded merganser, barn swallow, European starling, black vulture, Canada goose, ring-necked duck, cedar waxwing, brown thrasher, horned lark, eastern bluebird, northern cardinal, indigo bunting, American golden-plover, Eastern towhee, Northern bobwhite, common ground dove, American crow, and red-headed woodpecker.

There are many common reptile and amphibian species that could occur in the PSA including American bullfrog, Eastern narrow mouth toad, green or bronze frog, green treefrog, little grass frog, pig frog, southern cricket frog, southern leopard frog, southern toad, squirrel treefrog, broadhead skink, eastern fence lizard, green anole, racer snake, ringneck snake, rat snake, corn snake, and slider turtle.

Common mammal species likely to occur in the PSA include white-tailed deer, striped skunk, raccoon, bats, cotton mouse, opossum, eastern gray squirrel, and eastern cottontail rabbit.

3.1 Aquatic and open water habitats:

3.1.1 Streams

A single freshwater unnamed stream traverses the PSA. Project activities such as roadway fill, culvert extension, and rip rap to reinforce the outlet of the box culverts would result in impacts to a portion of this stream.

3.1.2 Open Ponds

Open freshwater communities within the PSA include man-made ponds and naturalized borrow pits. These areas typically consist of open and deeper water within the central portion and vegetated, shallow water along the outer portion of the pond. Several man-made freshwater ponds exist throughout the study area and some are hydrologically connected to other wetlands or ditches. Plant species common to the shallow, vegetated portions of the ponds and borrow pits include black willow (*Salix nigra)*, wax

myrtle (*Morella cerifera)*, bladderwort (*utricularia macrorhiza),* duckweed (*Lemna* sp.), and various species of cattail (*Typha* sp.).

3.2 Terrestrial and mixed aquatic habitats:

3.2.1 Maintained Development

Maintained developments were classified as areas or regions which have altered the native state of the land for consumptive human use. Man-maintained and disturbed communities within the PSA also include roadside shoulders and utility rights of way. Most of the naturally-occurring plants associated with these maintained or disturbed communities have been eliminated and/or replaced with cultivated grasses or taken over by naturally occurring opportunistic species characteristic of disturbed areas. Most of the disturbed roadway edges are comprised of herbaceous species and sparse shrubs, including ragweed (*Ambrosia artemisiifolia*), various grasses such as common fescue (*Festuca* sp.), ryegrass (*Lolium perenne*), bahia grass (*Paspalum notatum*), and bluegrass (*Poa* sp.).

3.2.2 Mixed Pine/Hardwood Forest

Mixed pine/hardwood forest is a dominant community type located throughout the majority of the PSA. Dominant vegetation consists of pine species including loblolly pine (*Pinus taeda*) and pond pine (*Pinus serotina*). Hardwood species observed include sweetgum (*Liquidambar styraciflua*) and water oak (*Quercus nigra*). Smaller hardwood sapling species include sweetgum, sycamore (*Platanus occidentalis*), and wax myrtle. Groundcover and vine strata include blackberry (*Rubus* sp.), blueberry (*Vaccinium* sp.), greenbrier (*Smilax* sp.), poison ivy (*Toxicodendron radicans*) and partridge berry (*Michella repens*).

3.2.3 Scrub/ Shrub

Scrub shrub habitat is characterized as being cleared within the past five years. These areas do not have the established species found in the mixed hardwood forest but are not frequently mowed like roadsides and lawns. Notable areas include dry drainages, areas beneath overpasses and interchanges, and spaces that have been maintained in the past but have been allowed to lie fallow. These communities often include ruderal and non-native species. These species tend to be more widespread and occupy numerous habitat types. These areas include an early diverse array of herbaceous species within the initial phases of disturbance and transition towards the climax community, replacing primary colonizers. Species observed in the PSA include sweetgum, wax myrtle, blackberry , eastern baccharis (*Baccharis halimifolia*), Chinese privet (*Ligustrum sinense*), Autumn olive (*Eleagnus umbellata*), honey suckle (*Lonicera japonica*), broomsedge (*Andropogon sp.*), black cherry (*Prunus serotina*), and loblolly pine.

3.2.4 Freshwater Herbaceous Wetlands

This habitat type does not support woody vegetation but is characterized by a mix of herbaceous species often growing in standing or perennially moist soils. Cattail, wool grass (*Scirpus* sp.), sedges (*Carex* sp.), rushes (*Juncus* sp., *Eleocharis* sp.) were common in these areas. Margins of these open areas are often lined with sapling woody species such as alder (*Alnus serrulata*), birch (*Betula nigra*), and black willow.

3.2.5 Forested Wetlands

This is the most common wetland type throughout the site. These features have hydric soils and may or may not have evidence of periodic standing surface water. Canopy species are mixed hardwood with a sapling and shrub stratum. Ground cover may or may not be present. Notable species include: sweetgum, red maple and southern magnolia (*Magnolia grandiflora*) as canopy species with water oak and yaupon (*Ilex vomitoria*) composing a sampling stratum. Shrubs include Chinese privet, fetterbush (*Lyonia lucida*), and giant cane. Herbaceous species include rushes, and a mix of sedges. Vines such as greenbrier, poison ivy, and honey suckle were often observed in this habitat type.

3.2.6 Cypress-tupelo Wetlands

This is a mature forested habitat type characterized by an overstory of bald cypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*). Other species present include swamp tupelo (*Nyssa biflora*), red maple, swamp cottonwood (*Populus eterophylla*), sycamore, and Carolina ash (*Fraxinus caroliniana*). Shrub and herbaceous layers are less diverse or absent. This habitat type is open and may have standing water for all or part of the year.

4. Project Details

4.1 Construction

This project is expected to be delivered via the design build method and final construction and design plans would be prepared by the selected contractor and submitted to the SCDOT. While means and methods of construction may not be final, the following is an outline of the likely construction activities and project designs. This may vary slightly depending on the selected contractor. Changes from those proposed in this document that would result in greater impact effects to listed species would require additional coordination with SCDOT and federal agencies.

4.1.1 Roadway and Overpass Construction

Road construction generally entails the replacement of existing on and off exit ramps to reconstruct the interchange. In many areas these impacts would occur to upland-maintained habitat that is already

disturbed. In some areas, such as overpass approaches, additional habitat would be converted to road right of way.

4.1.2 Drainage and Box Culverts

Improvements to the drainage system would be provided with the interchange reconfiguration. In general, the existing drainage facilities are not proposed to change substantially. Existing parallel roadside ditches would remain or be reconstructed. To support longer-length or realigned on and off exit ramps, the box culverts that are beneath I-26 and I-95 (Appendix A, Figure 2: culverts 1 through 3) would need to be extended. This would include lengthening the existing box culverts and also adding class B or class C rip rap at the outlets to provide stability and reduce erosion. The dirt frontage road culvert (Appendix A, Figure 2: culvert 4) would potentially be reconstructed, as the frontage road would be realigned to allow for the inclusion of a new off ramp from I-26 westbound to I-95 northbound.

4.1.3 Project Timeline

Construction is expected to begin in late 2024, and is expected to last approximately three years. This project is expected to be delivered via the design build process and final construction sequencing would be determined by the contractor. The following is an outline of the likely construction sequence and may vary slightly depending on the selected contractor. Changes from those proposed in this submittal by the contractor that would result in greater impact effects to listed species would require additional coordination with SCDOT and federal agencies.

4.1.4 Site Preparation

After additional right-of-way is acquired and surveys are conducted, utility relocation work would begin. Site clearing and grubbing would be necessary for some areas outside of the already maintained right-of-way. Grading of slopes would be required and would follow the established Stormwater Pollution Prevention Plan (SWPPP).

4.1.5 Construction Access and Staging

Areas for staging, laydown, and equipment would be sited outside of aquatic habitats. Materials will be stored in designated upland areas and only clean fills and materials will be utilized for construction per SCDOT standard specs. Best management practices (BMPs), along with other proven procedures would be implemented to mitigate potential temporary impacts from construction. In addition, detailed engineering and construction plans would be developed for the Preferred Alternative, which would specify procedures to mitigate potentially adverse impacts.

4.1.5 Potential Impacts on Water Quality

Areas for staging, laydown and equipment would be sited outside of aquatic habitats. Construction activities that are outside of aquatic habitats may still have the potential to impact water quality. As soils are disturbed, the movement of loose sediment that may contain pollutants downslope into ditches and other water bodies is possible. To eliminate or reduce sedimentation and turbidity SCDOT has specifications or BMPs available for the following elements: silt fence, sediment basins, drainage ditches, sediment tubes, sandbag/straw barriers, slope drains, hydroseeding, hydraulic mulching, geotextile matting, and inlet/outlet protection.

Additionally, construction equipment has the potential to release petroleum products like oil, fuel, and hydraulic fluid. As part of the environmental compliance plan, measures will be implemented to reduce and minimize potential impacts to water quality like containment areas of fuel storage, clean up procedures for spills, and the development of a Spill Pollution Prevention Plan.

BMPs, along with other proven procedures would be implemented to mitigate potential temporary impacts from construction. In addition, detailed engineering and construction plans would be developed for the Preferred Alternative, which would specify procedures to mitigate potentially adverse impacts.

4.2 Operations and Maintenance

Once construction is complete, much of the operations and maintenance of the roadway would take place in upland, maintained roadside habitat. Tasks such as routine mowing, guard rail repairs, road surface repairs, and stormwater infrastructure maintenance would be needed. Routine maintenance is expected on the existing and proposed new overpasses including sanding/painting, deck resurfacing, and surface patching. SCDOT Maintenance would utilize BMPs to limit sediment and non-point source runoff resulting from maintenance activities. Drainage structures along the interstates would be maintained to include routine cleaning of existing structures such as box culverts, as well as other drainage features such as cross line pipes, pipe inlets, and roadside ditches. Permanent drainage detention structures are not currently proposed or anticipated to be needed for the interchange improvements.

5. Project Action Area

5.1 Project Action Area

The action area, as defined under 50 CFR §402.02, includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The project roadway action area includes approximately 482 acres, as shown in **Appendix A, Figure 1**.

5.2 Limits of an Action Area

The limits of the action area are within the PSA. The action area may be slightly modified again as the design team begins final road, bridge, and drainage design. Any activities that could potentially impact protected species, other than those already outlined in this document may require additional Section 7 coordination.

6. Effects Analysis

6.1 Direct and Indirect Effects

Direct and indirect effects to species would be avoided and minimized to maximum extent practicable. In the case of all wildlife species except bats, the anticipated direct impacts are to potential foraging habitat. Roosting habitat for bats would be temporarily impacted. Generally, secondary or indirect impacts are induced by the initial action. They may be comprised of a variety of effects such as changes in land use, development patterns, water quality, wildlife habitat, and other natural systems. Transportation projects may influence development in localized areas and have environmental impacts resulting from land use changes, however the interchange reconstruction would not change existing access and development is not expected to vary. Risk factors include being struck by construction equipment or materials, construction-associated noise and turbidity, temporary or permanent loss of habitat, and temporary disruption of behavior patterns. In the case of endangered species, surveys were conducted within the survey window and no protected species were identified. In the case of the plant species, surveys were conducted within the survey window and no protected species were identified. Potential impacts are as listed:

American wood stork: There are no known wood stork rookeries within the PSA, none were found during surveys, and no birds were present during field surveys. The proposed project may affect wood stork potential foraging habitat. While impacts would be minimized, areas of open waters and wetlands would be filled with widened bridge approaches and widened roadways. Foraging wood storks would likely avoid the construction area when activity and noise increases. The project area and surround habitats contain a system of wetlands and open ponds, which provide alternative feeding habitats nearby. **Therefore, the proposed project may affect, but is not likely to adversely affect American wood stork.**

Northern long-eared bat: Habitat conducive to seasonal occupation for northern long-eared bat is located within the PSA. The PSA contains potentially suitable summer roosting and foraging habitat for this species within forested areas. The preferred winter hibernation habitat for this species does not exist within the PSA or its immediate vicinity. In addition, the narrow range of forested woodlands within the

PSA is a limiting factor to its suitability for this species. No northern long-eared bats were identified during September 2022 field surveys and there are no known populations or hibernacula within the PSA. Surveys have not been conducted in the winter months. The site has been documented as being suitable for bat species, particularly within large box culverts. **Therefore, the proposed project may affect, but is not likely to adversely affect the Northern long-eared bat.**

Tricolored bat: Habitat conducive to seasonal occupation for the tricolored bat is located within the PSA. The PSA contains potentially suitable summer roosting and foraging habitat for this species within forested areas. No tricolored bats were identified during September 2022 field surveys and there are no known populations within the PSA. Surveys have not been conducted in the winter months. The site has been documented as being suitable for bat species, particularly within large box culverts and tricolored bats have been documented utilizing large interstate box culverts in South Carolina. **Therefore, the proposed project may affect, but is not likely to adversely affect the tricolored bat.**

Rafinesque's big eared-bat: Habitat conducive to seasonal occupation for Rafinesque's big-eared bat is located within the PSA. The PSA contains potentially suitable roosting and foraging habitat for this species within forested areas and box culverts. Approximately 18 Rafinesque's big-eared bats were identified during September 2022 field surveys. These Rafinesque's big-ear bats were found within three of the four culverts within the PSA. **Therefore, the proposed project may affect, but is not likely to adversely affect the state endangered Rafinesque's big-eared bat.**

Canby's dropwort: This plant grows in moist areas in the coastal plain and sandhills, including wet meadows, wet pineland savannas, ditches, sloughs, and around the edges of Cypress-pine ponds. Canby's dropwort seems to be more prolific when the habitat has been burned. Suitable habitat for Canby's dropwort exists within ditches and other open wet areas (i.e., grass and sedge fields) located within the PSA. Surveys were conducted during the flowering period and the Canby's dropwort was not observed. **Therefore, the proposed project will have no effect on Canby's dropwort.**

Pondberry: This plant is typically associated with bottomland hardwoods in the inner coastal plain, and margins of sinks, ponds, and other depressions in the outer coastal plain. Suitable habitat for pondberry exists within the limited amount of forested bottomland hardwoods located within the PSA. Surveys were

conducted pondberry was not observed. **Therefore, the proposed project may affect, but is not likely to adversely affect pondberry.**

Bald Eagle: Habitat conducive for nesting and foraging within the PSA. The PSA has suitable trees for nesting in with limited disturbance as well as foraging ponds. No bald eagles have been observed in the PSA with the closest nest being 2.2 miles north. The proposed project may affect bald eagle foraging habitat. While impacts would be minimized, areas of open waters and wetlands would be filled with widened bridge approaches and widened roadways. Foraging bald eagles would likely avoid the construction area when activity and noise increases. The project area and surround habitats contain a system of wetlands and open ponds, which provide alternative feeding habitats nearby. **Therefore, the proposed project will have no impact on bald eagles.**

6.2 Interrelated and Interdependent Actions and Activities

Interrelated and interdependent actions are those that are part of a larger action and depend on the larger action for their justification. There are no related or dependent actions to the I-26 at I-95 Interchange Improvement project.

6.3 Migratory Bird Treaty Act

The federal MBTA 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The migratory bird species protected by the Act are listed in 50 CFR 10.13. The USFWS have statutory authority and responsibility for enforcing the MBTA (16 U.S.C. 703–712). Any activity which results in the take of migratory birds is prohibited unless authorized by the USFWS.

Ground nests, arboreal nests, and nests built on man-made structures could occur within the project area. Active nests of both the barn swallow (*Hirundo rustica*) were documented on overpasses along I-26. Additionally, nesting migratory birds in the surrounding vegetated areas are likely.

7. Effect Determinations

This section includes effect determinations to listed species or those that may become listed in the relatively near future (**Table 2**). Of the seven endangered species, there would be no effect to red-cockaded woodpecker, Canby's dropwort, Atlantic sturgeon, or shortnose sturgeon. The project may affect, but is not likely to adversely affect American wood stork, northern long-eared bat, or pondberry.

Regarding the species that may be listed in the future (tricolored bat), the project may affect, but is not likely to adversely affect this bat.

While Rafinesque's big-eared bat is not protected federally, because of suitable habitat for other bat species and the known presence of Rafinesque's big-eared bat, this species was analyzed. The project may affect, but is not likely to adversely affect Rafinesque's big-eared bat.

An ESA Section 7 project affect determination on bald eagle is not necessary as the species is no longer protected by the ESA and does not require Section 7 consultation. As proposed, there would be no impacts to bald eagle.

Table 2. Protected or At-Risk Species Effect Determinations

Species	Protection Status	Biological Conclusion
Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Endangered	No effect
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No effect
Canby's dropwort (*Oxypolis canbyi*)	Endangered	No effect
Pondberry (*Lindera melissifolia*)	Endangered	May Affect, Not Likely to Adversely Effect
American wood stork (*Mycteria americana*)	Threatened	May Affect, Not Likely to Adversely Affect
Red-cockaded woodpecker (*Picoides borealis)*	Threatened	No effect
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	May Affect, Not Likely to Adversely Effect
Tricolored bat (*Perimyotis subflavus)*	Threatened	Presumed Conclusion: May Affect, Not Likely to Adversely Effect
Rafinesque's big-eared bat (*Corynorhinus rafinesquii)*	State Endangered	May Affect, Not Likely to Adversely Affect
Bald Eagle *(Haliaeetus leucocephalus)*	Federally Protected	No impact

8. Conservation Measures and Environmental Commitments

Steps should be taken to avoid impacts existing structures such as large culverts to minimize the potential to impact bats.

The SCDOT commits to implementing the following conservation measures, or actions, to minimize or compensate for effects to each species:

- Follow SCDOT Best Management Practices during construction
- Obtain NPDES permit and prepare a Stormwater Pollution Prevention Plan
- Obligations under Section 7 of the Endangered Species Act must be considered if (1) new information reveals impacts associated with this project may affect listed species or critical habitat in a manner not previously considered, (2) the project is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the proposed improvements."

To avoid impacts to nesting birds, the contractor shall notify the Resident Construction Engineer (RCE) at least four weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using structures. After this coordination, it would be determined when construction/demolition/maintenance can begin. If a nest is observed that was not discovered after construction/demolition/maintenance has begun, the contractor will cease work and immediately notify the RCE, who will notify the ESO Compliance Division. The ESO Compliance Division will determine the next course of action. The use of any deterrents by the contractor designed to prevent birds from nesting, shall be approved by the RCE with coordination from the ESO Compliance Division.

9. References

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SCDNR. 2020. South Carolina Bat Conservation Plan: Chapter 3 Species Accounts. Available at: https://www.dnr.sc.gov/wildlife/bats/SCBatConservationPlanIntro.pdf (Accessed August 2022).

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USFWS. 2022. Occurrences of Federally Threatened, Endangered, and Candidate Animal Species in South Carolina. https://www.fws.gov/office/south-carolina-ecological-services/library

USFWS. 2014. Endangered and Threatened Wildlife and Plants; Reclassification of the U.S. Breeding Population of the Wood Stork from Endangered to Threatened. Department of the Interior. Federal Register/Vol. 79, No. 125.

USFWS. 2010a. Canby's Dropwort (*Oxypolis canbyi*) 5 Year Review. Summary and Evaluation. p. 17. http://ecos.fws.gov/docs/five_year_review/doc3282.pdf

USFWS. 1997. Revised Recovery Plan for the US Breeding Population of the Wood Stork. https://www.fws.gov/northflorida/WoodStorks/Documents/19970127_rpp_Wood-stork-recovery-plan-1997.pdf

Appendix A

Figure 1 Location Map

Figure 2 Box Culverts Within the Project Study Area

South Carolina Department of Transportation

Legend

Project Study Area (446.53 Acres)

0 1,500 3,000 Feet

I-26 and I-95 Interchange Reconfiguration Design Build
Orangeburg and Dorchester Counties
SCDOT P038677

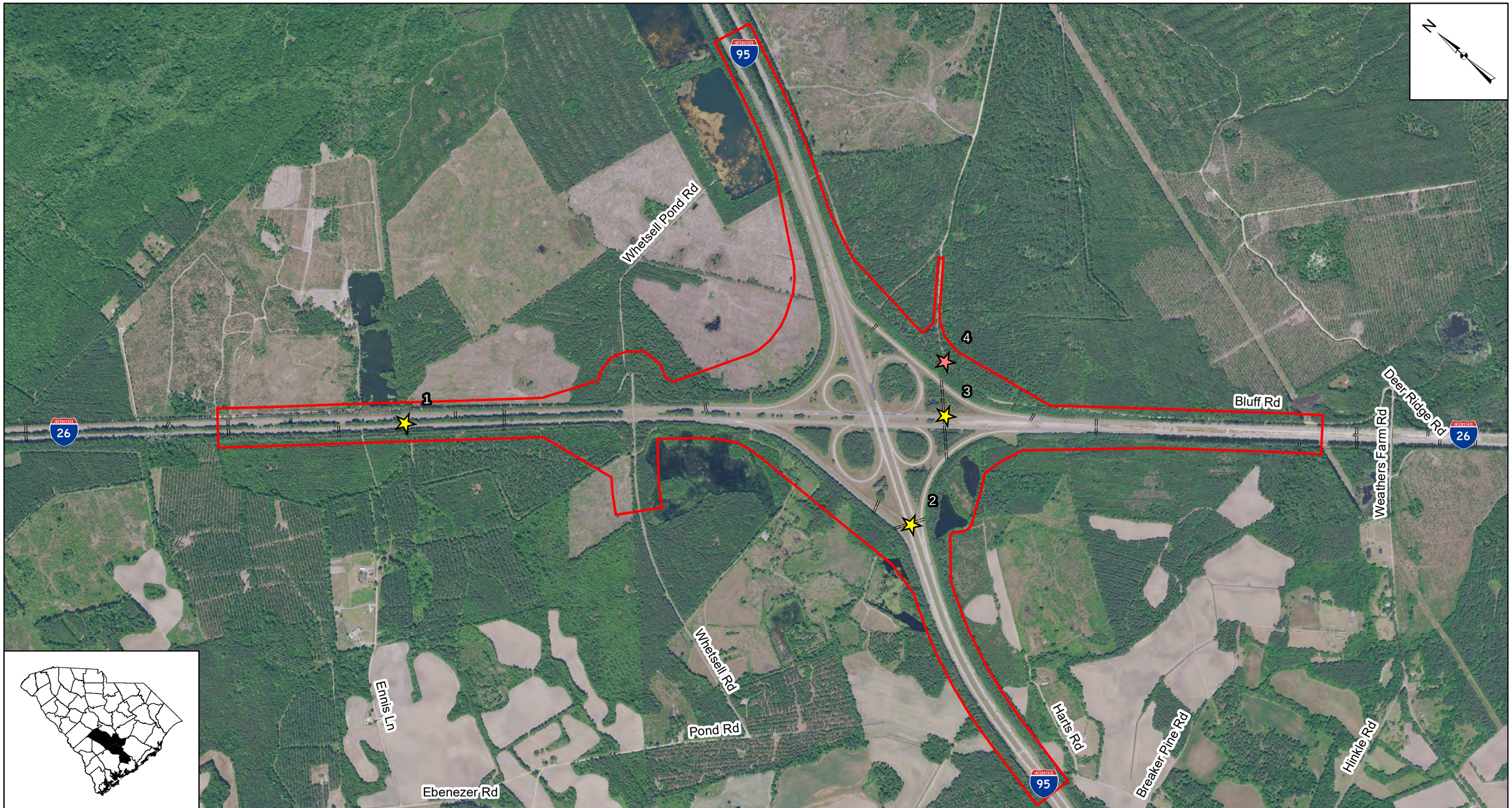
Source:
USDA Orthoimagery

2021

Drawn By: JLS
QA/QC: KLM

September 2022

Project Study Area



South Carolina Department of Transportation

Legend

- Project Study Area (446.53 Acres)
- No bats detected in box culvert to-date
- Bats roosting in box culvert
- ===== Existing Culvert

0 1,500 3,000 Feet

I-26 and I-95 Interchange Reconfiguration Design Build
Orangeburg and Dorchester Counties
SCDOT P038677

Source:
USDA Orthoimagery

2021

Drawn By: JLS
QA/QC: KLM

September 2022

Box Culverts within the Project Study Area

Appendix B

USFWS Orangeburg and Dorchester Counties Species Lists

ORANGEBURG COUNTY

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
Amphibian	Gopher frog (ARS)	*Lithobates capito*	Breeding: October-March	Call survey: February-April
Bird	American wood stork (T)	*Mycteria americana*	February 15-September 1	Nesting season
Bird	Bald eagle (BGEPA)	*Haliaeetus leucocephalus*	October 1-May 15	Nesting season
Bird	Red-cockaded woodpecker (E)	*Picoides borealis*	March 1-July 31	Nesting season
Fish	Atlantic sturgeon* (E)	*Acipenser oxyrinchus**	February 1-April 30	Spawning migration
Fish	Shortnose sturgeon* (E)	*Acipenser brevirostrum**	February 1-April 30	Spawning migration
Insect	Monarch butterfly (C)	*Danaus plexippus*	August-December	Overwinter population departs; March-April
Mammal	Tri-colored bat (ARS)	*Perimyotis subflavus*	Year round	Found in mines and caves in the winter
Plant	Boykin's lobelia (ARS)	*Lobelia boykinii*	May-August	
Plant	Canby's dropwort (E)	*Oxpolis canbyi*	Mid-July-September	
Plant	Carolina-birds-in-a-nest (ARS)	*Macbridea caroliniana*	July-November	
Reptile	Eastern diamondback rattlesnake (ARS)	*Crotalus adamanteus*	Most of the year	Peak: April-November

Note: There are no federally protected species found in this county in the crustacean and mollusk family categories.

DORCHESTER COUNTY

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
Amphibian	Gopher frog (ARS)	*Lithobates capito*	Breeding: October-March	Call survey: February-April
Bird	American wood stork (T)	*Mycteria americana*	February 15-September 1	Nesting season
Bird	Bald eagle (BGEPA)	*Haliaeetus leucocephalus*	October 1-May 15	Nesting season
Bird	Red-cockaded woodpecker (E)	*Picoides borealis*	March 1-July 31	Nesting season
Fish	Atlantic sturgeon* (E)	*Acipenser oxyrinchus**	February 1-April 30	Spawning migration
Fish	Shortnose sturgeon* (E)	*Acipenser brevirostrum**	February 1-April 30	Spawning migration
Insect	Monarch butterfly (C)	*Danaus plexippus*	August-December	Overwinter population departs; March-April
Mammal	Northern long-eared bat (T)	*Myotis septentrionalis*	Year round	Winter surveys not as successful
Mammal	Tri-colored bat (ARS)	*Perimyotis subflavus*	Year round	Found in mines and caves in the winter
Plant	Bog asphodel (ARS*)	*Narthecium americanum*	June-July	
Reptile	Eastern diamondback rattlesnake (ARS)	*Crotalus adamanteus*	Most of the year	Peak: April-November
Reptile	Gopher tortoise (C)	*Gopherus polyphemus*	April 1-October 31	Active period
Reptile	Spotted turtle (ARS)	*Clemmys guttata*	February-mid April	

Note: There are no federally protected species found in this county in the crustacean and mollusk family categories.

Appendix C

IPaC Verification Letter and Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
Phone: (843) 727-4707 Fax: (843) 727-4218

In Reply Refer To: September 27, 2022
Project code: 2022-0089182
Project Name: I-26 at I-95 Interchange Improvement Project

Subject: Verification letter for the 'I-26 at I-95 Interchange Improvement Project' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Asha Wallace:

The U.S. Fish and Wildlife Service (Service) received on September 27, 2022 your effects determination for the 'I-26 at I-95 Interchange Improvement Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Canby's Dropwort *Oxypolis canbyi* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Pondberry *Lindera melissifolia* Endangered
- Red-cockaded Woodpecker *Picoides borealis* Endangered
- Wood Stork *Mycteria americana* Threatened

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

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[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

I-26 at I-95 Interchange Improvement Project

2. Description

The following description was provided for the project 'I-26 at I-95 Interchange Improvement Project':

> The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 Interchange located in Orangeburg and Dorchester Counties.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.3207441,-80.54801687625113,14z

Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require

ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully **Take** northern long-eared bats?

   No

4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/media/nleb-roost-tree-and-hibernacula-state-specific-data-links-0.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

   No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

    No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

443

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC User Contact Information

Agency: Civil Engineering Consulting Services
Name: Asha Wallace
Address: 2000 Park Street
Address Line 2: Unit 201
City: Columbia
State: SC
Zip: 29210
Email wallacea@cecsinc.com
Phone: 8037790311

Lead Agency Contact Information

Lead Agency: Department of Transportation

Appendix D

USFWS Ecological Services Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
Phone: (843) 727-4707 Fax: (843) 727-4218

In Reply Refer To: September 27, 2022
Project Code: 2022-0089182
Project Name: I-26 at I-95 Interchange Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Northern Long-eared Bat: Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and

recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707

Project Summary

Project Code: 2022-0089182
Project Name: I-26 at I-95 Interchange Improvement Project
Project Type: Government / Municipal (Non-Military) Construction
Project Description: The South Carolina Department of Transportation (SCDOT) proposes to improve the I-26 at I-95 Interchange located in Orangeburg and Dorchester Counties.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.3207441,-80.54801687625113,14z

Counties: Dorchester and Orangeburg counties, South Carolina

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Red-cockaded Woodpecker *Picoides borealis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered
Wood Stork *Mycteria americana* Population: AL, FL, GA, MS, NC, SC No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8477	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Canby's Dropwort *Oxypolis canbyi*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7738	
Pondberry *Lindera melissifolia*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1279	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jul 15
Henslow's Sparrow *Ammodramus henslowii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds elsewhere
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 15
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Swallow-tailed Kite *Elanoides forficatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8938	Breeds Mar 10 to Jun 30
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

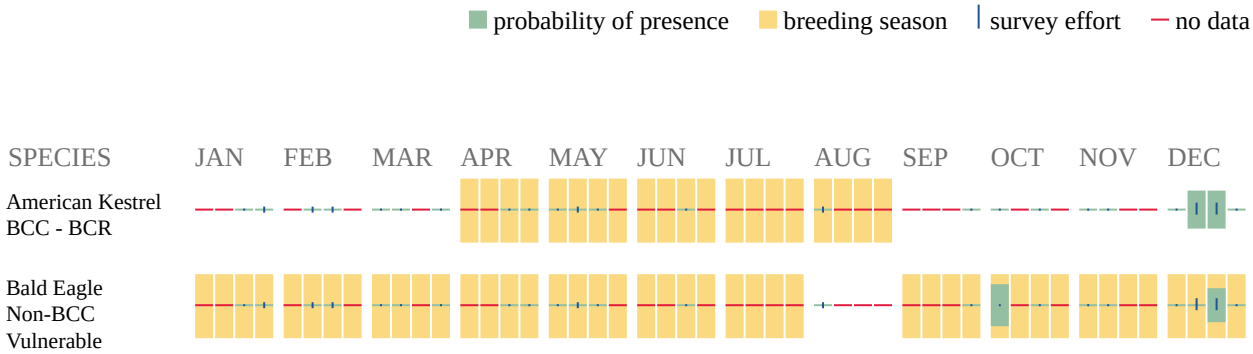
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

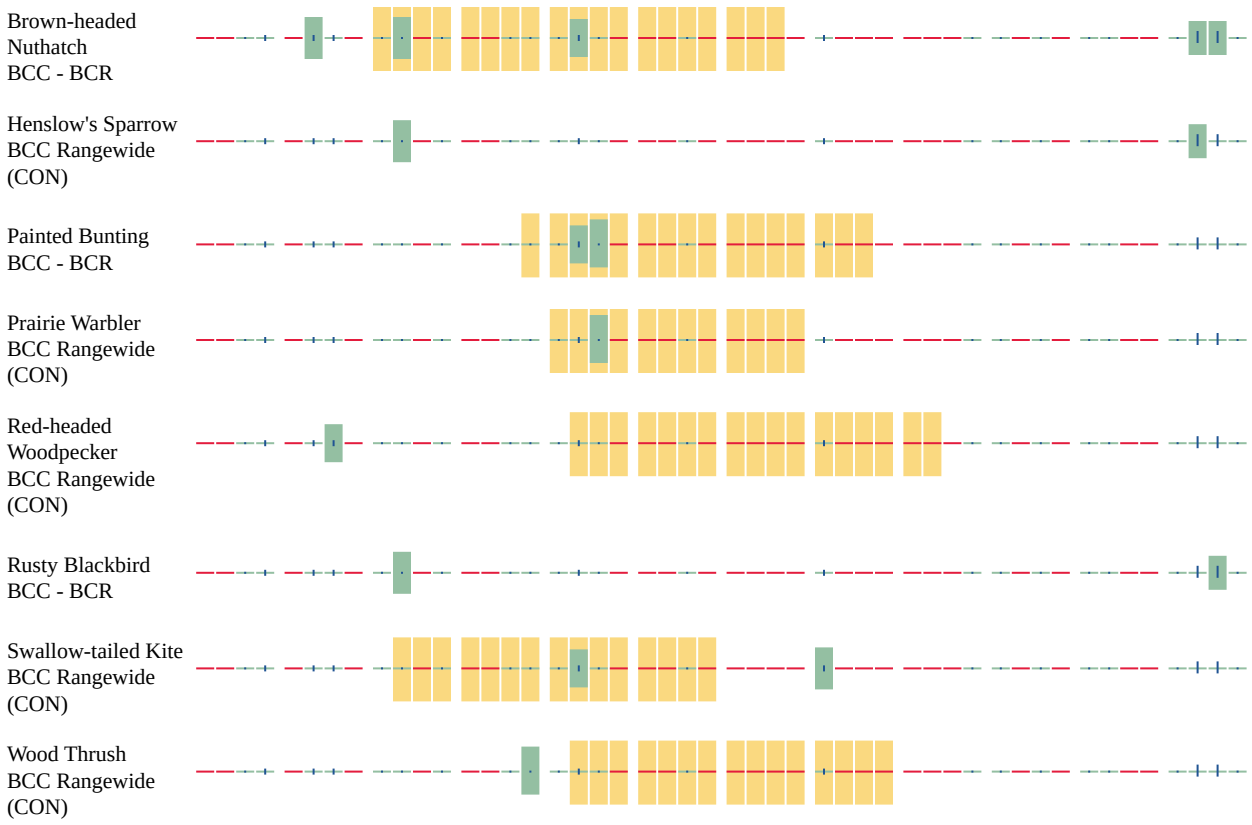
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles)

potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

LAKE

- Lacustrine

FRESHWATER POND

- Palustrine

RIVERINE

- Riverine

IPaC User Contact Information

Agency:	Civil Engineering Consulting Services
Name:	Asha Wallace
Address:	2000 Park Street
Address Line 2:	Unit 201
City:	Columbia
State:	SC
Zip:	29210
Email	wallacea@cecsinc.com
Phone:	8037790311

Lead Agency Contact Information

Lead Agency: Department of Transportation

Appendix J

Farmland Impact Conversion Rating Form

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request **11/16/22**	4. Sheet 1 of **1**
1. Name of Project **I-26/I-95 Improvement Project**	5. Federal Agency Involved **SCDOT**	
2. Type of Project **Interchange Improvement**	6. County and State **Orangeburg and Dorchester Counties**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐		4. Acres Irrigated / Average Farm Size
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction **Acres:** **%**	7. Amount of Farmland As Defined in FPPA **Acres:** **%**
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment ____			
	Corridor A	**Corridor B**	**Corridor C**	**Corridor D**
A. Total Acres To Be Converted Directly	**482**	**13**	**25**	**31**
B. Total Acres To Be Converted Indirectly, Or To Receive Services		**469**	**457**	**451**
C. Total Acres In Corridor	**482**	**482**	**482**	**482**
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*				
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — **Maximum Points**				
1. Area in Nonurban Use — 15	**15**	**15**	**15**	**15**
2. Perimeter in Nonurban Use — 10	**10**	**10**	**10**	**10**
3. Percent Of Corridor Being Farmed — 20	**0**	**0**	**0**	**0**
4. Protection Provided By State And Local Government — 20	**0**	**0**	**0**	**0**
5. Size of Present Farm Unit Compared To Average — 10	**0**	**0**	**0**	**0**
6. Creation Of Nonfarmable Farmland — 25	**0**	**0**	**0**	**0**
7. Availablility Of Farm Support Services — 5	**5**	**5**	**5**	**5**
8. On-Farm Investments — 20	**0**	**0**	**0**	**0**
9. Effects Of Conversion On Farm Support Services — 25	**0**	**0**	**0**	**0**
10. Compatibility With Existing Agricultural Use — 10	**0**	**0**	**0**	**0**
TOTAL CORRIDOR ASSESSMENT POINTS — 160	**30**	**30**	**30**	**30**
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100				
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	**30**	**30**	**30**	**30**
TOTAL POINTS *(Total of above 2 lines)* — 260	**30**	**30**	**30**	**30**

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
C	**64**	**11/16/22**	YES ☑ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

Appendix K

Asbestos and Lead-Based Paint Survey Report

I-95 Northbound Bridge Over I-26
Orangeburg County, South Carolina

Asbestos and Lead-Based Paint Survey Report

Structure # 381009510100
ARM Project #16-318-22

October 14, 2022

Prepared For:

Civil Engineering Consulting Services, Inc.
2000 Park Street, Suite 201
Columbia, South Carolina, 29201

___ Yes, Asbestos was found
_✓_ No, Asbestos was not found
_✓_ Yes, Lead-Based Paint was found
____ No, Lead-Based Paint was not found

Report Compiled By:

Robbie Robertson
ASBESTOS CONSULTANT/
BUILDING INSPECTOR
SCDHEC LICENSE #BI-01179

Report Reviewed By:

Sid Havird
ASBESTOS CONSULTANT/
BUILDING INSPECTOR
SCDHEC LICENSE #BI-00258

ARM ENVIRONMENTAL SERVICES

Table of Contents

ASBESTOS AND LEAD-BASED PAINT SURVEY

On September 15, 2022, ARM Environmental Services, Inc. performed an asbestos and lead-based paint survey at the I-95 northbound bridge over I-26 in Orangeburg County, South Carolina. The I-95 northbound bridge is located over I-26 (eastbound and westbound lanes) as shown in Appendix A, Figure 1. The site consists of a highway bridge and can be identified by bridge structure number 381009510100. The asbestos survey has been conducted in accordance with the Asbestos Hazard Emergency Response Act (AHERA) guidelines, as required by the Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (DHEC) prior to renovation or demolition of public or commercial structures. The lead-based paint survey was performed to identify lead-based paint (LBP) on the bridge.

BRIDGE MATERIALS

No construction records were available to determine the building materials used in construction of the structure. All accessible structural components including columns, piers, pier caps, bridge decks, beams, bridge shoes, end bents, railings and buffer materials were examined. Photographs of the site are shown in Appendix E.

The bridge deck of the structure consists of pre-cast concrete deck sections supported by concrete pier caps. The concrete pier caps, which run perpendicular to the bridge deck, are supported by concrete piers. Concrete and galvanized metal guardrails are located on the bridge structure. The bridge structure is estimated to be 315 feet long and 45 feet wide.

ASBESTOS SURVEY

Samples of the suspect materials were collected and submitted for laboratory analysis for Polarized Light Microscopy (PLM). One sample of each material was also collected for transmission electron microscopy (TEM) confirmation analysis in the event that the PLM analysis indicated less than 1 percent asbestos. The sample locations are shown in Appendix A, Figure 2. The results of the laboratory analysis are presented in Table 1 on the following page.

Table 1: Asbestos Sample Analytical Data

Sample Number	Material Description	Material Locations	Friable / Non-friable	Material Condition	Analytical Results*	Approx. Quantity
01-NB, 02-NB, 03-NB	Buffer Material at Steel Bridge Shoes	Between Concrete Pier Caps & Steel Bridge Shoes	Non-friable	Good	No Asbestos Detected	100 Square Feet
04-NB, 05-NB, 06-NB	Expansion Joint	Between Concrete Deck Sections	Non-friable	Good	No Asbestos Detected	225 Linear Feet

Asbestos Content: USEPA and SCDHEC regulations (No. 61-86.1) define asbestos containing material as any material greater than one percent asbestos. OSHA recommends that a negative exposure assessment (NEA) be conducted to establish appropriate personal protection equipment needed (if any) for all persons that might disturb asbestos materials.

Friable: Describes a material which, when dry, can be crumbled, pulverized, or reduced to powder with hand pressure.

The laboratory results are included in Appendix C of this report.

ASBESTOS CONCLUSIONS / RECOMMENDATIONS

An asbestos inspection was performed for a structure, the I-95 northbound bridge over I-26 in Orangeburg County, South Carolina. **The results of the asbestos survey indicate that none of the sampled materials contain asbestos.**

The results of this asbestos survey are limited to the sampled materials, which are considered to be representative of the homogeneous areas from which the samples were collected. **In the event that any suspect asbestos containing materials that were not addressed in this survey are encountered, the materials should be presumed to contain asbestos until laboratory analysis can be conducted.**

LEAD-BASED PAINT SURVEY

ARM personnel conducted a lead-based paint survey of accessible painted bridge materials at the I-95 northbound bridge on September 15, 2022. The LBP inspection was conducted using a Niton XLp-300A X-ray Fluorescence (XRF) Analyzer (Serial #110851) to measure the lead content of surface coatings on representative bridge building components. A homogenous bridge building component is a building material that is uniform in color, texture, and appears identical in every respect. EPA guidelines define lead-based paint as any paint

with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence. SCDHEC, Health Division defines lead-based paint as a coating containing lead in quantities ≥0.7 mg/cm2 (SCDHEC, Health Division definition #4-53-1320f). Any coated surfaces meeting or exceeding the SCDHEC limit of 0.7 mg/cm2 were considered lead-based paint for the purpose of this assessment since the structure may be slated for renovation or demolition. All waste debris coated with lead-based paint equal to or greater than 0.7mg/cm^2 must be disposed of in an approved Class II (C&D) or Class III (MSWLF) landfill or approved metal recycler.

The bridge structure is primarily composed of steel and concrete components, with the steel painted gray or white. It appears that this bridge may have been reconditioned at some point and repainted. **While the majority of XRF readings were negative for lead-based paint, there were two readings taken from a steel beam flange on the west underside where lead-paint was detected**. It's likely that this is a small area of remnant paint (approximately 3 square feet) that was missed following the abrasive blasting and repainting of the bridge. The materials sampled for lead-based paint included the steel beams, steel cross bracing, and steel bridge shoes. Results of the XRF analyses are summarized in Table 2 below.

Table 2: Bridge Building Material XRF Summary

Sample Number	Material Description	Material Location	Color	Material Condition	LEAD Content mg/cm^2
Reading 28 & 34	**Steel Beams**	**At Bridge West Underside**	**White**	**Peeling**	**1.30 & 4.00**
Reading 29-33	Steel Beams	At Bridge Underside	White	Peeling	Negative
Reading 35-38	Steel Beams	At Bridge Underside	White	Peeling	Negative
Reading 39-47	Cross Bracing	At Bridge Underside	Gray	Peeling	Negative
Reading 48-53	Bridge Shoes	At Bridge Underside	Gray	Intact	Negative
Reading 54-59	Steel Beams	At Bridge Underside	White	Intact	Negative

Lead Content: EPA guidelines define lead-based paint as any paint with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence. DHEC guidelines define lead-based paint as any paint with equal to or greater than 0.7 mg/cm^2 when measured by X-ray Fluorescence. The OSHA Lead in Construction Standard, 29 CFR 1926.62 is applied if any lead is present in the sample.

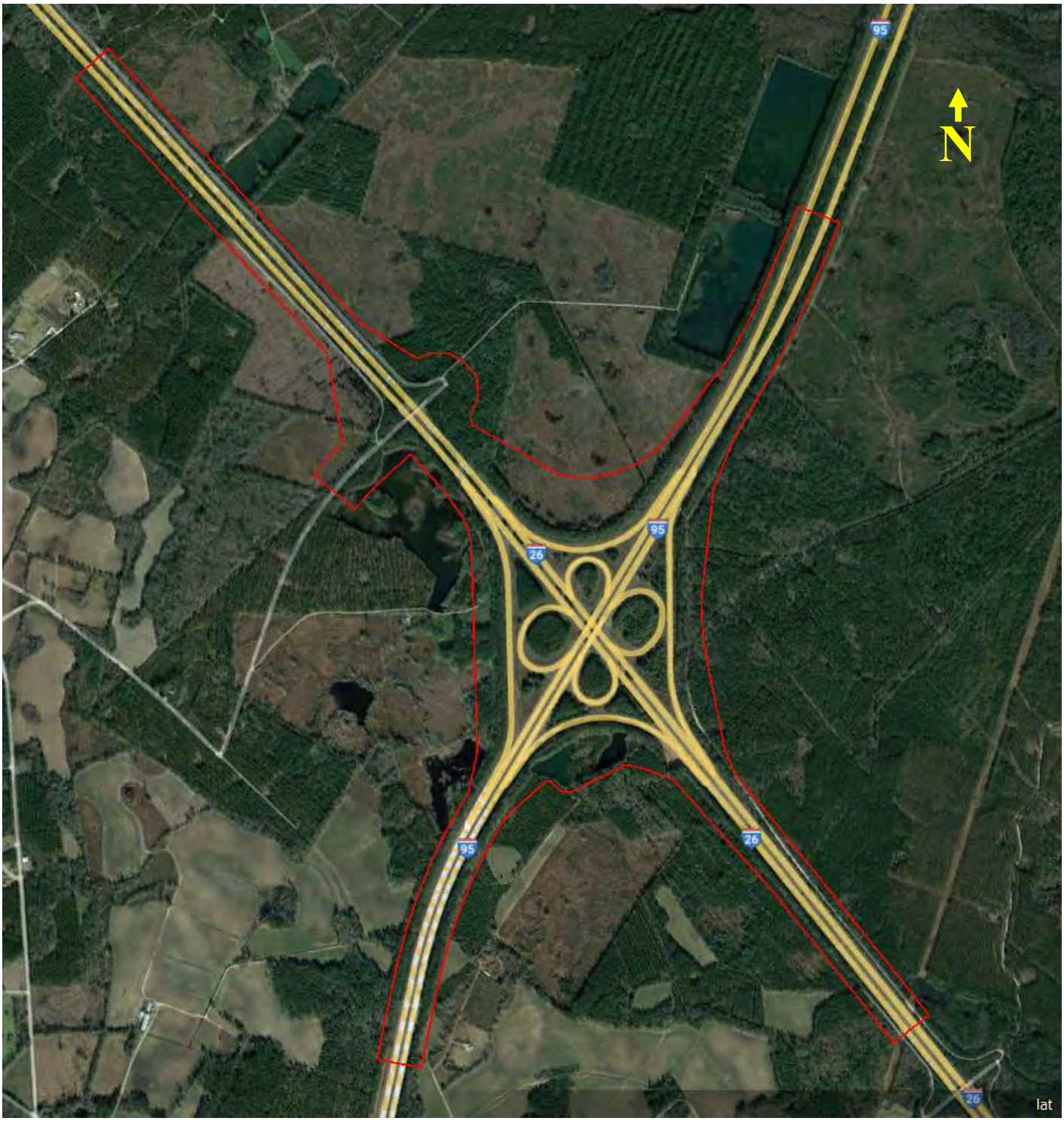
The XRF data results are presented in Appendix D. Photographs of the site are located in Appendix E.

LEAD-BASED PAINT CONCLUSIONS / RECOMMENDATIONS

A lead-based paint survey was performed for the I-95 northbound bridge over I-26 in Orangeburg County, South Carolina. **The results of the XRF analyses indicate that readings 28 and 34 (white steel beam flange at bridge's west underside) were positive for lead-based paint.** However, it is likely that the lead-based paint area is a small area (approximately 3 square feet) that was missed during abrasive blasting and repainting of the bridge structure. All other steel bridge components were found not to be coated with lead-based paint. In the event that any suspect painted materials not addressed in this survey are encountered, the materials should be presumed to be coated with lead paint until XRF or laboratory analysis can be conducted.

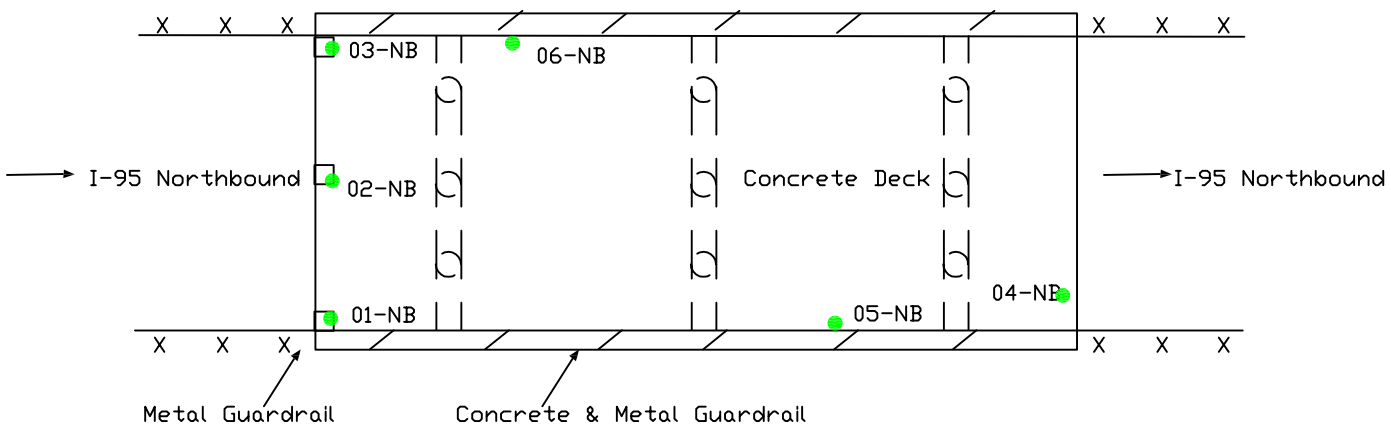
APPENDIX A

Figures

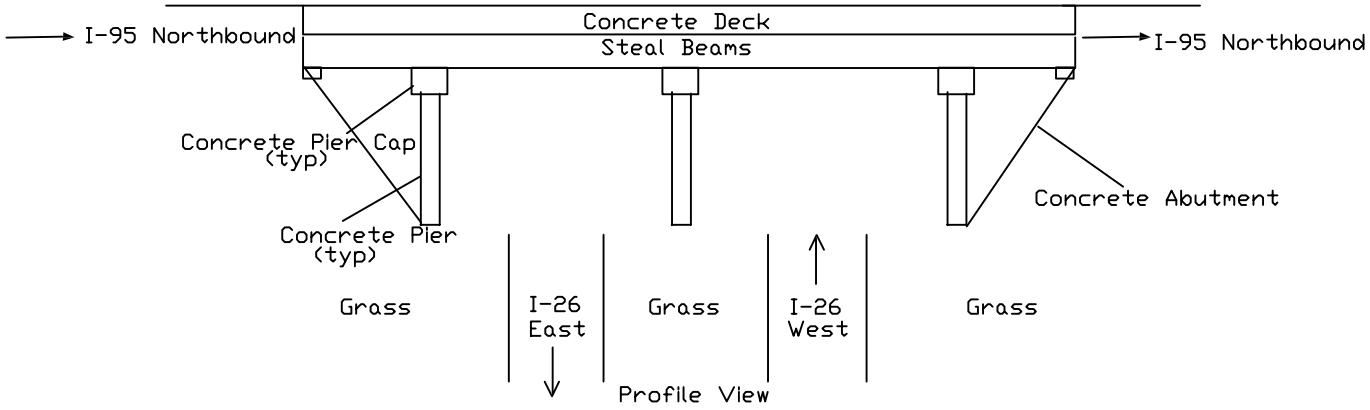


Project	***Figure 1***
Asbestos & Lead-Based Paint Survey I-95 Northbound Bridge Over I-26 Orangeburg County, South Carolina	Site Plan

Scale	***Date***	
No Scale	October 2022	ARM ENVIRONMENTAL SERVICES, INC.



Plan View



Profile View

PROJECT: Asbestos & Lead Based Paint Survey I-95 Northbound Bridge over I-26 Orangeburg County, South Carolina ARM Project # 16-318-22	DESCRIPTION: Site Plan Showing Sample Locations (Map Not To Scale)	**FIGURE 2** DATE: October 2022
ARM ENVIRONMENTAL SERVICES, INC.	REFERENCE: Field Notes	LEGEND: Negative Asbestos Sample = ● Positive Asbestos Sample = ▲

APPENDIX B

Licenses / Certifications

SCDHEC ISSUED
Asbestos ID Card

Robbie Robertson

		Expiration Date:
CONSULTBI	BI-01179	10/19/22
SUPERAHERA	SA-01861	10/18/22

ABS ENVIRONMENTAL

1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Robbie Robertson SSN xxx-xx-3715

This is to certify that the above named student has completed the requiste training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Chapin SC

Start Date October 20, 2021

Exam Date: October 20, 2021

Certificate Number:20211020Ab301-03

End Date October 20, 2021

Expiration Date October 19, 2022

Principal Instructor / Training Administrator - Lee Capell

10/20/2021
Date

SCDHEC ISSUED
Asbestos ID Card

Cyril O Havird Jr

		Expiration Date:
CONSULTBI	BI-00258	10/19/22
SUPERAHERA	SA-02162	10/18/22

ABS ENVIRONMENTAL

1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Sid Havird

SSN xxx-xx-4506

This is to certify that the above named student has completed the requiste training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Chapin SC

Certificate Number: 20211020Ab301-02

Start Date October 20, 2021

End Date October 20, 2021

Exam Date: October 20, 2021

Expiration Date October 19, 2022

Principal Instructor / Training Administrator - Lee Capell

10/20/2021
Date

APPENDIX C

Lab Results

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

Lab Code: B2212173
Date Received: 09-20-22
Date Analyzed: 09-21-22
Date Reported: 09-21-22

Project: I-95 NB Bridge Over I-26, Orangeburg County.

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
01-NB Layer 1 B2212173.1 Unable to separate.	Buffer Material (Coating)	Heterogeneous Gray-Silver Fibrous Bound	<1%	Cellulose	100%	Binder	None Detected
Layer 2 B2212173.1	Buffer Material	Homogeneous Black Non-fibrous Bound			100%	Binder	None Detected
02-NB Layer 1 B2212173.2 Unable to separate.	Buffer Material (Coating)	Heterogeneous Gray-Silver Fibrous Bound	<1%	Cellulose	100%	Binder	None Detected
Layer 2 B2212173.2	Buffer Material	Homogeneous Black Non-fibrous Bound			100%	Binder	None Detected
03-NB Layer 1 B2212173.3 Unable to separate.	Buffer Material (Coating)	Heterogeneous Gray-Silver Fibrous Bound	<1%	Cellulose	100%	Binder	None Detected
Layer 2 B2212173.3	Buffer Material	Homogeneous Black Non-fibrous Bound			100%	Binder	None Detected
04-NB B2212173.4	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
05-NB B2212173.5	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
06-NB B2212173.6	Expansion Joint Material	Homogeneous Dark Gray Non-fibrous Bound			100%	Binder	None Detected

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LEGEND:
Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

ANALYST: Shilpa Ladekar

APPROVED BY: Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

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September 22, 2022

ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

CLIENT PROJECT: I-95 NB Bridge Over I-26, Orangeburg County.
LAB CODE: T222495

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on September 21, 2022. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield/EPA 600/R-93/116 Sec. 2.5.5.1 method.

Sample results containing > 1% asbestos are considered asbestos-containing materials (ACMs) per the EPA regulatory requirements. The detection limit for the TEM Chatfield/EPA 600/R-93/116 Sec. 2.5.5.1 method is <1% depending on the processed weight and constituents of the sample.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

ARM Environmental Services

CLIENT PROJECT: I-95 NB Bridge Over I-26, Orangeburg County.

LAB CODE: T222495

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116 Sec. 2.5.5.1

REPORT DATE: 09/22/22

730 SE Maynard Road • Cary, NC 27511 • 919.481.1413

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

Lab Code: T222495
Date Received: 09-21-22
Date Analyzed: 09-22-22
Date Reported: 09-22-22

Project: I-95 NB Bridge Over I-26, Orangeburg County.

TEM BULK CHATFIELD / EPA 600 / R93 / 116 Sec. 2.5.5.1

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
01-NB T48645	Gray-silver Buffer Material (Coating)	0.0479	26.9	31.3	41.8	**None Detected**
01-NB T48646	Buffer Material	0.1832	65.1	33.3	1.6	**None Detected**
02-NB T48647	Gray-silver Buffer Material (Coating)	0.0407	21.4	29.5	49.1	**None Detected**
02-NB T48648	Buffer Material	0.245	67.8	31	1.2	**None Detected**
03-NB T48649	Gray-silver Buffer Material (Coating)	0.0431	42	30.2	27.8	**None Detected**
03-NB T48650	Buffer Material	0.2045	67.2	31.8	1	**None Detected**
04-NB T48651	Light Gray Expansion Material	0.3531	14.5	64.9	20.6	**None Detected**
05-NB T48652	Light Gray Expansion Material	0.4257	16.6	63.4	20	**None Detected**
06-NB T48653	Dark Gray Expansion Material	0.4325	24.4	59.9	15.7	**None Detected**

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LEGEND: None

METHOD: CHATFIELD & EPA/600/R-93/116 Sec. 2.5.5.1

LIMIT OF DETECTION: Varies with the weight and constituents of the sample (<1%)

REGULATORY LIMIT: >1% by weight

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. *Estimated measurement of uncertainty is available on request.* Samples were received in acceptable condition unless otherwise noted.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.
Eurofins CEI recommends between 0.500 and 0.200 grams of sample material. *Any weight below 0.100 grams is considered below protocol guidelines.*

ANALYST: Brunilda Gjoka
Brunilda Gjoka

APPROVED BY:
Tianbao Bai, Ph.D., CIH
Laboratory Director

(6)

eurofins | CEI

ASBESTOS
CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:
CEI Lab Code: B2212173 / T222495
CEI Lab I.D Range:

Company Information	Project Information
CEI Client #	Job Contact: Sid Havird, Robbie Robertson
Company: ARM Environmental Services	Email: shavird@armenv.com, rrobertson@armenv.com csmith@armenv.com
Address: 1210 First Street South Extension Columbia, SC 29209	Project Name: I-95 NB Bridge over I-26, Orangeburg County.
	Project ID#:
Email: armenv.com	PO #:
Tel: 803-783-3314 Fax: 803-783-2587	State Samples Collected In: SC

IF TAT IS NOT MARKED, STANDARD 3 DAY TAT APPLIES

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600			X			
TEM BULK	CHATFIELD			X			

Remarks/Special Instructions: Use positive stop. Run PLM first & if less than 1% run TEM confirmation on all NOB materials.

* Only run TEM if makeup of material requires it.

☑ Accept Samples

Positive Stop Needed: Yes / No

Date Sample: 9-15-22

☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
Robbie Robertson	9-15-22	[signature]	9-20-22 9:50

Samples will be disposed of 30 days after analysis

SAMPLE ID#	DESCRIPTION	LOCATION	TEST	
			PLM	TEM
01-NB	Buffer Material at bridge boots	I-95 SB Bridge over I-26	X	X
02-NB	Buffer Material at bridge boots	I-95 SB Bridge over I-26	X	X
03-NB	Buffer Material at bridge boots	I-95 SB Bridge over I-26	X	X
04-NB	Expansion Joint material	I-95 SB Bridge over I-26	X	X
05-NB	Expansion Joint material	I-95 SB Bridge over I-26	X	X
06-NB	Expansion Joint material	I-95 SB Bridge over I-26	X	X

APPENDIX D

XRF Data

Thermo
ELECTRON CORPORATION

NITON Corporation
900 Middlesex Turnpike
Billerica, MA 01821

Index	Time	Type	Sequenc	Component	Substra	Side	Condition	Color	Site	Room	Results	PbC
25	2022-09-15 09:21	PAINT	Final			CALIBRATE					Positive	1.10 ± 0.40
26	2022-09-15 09:22	PAINT	Final			CALIBRATE					Positive	0.90 ± 0.10
27	2022-09-15 09:22	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
28	2022-09-15 09:25	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Positive	4.00 ± 2.40
29	2022-09-15 09:27	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	-0.19 ± 0.88
30	2022-09-15 09:28	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Null	0.50 ± 0.20
31	2022-09-15 09:28	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Null	0.04 ± 0.03
32	2022-09-15 09:29	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
33	2022-09-15 09:29	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Null	0.60 ± 0.20
34	2022-09-15 09:30	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Positive	1.30 ± 0.40
35	2022-09-15 09:31	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.04 ± 0.03
36	2022-09-15 09:32	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Null	0.11 ± 0.06
37	2022-09-15 09:33	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.30 ± 0.19
38	2022-09-15 09:34	PAINT	Final	beam	steel	LEFT	PEELING	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
39	2022-09-15 09:35	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.02 ± 0.07
40	2022-09-15 09:35	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.02 ± 0.08
41	2022-09-15 09:36	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Negative	-0.79 ± 1.48
42	2022-09-15 09:37	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.02 ± 0.07
43	2022-09-15 09:37	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.01 ± 0.08
44	2022-09-15 09:38	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.00 ± 0.03
45	2022-09-15 09:38	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.02 ± 0.05
46	2022-09-15 09:38	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.00 ± 0.03
47	2022-09-15 09:39	PAINT	Final	cross bracing	steel	LEFT	PEELING	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
48	2022-09-15 09:41	PAINT	Final	bridge shoes	steel	RIGHT	INTACT	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.16 ± 0.06
49	2022-09-15 09:41	PAINT	Final	bridge shoes	steel	RIGHT	INTACT	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
50	2022-09-15 09:42	PAINT	Final	bridge shoes	steel	RIGHT	INTACT	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.26 ± 1.02
51	2022-09-15 09:42	PAINT	Final	bridge shoes	steel	RIGHT	INTACT	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.09 ± 0.10
52	2022-09-15 09:43	PAINT	Final	bridge shoes	steel	RIGHT	INTACT	gray	NB I95 Bridge over I26	OUTSIDE	Null	0.12 ± 0.06
53	2022-09-15 09:43	PAINT	Final	bridge shoes	steel	RIGHT	INTACT	gray	NB I95 Bridge over I26	OUTSIDE	Negative	0.04 ± 0.02
54	2022-09-15 09:44	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.02 ± 0.03
55	2022-09-15 09:45	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.03 ± 0.03
56	2022-09-15 09:46	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.03 ± 0.04

Thermo
ELECTRON CORPORATION

NITON Corporation
900 Middlesex Turnpike
Billerica, MA 01821

Index	Time	Type	Sequenc	Component	Substra	Side	Condition	Color	Site	Room	Results	PbC
57	2022-09-15 09:46	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.20 ± 0.44
58	2022-09-15 09:46	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.04 ± 0.07
59	2022-09-15 09:49	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	NB I95 Bridge over I26	OUTSIDE	Negative	0.03 ± 0.02
60	2022-09-15 09:52	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
61	2022-09-15 09:53	PAINT	Final			CALIBRATE					Positive	1.30 ± 0.50
62	2022-09-15 09:53	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.20
63	2022-09-15 09:53	PAINT	Final			CALIBRATE					Positive	1.30 ± 0.50
64	2022-09-15 09:53	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
65	2022-09-15 09:54	PAINT	Final			CALIBRATE					Positive	1.10 ± 0.40
66	2022-09-15 09:54	PAINT	Final			CALIBRATE					Positive	1.10 ± 0.30

APPENDIX E

Photos

Photograph 1

A view of the I-95 northbound bridge over I-26 in Orangeburg County where an Asbestos and Lead-Based Paint Survey was performed by ARM Environmental.

Photograph 2

A view of the underside of the I-95 northbound bridge over I-26 in Orangeburg County.

Photograph 3

A view from the top of the I-95 northbound bridge over I-26 in Orangeburg County where an Asbestos and Lead-Based Paint Survey was performed by ARM Environmental.

Photograph 4

Lead-based paint was detected in two (2) of the XRF readings at the beam flange on the west underside of the I-95 northbound bridge over I-26 in Orangeburg County.

I-95 Southbound Bridge Over I-26
Orangeburg County, South Carolina

Asbestos and Lead-Based Paint Survey Report

Structure # 381009530100
ARM Project #16-318-22

October 14, 2022

Prepared For:

Civil Engineering Consulting Services, Inc.
2000 Park Street, Suite 201
Columbia, South Carolina, 29201

___ Yes, Asbestos was found
_✓_ No, Asbestos was not found
___ Yes, Lead-Based Paint was found
_✓_ No, Lead-Based Paint was not found

Report Compiled By:

Robbie Robertson
ASBESTOS CONSULTANT/
BUILDING INSPECTOR
SCDHEC LICENSE #BI-01179

Report Reviewed By:

Sid Havird
ASBESTOS CONSULTANT/
BUILDING INSPECTOR
SCDHEC LICENSE #BI-00258

ARM ENVIRONMENTAL SERVICES

Table of Contents

ASBESTOS AND LEAD-BASED PAINT SURVEY

On September 15, 2022, ARM Environmental Services, Inc. performed an asbestos and lead-based paint survey at the I-95 southbound bridge over I-26 in Orangeburg County, South Carolina. The I-95 southbound bridge is located over I-26 (eastbound and westbound lanes) as shown in Appendix A, Figure 1. The site consists of a highway bridge and can be identified by bridge structure number 381009530100. The asbestos survey has been conducted in accordance with the Asbestos Hazard Emergency Response Act (AHERA) guidelines, as required by the Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (DHEC) prior to renovation or demolition of public or commercial structures. The lead-based paint survey was performed to identify lead-based paint (LBP) on the bridge.

BRIDGE MATERIALS

No construction records were available to determine the building materials used in construction of the structure. All accessible structural components including columns, piers, pier caps, bridge decks, beams, bridge shoes, end bents, railings and buffer materials were examined. Photographs of the site are shown in Appendix E.

The bridge deck of the structure consists of pre-cast concrete deck sections supported by concrete pier caps. The concrete pier caps, which run perpendicular to the bridge deck, are supported by concrete piers. Concrete and galvanized metal guardrails are located on the bridge structure. The bridge structure is estimated to be 315 feet long and 45 feet wide.

ASBESTOS SURVEY

Samples of the suspect materials were collected and submitted for laboratory analysis for Polarized Light Microscopy (PLM). One sample of each material was also collected for transmission electron microscopy (TEM) confirmation analysis in the event that the PLM analysis indicated less than 1 percent asbestos. The sample locations are shown in Appendix A, Figure 2. The results of the laboratory analysis are presented in Table 1 on the following page.

Table 1: Asbestos Sample Analytical Data

Sample Number	Material Description	Material Locations	Friable / Non-friable	Material Condition	Analytical Results*	Approx. Quantity
01-SB, 02-SB, 03-SB	Buffer Material at Steel Bridge Shoes	Between Concrete Pier Caps & Steel Bridge Shoes	Non-friable	Good	No Asbestos Detected	100 Square Feet
04-SB, 05-SB, 06-SB	Expansion Joint	Between Concrete Deck Sections	Non-friable	Good	No Asbestos Detected	225 Linear Feet

Asbestos Content: USEPA and SCDHEC regulations (No. 61-86.1) define asbestos containing material as any material greater than one percent asbestos. OSHA recommends that a negative exposure assessment (NEA) be conducted to establish appropriate personal protection equipment needed (if any) for all persons that might disturb asbestos materials.

Friable: Describes a material which, when dry, can be crumbled, pulverized, or reduced to powder with hand pressure.

The laboratory results are included in Appendix C of this report.

ASBESTOS CONCLUSIONS / RECOMMENDATIONS

An asbestos inspection was performed for a structure, the I-95 southbound bridge over I-26 in Orangeburg County, South Carolina. **The results of the asbestos survey indicate that none of the sampled materials contain asbestos.**

The results of this asbestos survey are limited to the sampled materials, which are considered to be representative of the homogeneous areas from which the samples were collected. **In the event that any suspect asbestos containing materials that were not addressed in this survey are encountered, the materials should be presumed to contain asbestos until laboratory analysis can be conducted.**

LEAD-BASED PAINT SURVEY

ARM personnel conducted a lead-based paint survey of accessible painted bridge materials at the I-95 southbound bridge on September 15, 2022. The LBP inspection was conducted using a Niton XLp-300A X-ray Fluorescence (XRF) Analyzer (Serial #110851) to measure the lead content of surface coatings on representative bridge building components. A homogenous bridge building component is a building material that is uniform in color, texture, and appears

identical in every respect. EPA guidelines define lead-based paint as any paint with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence. SCDHEC, Health Division defines lead-based paint as a coating containing lead in quantities ≥0.7 mg/cm2 (SCDHEC, Health Division definition #4-53-1320f). Any coated surfaces meeting or exceeding the SCDHEC limit of 0.7 mg/cm2 were considered lead-based paint for the purpose of this assessment since the structure may be slated for renovation or demolition. All waste debris coated with lead-based paint equal to or greater than 0.7mg/cm^2 must be disposed of in an approved Class II (C&D) or Class III (MSWLF) landfill or approved metal recycler.

The bridge structure is primarily composed of steel and concrete components, with the steel painted gray or white. It appears that this bridge may have been reconditioned at some point and repainted. The materials sampled for lead-based paint included the steel beams, steel cross bracing, and steel bridge shoes. **The results of the XRF analyses indicate that the sampled materials do not contain lead-based paint** as summarized in Table 2 below.

Table 2: Bridge Building Material XRF Summary

Sample Number	Material Description	Material Location	Color	Material Condition	LEAD Content mg/cm^2
Reading 5-7	Steel Beams	At Bridge Underside	White	Good	Negative
Reading 8-10	Steel Cross Bracing	At Bridge Underside	Gray	Good	Negative
Reading 11-12	Steel Beams	At Bridge Underside	Gray	Good	Negative
Reading 13-18	Steel Bridge Shoes	At Bridge Underside	Gray	Good	Negative

Lead Content: EPA guidelines define lead-based paint as any paint with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence. DHEC guidelines define lead-based paint as any paint with equal to or greater than 0.7 mg/cm^2 when measured by X-ray Fluorescence. The OSHA Lead in Construction Standard, 29 CFR 1926.62 is applied if any lead is present in the sample.

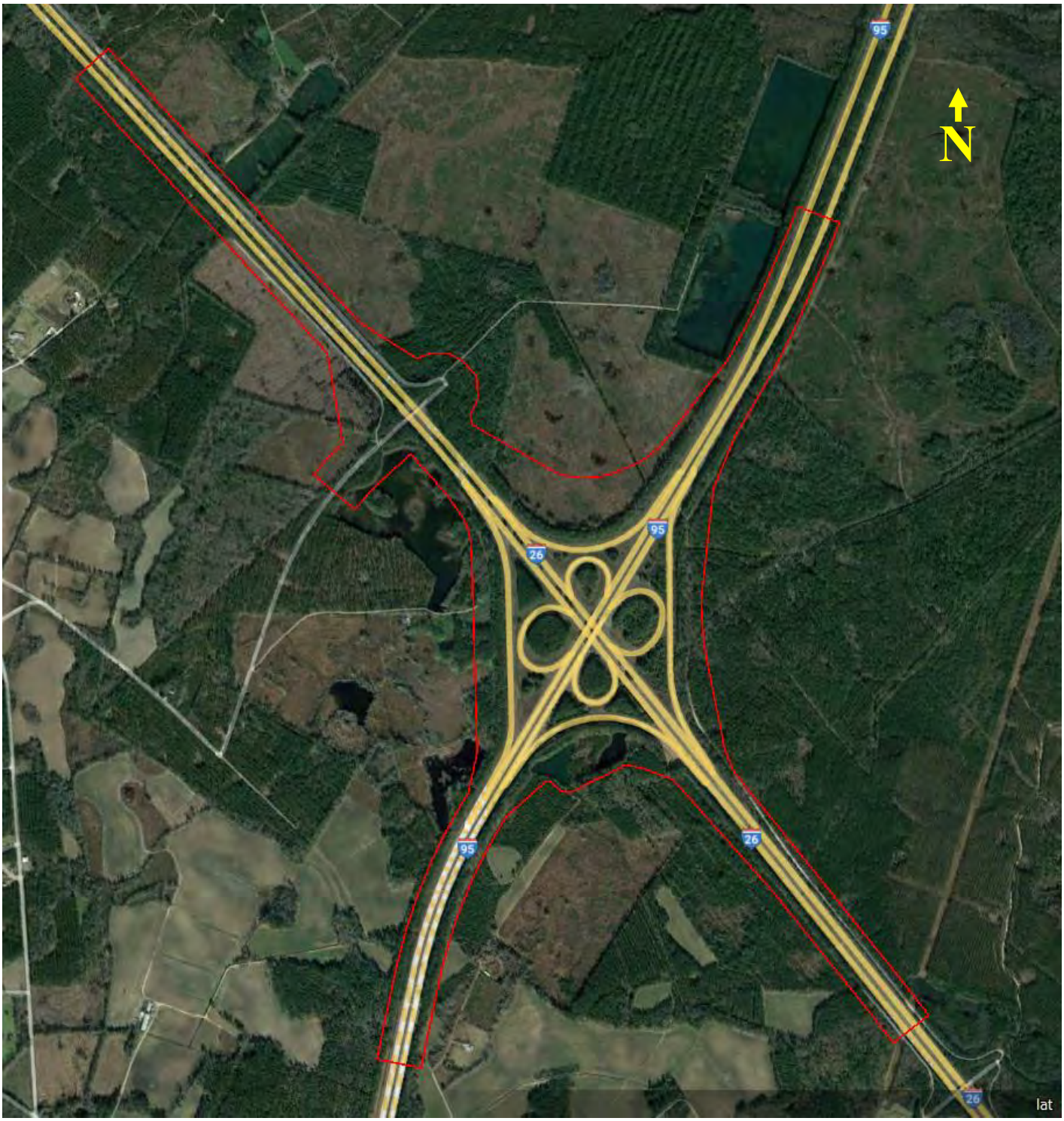
The XRF data results are presented in Appendix D. Photographs of the site are located in Appendix E.

LEAD-BASED PAINT CONCLUSIONS / RECOMMENDATIONS

A lead-based paint survey was performed for the I-95 southbound bridge over I-26 in Orangeburg County, South Carolina. **The results of the XRF analyses indicate that the sampled materials do not contain lead-based paint.** In the event that any suspect painted materials not addressed in this survey are encountered, the materials should be presumed to be coated with lead paint until XRF or laboratory analysis can be conducted.

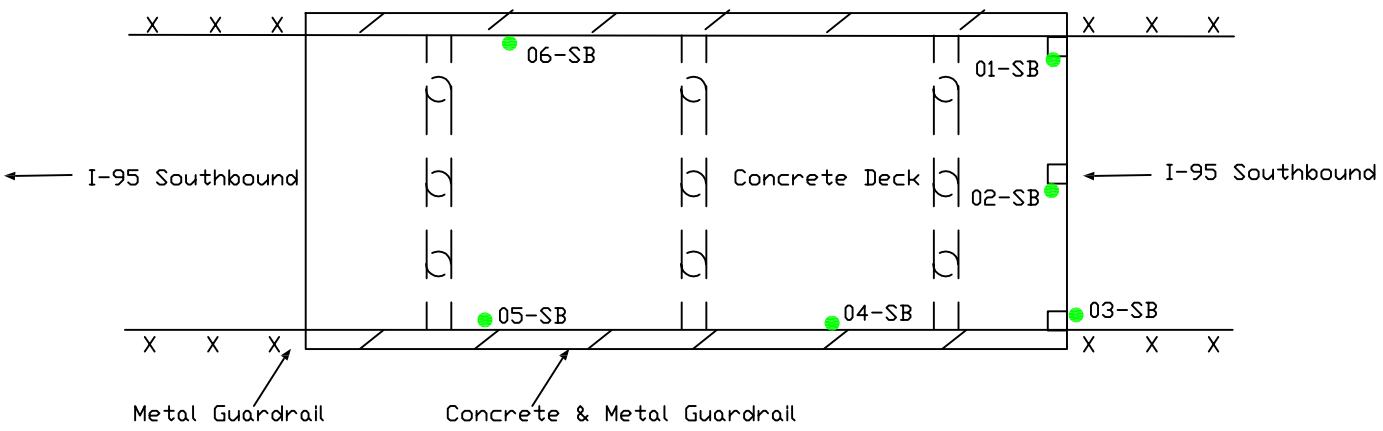
APPENDIX A

Figures

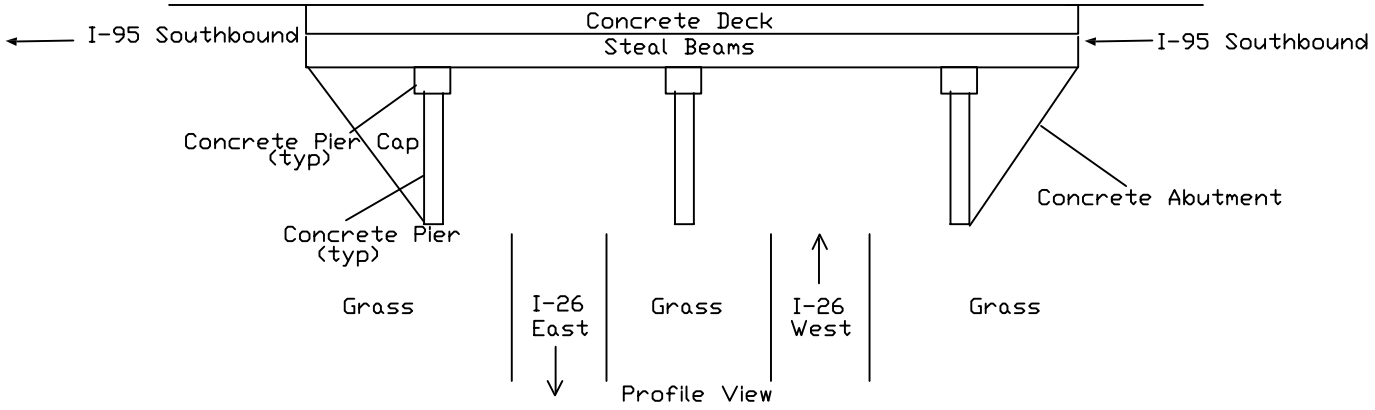


Project	***Figure 1***
Asbestos & Lead-Based Paint Survey I-95 Southbound Bridge Over I-26 Orangeburg County, South Carolina	Site Plan

Scale	***Date***	
No Scale	October 2022	ARM ENVIRONMENTAL SERVICES, INC.



Plan View



Profile View

PROJECT: Asbestos & Lead Based Paint Survey I-95 Southbound Bridge over I-26 Orangeburg County, South Carolina ARM Project # 16-318-22	DESCRIPTION: Site Plan Showing Sample Locations (Map Not To Scale)	**FIGURE 2** DATE: October 2022
ARM ENVIRONMENTAL SERVICES, INC.	REFERENCE: Field Notes	LEGEND: Negative Asbestos Sample = ● Positive Asbestos Sample = ▲

APPENDIX B

Licenses / Certifications

SCDHEC ISSUED
Asbestos ID Card

Robbie Robertson

		Expiration Date:
CONSULTBI	BI-01179	10/19/22
SUPERAHERA	SA-01861	10/18/22

ABS ENVIRONMENTAL

1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Robbie Robertson SSN xxx-xx-3715

This is to certify that the above named student has completed the requiste training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Chapin SC

Start Date October 20, 2021

Exam Date: October 20, 2021

Certificate Number:20211020Ab301-03

End Date October 20, 2021

Expiration Date October 19, 2022

Principal Instructor / Training Administrator - Lee Capell

10/20/2021
Date

SCDHEC ISSUED
Asbestos ID Card

Cyril O Havird Jr

		Expiration Date:
CONSULTBI	BI-00258	10/19/22
SUPERAHERA	SA-02162	10/18/22

ABS ENVIRONMENTAL

1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Sid Havird

SSN xxx-xx-4506

This is to certify that the above named student has completed the requiste training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Chapin SC

Certificate Number: 20211020Ab301-02

Start Date October 20, 2021

End Date October 20, 2021

Exam Date: October 20, 2021

Expiration Date October 19, 2022

Principal Instructor / Training Administrator - Lee Capell

10/20/2021
Date

APPENDIX C

Lab Results

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

Lab Code: B2212172
Date Received: 09-20-22
Date Analyzed: 09-21-22
Date Reported: 09-21-22

Project: I-85 SB Bridge Over I-26, Orangeburg County.

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
01-SB B2212172.1	Buffer Material	Heterogeneous Cream-Gray,Black Fibrous Bound	<1%	Cellulose	2% 98%	Paint Binder	None Detected
Unable to separate.							
02-SB B2212172.2	Buffer Material	Heterogeneous Cream-Gray,Black Fibrous Bound	<1%	Cellulose	2% 98%	Paint Binder	None Detected
Unable to separate.							
03-SB B2212172.3	Buffer Material	Heterogeneous Cream-Gray,Black Fibrous Bound	<1%	Cellulose	2% 98%	Paint Binder	None Detected
Unable to separate.							
04-SB B2212172.4	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
05-SB B2212172.5	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
06-SB Layer 1 B2212172.6	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
Layer 2 B2212172.6	Expansion Joint Material	Homogeneous Dark Gray Non-fibrous Bound			100%	Binder	None Detected

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LEGEND:
Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

ANALYST: Shilpa Ladekar

APPROVED BY: Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

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September 22, 2022

ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

CLIENT PROJECT: I-85 SB Bridge Over I-26, Orangeburg County.
LAB CODE: T222494

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on September 21, 2022. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield/EPA 600/R-93/116 Sec. 2.5.5.1 method.

Sample results containing > 1% asbestos are considered asbestos-containing materials (ACMs) per the EPA regulatory requirements. The detection limit for the TEM Chatfield/EPA 600/R-93/116 Sec. 2.5.5.1 method is <1% depending on the processed weight and constituents of the sample.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

ARM Environmental Services

CLIENT PROJECT: I-85 SB Bridge Over I-26, Orangeburg County.

LAB CODE: T222494

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116 Sec. 2.5.5.1

REPORT DATE: 09/22/22

730 SE Maynard Road • Cary, NC 27511 • 919.481.1413

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

Lab Code: T222494
Date Received: 09-21-22
Date Analyzed: 09-22-22
Date Reported: 09-22-22

Project: I-85 SB Bridge Over I-26, Orangeburg County.

TEM BULK CHATFIELD / EPA 600 / R93 / 116 Sec. 2.5.5.1

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
01-SB T48638	Cream-Gray, Black Buffer Material	0.2746	64.3	31.7	4	**None Detected**
02-SB T48639	Cream-Gray, Black Buffer Material	0.3504	68.6	27.4	4	**None Detected**
03-SB T48640	Cream-Gray, Black Buffer Material	0.3429	64.4	31.5	4.1	**None Detected**
04-SB T48641	Light Gray Expansion Material	0.3237	18.8	46.3	34.9	**None Detected**
05-SB T48642	Light Gray Expansion Material	0.3784	23.4	34.6	42	**None Detected**
06-SB T48643	Light Gray Expansion Material	0.4298	22.1	21.2	56.7	**None Detected**
06-SB T48644	Dark Gray Expansion Material	0.3578	30.4	15.7	53.9	**None Detected**

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LEGEND: None

METHOD: CHATFIELD & EPA/600/R-93/116 Sec. 2.5.5.1

LIMIT OF DETECTION: Varies with the weight and constituents of the sample (<1%)

REGULATORY LIMIT: >1% by weight

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. *Estimated measurement of uncertainty is available on request.* Samples were received in acceptable condition unless otherwise noted.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.
Eurofins CEI recommends between 0.500 and 0.200 grams of sample material. *Any weight below 0.100 grams is considered below protocol guidelines.*

ANALYST: Brunilda Gjoka
Brunilda Gjoka

APPROVED BY:
Tianbao Bai, Ph.D., CIH
Laboratory Director

(6)

eurofins | CEI

ASBESTOS
CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:
CEI Lab Code: B222172 / T222494
CEI Lab I.D Range:

Company Information	Project Information
CEI Client #	Job Contact: Sid Havird, Robbie Robertson
Company: ARM Environmental Services	Email: shavird@armenv.com, rrobertson@armenv.com csmith@armenv.com
Address: 1210 First Street South Extension Columbia, SC 29209	Project Name: I-95 SB Bridge over I-26, Orangeburg County. Project ID#:
Email: armenv.com	PO #:
Tel: 803-783-3314 Fax: 803-783-2587	State Samples Collected In: SC

IF TAT IS NOT MARKED, STANDARD 3 DAY TAT APPLIES

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600			X			
TEM BULK	CHATFIELD			X			

Remarks/Special Instructions: Use positive stop. Run PLM first & if less than 1% run TEM confirmation on all NOB materials.

* only run TEM if makeup of material requires it.

☒ Accept Samples

Positive Stop Needed: Yes / No

Date Sample: 9-15-22

☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
Robbie Robertson	9-15-22		9-20-22 9:50

Samples will be disposed of 30 days after analysis

SAMPLE ID#	DESCRIPTION	LOCATION	TEST	
			PLM	TEM
01-SB	Buffer Material at bridge boots	I-95 SB Bridge over I-26	X	X
02-SB	Buffer Material at bridge boots	I-95 SB Bridge over I-26	X	X
03-SB	Buffer Material at bridge boots	I-95 SB Bridge over I-26	X	X
04-SB	Expansion Joint material	I-95 SB Bridge over I-26	X	X
05-SB	Expansion Joint material	I-95 SB Bridge over I-26	X	X
06-SB	Expansion Joint material	I-95 SB Bridge over I-26	X	X

APPENDIX D

XRF Data

Thermo
ELECTRON CORPORATION

NITON Corporation
900 Middlesex Turnpike
Billerica, MA 01821

Index	Time	Type	Sequenc	Component	Substra	Side	Condition	Color	Site	Room	Results	PbC
1	2022-09-15 08:59	SHUTTER_CAI	Final									1.63 ± 0.00
2	**2022-09-15 09:01**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**0.90 ± 0.10**
3	**2022-09-15 09:01**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.20 ± 0.40**
4	**2022-09-15 09:02**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.00 ± 0.30**
5	2022-09-15 09:05	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
6	2022-09-15 09:06	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	-0.28 ± 0.92
7	2022-09-15 09:07	PAINT	Final	beam	steel	RIGHT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
8	2022-09-15 09:09	PAINT	Final	cross bracing	steel	RIGHT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.05 ± 0.06
9	2022-09-15 09:09	PAINT	Final	cross bracing	steel	RIGHT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
10	2022-09-15 09:10	PAINT	Final	cross bracing	steel	RIGHT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.02 ± 0.08
11	2022-09-15 09:11	PAINT	Final	beam	steel	RIGHT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.02 ± 0.05
12	2022-09-15 09:12	PAINT	Final	beam	steel	RIGHT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.09 ± 0.19
13	2022-09-15 09:13	PAINT	Final	bridge shoes	steel	LEFT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.15 ± 0.15
14	2022-09-15 09:13	PAINT	Final	bridge shoes	steel	LEFT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.06 ± 0.03
15	2022-09-15 09:14	PAINT	Final	bridge shoes	steel	LEFT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.18 ± 0.19
16	2022-09-15 09:15	PAINT	Final	bridge shoes	steel	LEFT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Null	0.17 ± 0.04
17	2022-09-15 09:16	PAINT	Final	bridge shoes	steel	LEFT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Null	0.14 ± 0.04
18	2022-09-15 09:16	PAINT	Final	bridge shoes	steel	LEFT	INTACT	gray	SB I95 bridge over I26	OUTSIDE	Negative	0.05 ± 0.03
19	**2022-09-15 09:19**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.20 ± 0.40**
20	**2022-09-15 09:20**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.00 ± 0.30**
21	**2022-09-15 09:20**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.30 ± 0.50**
22	**2022-09-15 09:20**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.10 ± 0.40**
23	**2022-09-15 09:21**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**0.90 ± 0.10**
24	**2022-09-15 09:21**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.00 ± 0.30**
25	**2022-09-15 09:21**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.10 ± 0.40**
67	**2022-09-15 09:54**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.10 ± 0.40**
68	**2022-09-15 09:54**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.00 ± 0.20**
69	**2022-09-15 09:55**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.20 ± 0.40**
70	2022-09-15 09:57	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.03 ± 0.03
71	2022-09-15 09:58	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
72	2022-09-15 09:59	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.03 ± 0.03
73	2022-09-15 09:59	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	-0.38 ± 1.07

Thermo
ELECTRON CORPORATION

NITON Corporation
900 Middlesex Turnpike
Billerica, MA 01821

Index	Time	Type	Sequenc	Component	Substra	Side	Condition	Color	Site	Room	Results	PbC
74	2022-09-15 10:00	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Null	0.02 ± 0.05
75	2022-09-15 10:01	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Null	0.10 ± 0.14
76	2022-09-15 10:01	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Null	0.08 ± 0.12
77	2022-09-15 10:01	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Null	0.08 ± 0.05
78	2022-09-15 10:02	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Null	0.07 ± 0.05
79	2022-09-15 10:02	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	-0.80 ± 1.50
80	2022-09-15 10:03	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	-0.52 ± 1.20
81	2022-09-15 10:07	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.02 ± 0.04
82	2022-09-15 10:08	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.01 ± 0.02
83	2022-09-15 10:09	PAINT	Final	beam	steel	LEFT	INTACT	WHITE	SB I95 bridge over I26	OUTSIDE	Negative	0.17 ± 0.39
84	**2022-09-15 10:12**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.20 ± 0.40**
85	**2022-09-15 10:12**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.20 ± 0.40**
86	**2022-09-15 10:12**	**PAINT**	**Final**			**CALIBRATE**					**Positive**	**1.10 ± 0.30**

APPENDIX E

Photos

Photograph 1

A view of the I-95 southbound bridge over I-26 in Orangeburg County where an Asbestos and Lead-Based Paint Survey was performed by ARM Environmental.

Photograph 2

A view of the underside of the I-95 southbound bridge over I-26 in Orangeburg County.

S-38 1302 Bridge Over I-26
Orangeburg County, South Carolina

Asbestos and Lead-Based Paint Survey Report

Structure # 387130200100
ARM Project #16-318-22

October 14, 2022

Prepared For:

Civil Engineering Consulting Services, Inc.
2000 Park Street, Suite 201
Columbia, South Carolina, 29201

___ Yes, Asbestos was found
_✓_ No, Asbestos was not found
___ Yes, Lead-Based Paint was found
_✓_ No, Lead-Based Paint was not found

Report Compiled By:

Robbie Robertson
ASBESTOS CONSULTANT/
BUILDING INSPECTOR
SCDHEC LICENSE #BI-01179

Report Reviewed By:

Sid Havird
ASBESTOS CONSULTANT/
BUILDING INSPECTOR
SCDHEC LICENSE #BI-00258

Table of Contents

ASBESTOS AND LEAD-BASED PAINT SURVEY

On September 15, 2022, ARM Environmental Services, Inc. performed an asbestos and lead-based paint survey of the S-38 1302 bridge over I-26 in Orangeburg County, South Carolina. The S-38 1302 bridge is located over I-26 (eastbound and westbound lanes) as shown in Appendix A, Figure 1. The site consists of a highway bridge and can be identified by bridge structure number 387130200100. The asbestos survey has been conducted in accordance with the Asbestos Hazard Emergency Response Act (AHERA) guidelines, as required by the Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (DHEC) prior to renovation or demolition of public or commercial structures. The lead-based paint survey was performed to identify lead-based paint (LBP) on the bridge.

BRIDGE MATERIALS

No construction records were available to determine the building materials used in construction of the structure. All accessible structural components including columns, piers, pier caps, bridge decks, beams, bridge shoes, end bents, railings and buffer materials were examined. Photographs of the site are shown in Appendix E.

The bridge deck of the structure consists of pre-cast concrete deck sections supported by concrete pier caps. The concrete pier caps, which run perpendicular to the bridge deck, are supported by concrete piers. Concrete and galvanized metal guardrails are located on the bridge structure. The bridge structure is estimated to be 260 feet long and 20 feet wide.

ASBESTOS SURVEY

Samples of the suspect materials were collected and submitted for laboratory analysis for Polarized Light Microscopy (PLM). One sample of each material was also collected for transmission electron microscopy (TEM) confirmation analysis in the event that the PLM analysis indicated less than 1 percent asbestos. The sample locations are shown in Appendix A, Figure 2. The results of the laboratory analysis are presented in Table 1 on the following page.

Table 1: Asbestos Sample Analytical Data

Sample Number	Material Description	Material Locations	Friable / Non-friable	Material Condition	Analytical Results*	Approx. Quantity
01-S381302, 02-S381302, 03-S381302	Expansion Joint	Between Concrete Deck Sections (topside)	Non-friable	Good	No Asbestos Detected	150 Linear Feet
04-S381302, 05-S381302, 06-S381302	Buffer Material	Between Concrete Deck Sections	Non-friable	Good	No Asbestos Detected	500 Square Feet

Asbestos Content: USEPA and SCDHEC regulations (No. 61-86.1) define asbestos containing material as any material greater than one percent asbestos. OSHA recommends that a negative exposure assessment (NEA) be conducted to establish appropriate personal protection equipment needed (if any) for all persons that might disturb asbestos materials.

Friable: Describes a material which, when dry, can be crumbled, pulverized, or reduced to powder with hand pressure.

The laboratory results are included in Appendix C of this report.

ASBESTOS CONCLUSIONS / RECOMMENDATIONS

An asbestos inspection was performed for a structure, the S-38 1302 bridge over I-26 in Orangeburg County, South Carolina. **The results of the asbestos survey indicate that none of the sampled materials contain asbestos.**

The results of this asbestos survey are limited to the sampled materials, which are considered to be representative of the homogeneous areas from which the samples were collected. **In the event that any suspect asbestos containing materials that were not addressed in this survey are encountered, the materials should be presumed to contain asbestos until laboratory analysis can be conducted.**

LEAD-BASED PAINT SURVEY

ARM personnel conducted a lead-based paint survey of accessible painted bridge materials at the S-38 1302 bridge over I-26 on September 15, 2022. The LBP inspection was conducted using a Niton XLp-300A X-ray Fluorescence (XRF) Analyzer (Serial #110851) to measure the lead content of surface coatings on representative bridge building components. A homogenous bridge building component is a building material that is uniform in color, texture, and appears identical in every respect. EPA guidelines define lead-based paint as any paint

with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence. SCDHEC, Health Division defines lead-based paint as a coating containing lead in quantities ≥0.7 mg/cm2 (SCDHEC, Health Division definition #4-53-1320f). Any coated surfaces meeting or exceeding the SCDHEC limit of 0.7 mg/cm2 were considered lead-based paint for the purpose of this assessment since the structure may be slated for renovation or demolition. All waste debris coated with lead-based paint equal to or greater than 0.7mg/cm^2 must be disposed of in an approved Class II (C&D) or Class III (MSWLF) landfill or approved metal recycler.

The bridge structure is primarily composed of concrete components The only material sampled for lead-based paint was the concrete beams at the underside of the bridge. **The results of the XRF analyses indicate that the sampled material does not contain lead-based paint** as summarized in Table 2 below.

Table 2: Bridge Building Material XRF Summary

Sample Number	Material Description	Material Location	Color	Material Condition	LEAD Content mg/cm^2
Reading 91-95	Concrete Beams	At Bridge Underside	White	Good	Negative

Lead Content: EPA guidelines define lead-based paint as any paint with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm^2) when measured by X-ray Fluorescence. DHEC guidelines define lead-based paint as any paint with equal to or greater than 0.7 mg/cm^2 when measured by X-ray Fluorescence. The OSHA Lead in Construction Standard, 29 CFR 1926.62 is applied if any lead is present in the sample.

The XRF data results are presented in Appendix D. Photographs of the site are located in Appendix E.

LEAD-BASED PAINT CONCLUSIONS / RECOMMENDATIONS

A lead-based paint survey was performed for the S-38 1302 bridge over I-26 in Orangeburg County, South Carolina. **The results of the XRF analyses indicate that the concrete beams sampled from the underside of the bridge do not contain lead-based paint.**

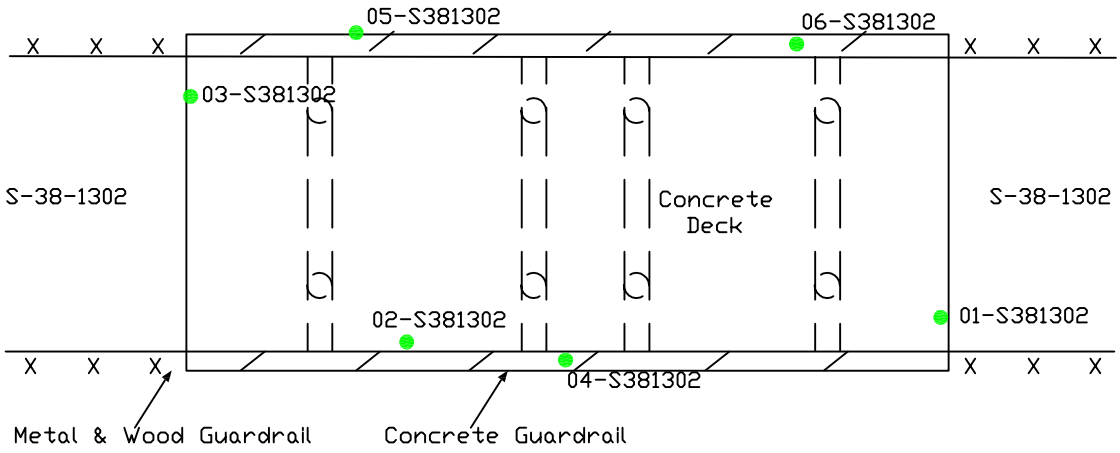
In the event that any suspect painted materials not addressed in this survey are encountered, the materials should be presumed to be coated with lead paint until XRF or laboratory analysis can be conducted.

APPENDIX A

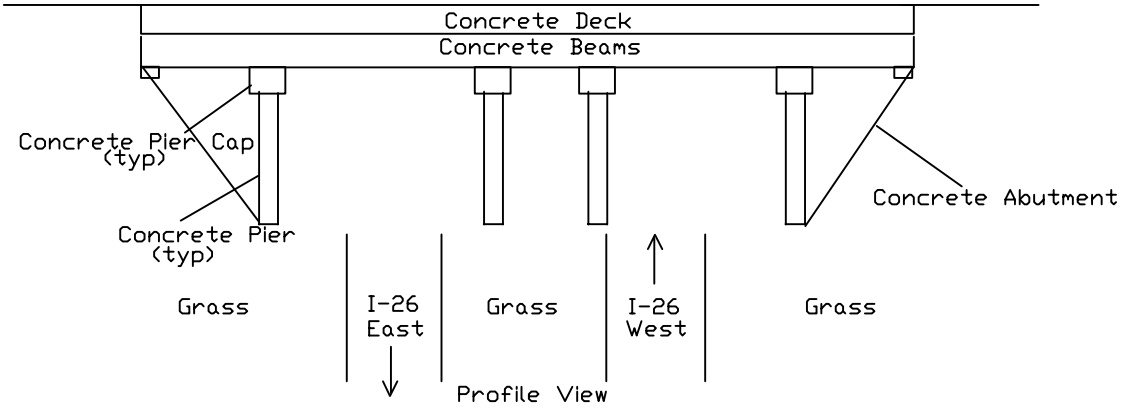
Figures

Project Asbestos & Lead-Based Paint Survey S-38 1302 Bridge Over I-26 Orangeburg County, South Carolina	***Figure 1*** Site Plan

Scale No Scale	***Date*** October 2022	ARM ENVIRONMENTAL SERVICES, INC.



Plan View



Profile View

PROJECT: Asbestos & Lead Based Paint Survey S-38-1302 Bridge over I-26 Orangeburg County, South Carolina ARM Project # 16-318-22	DESCRIPTION: Site Plan Showing Sample Locations (Map Not To Scale)	**FIGURE 2** DATE: October 2022
ARM ENVIRONMENTAL SERVICES, INC.	REFERENCE: Field Notes	LEGEND: Negative Asbestos Sample = ● Positive Asbestos Sample = ▲

APPENDIX B

Licenses / Certifications

SCDHEC ISSUED
Asbestos ID Card

Robbie Robertson

		Expiration Date:
CONSULTBI	BI-01179	10/19/22
SUPERAHERA	SA-01861	10/18/22

ABS ENVIRONMENTAL

1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Robbie Robertson SSN xxx-xx-3715

This is to certify that the above named student has completed the requiste training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Chapin SC

Start Date October 20, 2021

Exam Date: October 20, 2021

Certificate Number:20211020Ab301-03

End Date October 20, 2021

Expiration Date October 19, 2022

Principal Instructor / Training Administrator - Lee Capell

10/20/2021
Date

SCDHEC ISSUED
Asbestos ID Card

Cyril O Havird Jr

		Expiration Date:
CONSULTBI	BI-00258	10/19/22
SUPERAHERA	SA-02162	10/18/22

ABS ENVIRONMENTAL

1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Sid Havird

SSN xxx-xx-4506

This is to certify that the above named student has completed the requiste training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Chapin SC

Certificate Number: 20211020Ab301-02

Start Date October 20, 2021

End Date October 20, 2021

Exam Date: October 20, 2021

Expiration Date October 19, 2022

Principal Instructor / Training Administrator - Lee Capell

10/20/2021
Date

APPENDIX C

Lab Results

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ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

Lab Code: B2212171
Date Received: 09-20-22
Date Analyzed: 09-21-22
Date Reported: 09-21-22

Project: S38 - 1302 Bridge Over I-26, Orangeburg Cty.

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
01-S381302 Layer 1 B2212171.1	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
Layer 2 B2212171.1	Expansion Joint Material	Homogeneous Dark Gray Non-fibrous Bound			100%	Binder	None Detected
02-S381302 B2212171.2	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
03-S381302 B2212171.3	Expansion Joint Material	Homogeneous Light Gray Non-fibrous Bound			100%	Binder	None Detected
04-S381302 B2212171.4	Buffer Material	Homogeneous Black Fibrous Bound	2%	Cellulose	85% 13%	Tar Binder	None Detected
05-S381302 B2212171.5	Buffer Material	Homogeneous Black Fibrous Bound	2%	Cellulose	85% 13%	Tar Binder	None Detected
06-S381302 B2212171.6	Buffer Material	Homogeneous Black Fibrous Bound	2%	Cellulose	85% 13%	Tar Binder	None Detected

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LEGEND:
Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

ANALYST: Shilpa Ladekar

APPROVED BY: Tianbao Bai, Ph.D., CIH
Laboratory Director

NVLAP TESTING
NVLAP LAB CODE 101768-0

eurofins | CEI

September 22, 2022

ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

CLIENT PROJECT: S38 - 1302 Bridge Over I-26, Orangeburg Cty.
LAB CODE: T222493

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on September 21, 2022. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield/EPA 600/R-93/116 Sec. 2.5.5.1 method.

Sample results containing > 1% asbestos are considered asbestos-containing materials (ACMs) per the EPA regulatory requirements. The detection limit for the TEM Chatfield/EPA 600/R-93/116 Sec. 2.5.5.1 method is <1% depending on the processed weight and constituents of the sample.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

ARM Environmental Services

CLIENT PROJECT: S38 - 1302 Bridge Over I-26, Orangeburg Cty.

LAB CODE: T222493

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116 Sec. 2.5.5.1

REPORT DATE: 09/22/22

730 SE Maynard Road • Cary, NC 27511 • 919.481.1413

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: ARM Environmental Services
1210 1st Street South Ext.
Columbia, SC 29209

Lab Code: T222493
Date Received: 09-21-22
Date Analyzed: 09-22-22
Date Reported: 09-22-22

Project: S38 - 1302 Bridge Over I-26, Orangeburg Cty.

TEM BULK CHATFIELD / EPA 600 / R93 / 116 Sec. 2.5.5.1

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
01-S381302 T48631	Light Gray Expansion Material	0.4011	26	54.6	19.4	**None Detected**
01-S381302 T48632	Dark Gray Expansion Material	0.4219	25.3	51.2	23.5	**None Detected**
02-S381302 T48633	Light Gray Expansion Material	0.3959	35.6	60.9	3.5	**None Detected**
03-S381302 T48634	Light Gray Expansion Material	0.4719	37.5	57.4	5.1	**None Detected**
04-S381302 T48635	Buffer Material	0.3887	95.1	2.6	2.3	**None Detected**
05-S381302 T48636	Buffer Material	0.2621	92	3.4	4.6	**None Detected**
06-S381302 T48637	Buffer Material	0.2823	96.8	1.1	2.1	**None Detected**

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LEGEND: None

METHOD: CHATFIELD & EPA/600/R-93/116 Sec. 2.5.5.1

LIMIT OF DETECTION: Varies with the weight and constituents of the sample (<1%)

REGULATORY LIMIT: >1% by weight

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. *Estimated measurement of uncertainty is available on request.* Samples were received in acceptable condition unless otherwise noted.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.
Eurofins CEI recommends between 0.500 and 0.200 grams of sample material. *Any weight below 0.100 grams is considered below protocol guidelines.*

ANALYST: Brunilda Gjoka
Brunilda Gjoka

APPROVED BY:
Tianbao Bai, Ph.D., CIH
Laboratory Director

(6)

eurofins | CEI

ASBESTOS
CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	
CEI Lab Code:	B2212171 / T222493
CEI Lab I.D Range:	

Company Information	Project Information
CEI Client #	Job Contact: Sid Havird, Robbie Robertson
Company: ARM Environmental Services	Email: shavird@armenv.com, rrobertson@armenv.com csmith@armenv.com
Address: 1210 First Street South Extension Columbia, SC 29209	Project Name: S38 – 1302 Bridge over I-26, Orangeburg Cty. Project ID#:
Email: armenv.com	PO #:
Tel: 803-783-3314 Fax: 803-783-2587	State Samples Collected In: SC

IF TAT IS NOT MARKED, STANDARD 3 DAY TAT APPLIES

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600			X			
TEM BULK	CHATFIELD			X			

Remarks/Special Instructions: Use positive stop. Run PLM first & if less than 1% run TEM confirmation on all NOB materials.

* Only Run TEM if makeup of material requires it.

☑ Accept Samples

Positive Stop Needed: Yes / No

Date Sample: 9-15-22

☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
Robbie Robertson	9-15-22		9-20-22 9:50

Samples will be disposed of 30 days after analysis

SAMPLE ID#	DESCRIPTION	LOCATION	TEST	
			PLM	TEM
01-S381302	Expansion Joint Material	Bridge at S38 – 1302	X	X
02-S381302	Expansion Joint Material	Bridge at S38 – 1302	X	X
03-S381302	Expansion Joint Material	Bridge at S38 – 1302	X	X
04-S381302	Buffer Material at bridge sections	Bridge at S38 – 1302	X	X
05-S381302	Buffer Material at bridge sections	Bridge at S38 – 1302	X	X
06-S381302	Buffer Material at bridge sections	Bridge at S38 – 1302	X	X

APPENDIX D

XRF Data

Thermo
ELECTRON CORPORATION

NITON Corporation
900 Middlesex Turnpike
Billerica, MA 01821

Index	Time	Type	Sequenc	Component	Substra	Side	Condition	Color	Site	Room	Results	PbC
88	2022-09-15 11:22	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
89	2022-09-15 11:22	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
90	2022-09-15 11:22	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
91	2022-09-15 11:25	PAINT	Final	beams	CONCRE	LEFT	INTACT	WHITE	S38 -1302 bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
92	2022-09-15 11:25	PAINT	Final	beams	CONCRE	LEFT	INTACT	WHITE	S38 -1302 bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
93	2022-09-15 11:26	PAINT	Final	beams	CONCRE	LEFT	INTACT	WHITE	S38 -1302 bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
94	2022-09-15 11:27	PAINT	Final	beams	CONCRE	LEFT	INTACT	WHITE	S38 -1302 bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
95	2022-09-15 11:27	PAINT	Final	beams	CONCRE	LEFT	INTACT	WHITE	S38 -1302 bridge over I26	OUTSIDE	Negative	0.00 ± 0.02
96	2022-09-15 11:28	PAINT	Final			CALIBRATE					Positive	1.00 ± 0.30
97	2022-09-15 11:28	PAINT	Final			CALIBRATE					Positive	1.20 ± 0.40
98	2022-09-15 11:28	PAINT	Final			CALIBRATE					Positive	1.10 ± 0.40

APPENDIX E

Photos

Photograph 1

A view of the S-38 1302 bridge over I-26 in Orangeburg County where an Asbestos and Lead-Based Paint Survey was performed by ARM Environmental.

Photograph 2

Another view of the S-38 1302 bridge. There were no asbestos containing materials or lead-based paint detected on the bridge materials tested.

Appendix L

Limited Phase I Report

I-26 at I-95 Interchange Improvements Project Study Area
Orangeburg County, South Carolina

Corridor / Phase I Environmental Site Assessment

December 1, 2022

ARM Project #16-318-22

Prepared For:

Civil Engineering Consulting Services, Inc.
2000 Park Street, Suite 201
Columbia, SC 29201

ARM ENVIRONMENTAL SERVICES

1210 1st STREET SOUTH EXT, COLUMBIA, SC 29209 / phone: 803 783-3314 / www.armenv.com

TABLE OF CONTENTS

1.0 Summary

ARM Environmental Services, Inc. (ARM) has completed a Phase I Environmental Site Assessment (ESA) of the I-26 at I-95 Interchange Improvements Project Study Area. The study area is centered around the existing I-26 / I-95 interchange in Orangeburg County, South Carolina. The study area includes approximately 2.7 miles of I-26, approximately 2.5 miles of I-95, and also an area around the S-38-1302 bridge over I-26. Due to the multi-property nature of this project, the scope of the assessment has been modified to be more general relative to the ASTM 1527-13 standard. Specific processes that are typically not conducted as part of a Corridor / Phase I ESA include detailed reviews of chain of title data and interviews with all property owners. The purpose of this assessment was to identify any Recognized Environmental Conditions (RECs) present on, or located in close proximity to, the Study area, so that these conditions can be considered during the roadway construction planning process.

No evidence of gas station or industrial use was noted within or adjacent to the study area during the field reconnaissance or on aerial photographs. Several past fuel spills have been identified within or near the study area. These incidents have been further described in Section 5.1. The spills appeared to be typical of highway incidents involving tractor / trailers. File information indicates the spills were addressed. However, it is possible that small quantities of residual fuel-based soil contamination may remain and could possibly be encountered. Therefore, the listed fuel spill sites are considered to represent a low to moderate potential for adverse impact to the study area. However, precise location information was not available in the incident reports received through the South Carolina Department of Health and Environmental Control (DHEC) Freedom of Information (FOI) office. Therefore, further assessment would be logistically difficult prior to site work. Additionally, it should be noted that incidents such as these are typical of interstate and other highways that carry large volumes of truck traffic. It may be prudent to conduct further assessment of shallow soils or groundwater in the event that evidence of soil contamination Is encountered during grading or other site development activities.

2.0 Introduction

Pursuant to authorization from Civil Engineering Consulting Services, Inc. (CECS), ARM has completed a Corridor / Phase I Environmental Site Assessment (ESA) of the I-26 at I-95 Interchange Improvements Project Study Area. The study area is centered around the existing I-26 / I-95 interchange in Orangeburg County, South Carolina. The study area includes approximately 2.7 miles of I-26, approximately 2.5 miles of I-95, and also an area around the S-38-1302 bridge over I-26.

Due to the multi-property nature of this project, the scope of the assessment has been modified to be more general relative to the ASTM 1527-13 standard. Specific processes that are typically not conducted as part of a Corridor / Phase I ESA include detailed reviews of chain of title data and interviews with all property owners.

2.1 Purpose

The purpose of this assessment was to identify any RECs or liabilities present within, or located in close proximity to, the study area. The term *recognized environmental conditions* means the presence, or likely presence, of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment (ASTM E 1527-13).

2.2 Detailed Scope of Services

This assessment was conducted in general accordance with ASTM Standard E 1527-13 for Phase I ESAs. Per this standard, the ESA is composed of four parts. They are (1) Records Review, (2) Site Reconnaissance, (3) Interviews, and (4) Report.

2.3 Significant Assumptions

The purpose of this study is to define and report RECs. This study does not address or relate to “de minimis” conditions that do not present a material threat to health or the environment and generally would not be the subject of an enforcement action by a governmental agency. It is assumed that the user of this ESA expects this study to constitute all appropriate inquiry in order to satisfy one of the requirements to qualify for one or more of the landowner liability protections (LLPs) to CERCLA liability.

This environmental assessment was accomplished based on customary practices and the type of property involved. The following are some issues or conditions which are outside the scope of work for a Phase I ESA as defined by ASTM E 1527: Asbestos Containing Materials, Radon, Lead-Based Paint, Lead in Drinking Water, Wetlands, Regulatory Compliance, Cultural and Historic Resources, Industrial Hygiene, Health and Safety, Ecological Resources, Endangered Species, Flood Plains/Flood Ways, Indoor Air Quality, and High Voltage Power Lines.

The accuracy of this environmental assessment partially depends on information provided by others. ARM cannot be responsible for the accuracy of information provided by other entities or persons. However, we have no reason to suspect that any of the information provided is inaccurate. With regard to the interviews, it is assumed that those interviewed responded in good faith and honestly.

ARM assumes no liability for changes in the fair market value of the property as a result of the performance of the environmental assessment activities, or disclosures of environmental conditions relating to the property.

2.4 Limitations and Exceptions of Assessment

This study was accomplished using the ASTM E 1527-13 guidelines for all appropriate inquiry and the environmental professional's best judgment. The environmental site assessment cannot wholly eliminate uncertainty regarding the potential for environmental conditions to exist on the subject site or adjoining properties. Performance of the study under the referenced ASTM guidelines is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with the Study area. ASTM recognizes reasonable limits with regard to time and cost.

Due to the multi-property nature of this project, the scope of the assessment has been modified to be more general relative to the ASTM 1527-13 standard. Specific processes that are typically not conducted as part of a Corridor / Phase I ESA include detailed reviews of chain of title data and interviews with all property owners. Vapor intrusion was not considered as part of this assessment as it is understood that the project involves roadway construction and not evaluation, renovation, or the construction of buildings or other structures that would potentially collect vapors.

It should also be noted that the large size and undeveloped nature of the study area precluded the visual inspection of much of the area. Representative portions were inspected where access was available.

2.5 Special Terms and Conditions

This scope of work has been conducted for Civil Engineering Consulting Services, Inc (CECS), of Columbia, SC.

2.6 User Reliance

This scope of work has been conducted solely for the user(s) identified on the cover sheet of this report. ARM has no present or contemplated future interest in the inspected property. User reliance may be amended by letter to include other parties, such as involved lenders, as deemed appropriate by ARM ***and*** pursuant to permission granted to ARM from the originally identified user.

3.0 Site Description

A general site description, site location, uses of adjacent properties, and general background information for the study area is summarized in the following sections. Photographic documentation of the study area is included in Appendix 17.3.

3.1 Location and Description

The study area is located around the existing I-26 / I-95 interchange in Orangeburg County, South Carolina. The study area includes approximately 2.7 miles of I-26, approximately 2.5 miles of I-95, and also an area around the S-38-1302 bridge over I-26. The study area location is indicated on Figure 1 included in Appendix 17.1. A site plan showing the general study area layout and approximate boundaries is included as Figure 2.

3.2 Site and Vicinity General Characteristics

The study area is described in Section 3.1 and 3.4. The general vicinity of the study area consists primarily of a mix of wooded / undeveloped / agricultural areas. Several ponds, some of which may have been borrow pits, are located within or near the study area.

3.3 Current Use of the Property

The current use of the study area is primarily roadway and portions of the undeveloped, properties that are adjacent to the roadways.

3.4 Descriptions of Structures, Roads, and Improvements on Site

I-26 consists of paved interstate highway with two travel lanes in either direction. Similarly, I-95 also consists of paved interstate highway with two travel lanes in either direction. The interchange area is a large cloverleaf style interchange with paved on and off ramps to and from the respective interstates. The portion of S-38-1302 within the study area consists of asphalt paved two lane approach to the asphalt paved, concrete decked bridge over I-26.

3.5 Current Uses of Adjoining Properties

Adjoining properties consist of a mix of wooded / undeveloped / agricultural areas. Several ponds, some of which may have been borrow pits, are located within or near the study area.

4.0 User Provided Information

4.1 Title Records

As this Phase I ESA has been modified to fit a corridor type project, the review of chain of title information for multiple properties was not conducted as part of this assessment.

4.2 Environmental Liens or Activity and Use Limitations (AULs)

No information regarding environmental liens or AULs was provided. As this Phase I ESA has been modified to fit a corridor type project, the review of this type of information for multiple properties was not included in the scope of this assessment.

4.3 Specialized Knowledge

No specialized knowledge or other information relevant to environmental conditions in the study area was provided.

4.4 Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information relevant to environmental conditions in the study area was provided.

4.5 Valuation Reduction for Environmental Issues

Property valuation information was not provided. The intent of this Phase I ESA is to act as a corridor study.

4.6 Owner, Property Manager, and Occupant Information

As this Phase I ESA has been modified to fit a corridor type project, the collection and review of this type of information for these multiple properties of ownership data was not included in the scope of this assessment.

4.7 Reason for Performing Phase I

The Phase I ESA has been requested to document the environmental conditions in the study area so that alternatives for roadway construction within the study area can be considered.

4.8 Other

The User provided mapping indicating the limits of the study area.

5.0 Records Review

5.1 Standard Environmental Record Sources

Federal and State regulatory databases were reviewed to further identify any known sources of contamination located within a one mile or one-half mile radius of the Study area. The Federal records searched during this assessment included sites which handle or dispose of hazardous wastes or hazardous materials, and sites which otherwise have been identified to have air, soil, or groundwater contamination. The State records reviewed included hazardous waste sites, landfills, and sites with registered or leaking underground storage tanks. The environmental record search information is provided by Environmental Data Resources, Inc. (EDR). The EDR database report is provided in Appendix 17.5.

The regulatory databases and target radius for each database are as follows:

Federal Databases

NPL	National Priorities List (1.0 mile radius, 0.5 if delisted)
CERCLIS	EPA Comprehensive Environmental Response, Cleanup and Liability Information System (0.5 mile radius)
CERCLIS NFRAP	CERCLIS No Further Remedial Action Planned (property and adjoining property)
RCRA CORRACTS	Resource Conservation and Recovery Act Facilities that have been notified by the EPA to undertake corrective action under RCRA (1.0 mile radius)
RCRA TSD	RCRA Non-CORRACTS Treatment/Storage/Disposal Facilities (0.5 mile radius)
RCRA Generators	RCRA generators of hazardous waste (property and adjoining property)
AULs	Activity and use limitations – legal or physical restrictions or limitations on use (property)
ERNS	Emergency Response Notification System (property)

State Databases

SHWS	
Equivalent NPL	(1.0 mile radius)
Equivalent CERCLIS	(0.5 mile radius)
SWF/LF	Landfill/Solid Waste (0.5 mile radius)
LUST	Leaking Underground Storage Tank sites (0.5 mile radius)

RUST	Registered Underground Storage Tank sites (property and adjoining property)
AULs	(property)
Voluntary Cleanup Sites	(0.5 mile radius)
Brownfield Sites	(0.5 mile radius)

Regulated Facilities

The following regulated sites were identified within the research distances from the study area as defined above. Details gathered during the investigative process, including site visits, for sites deemed to represent greater than a low potential for adverse impact to the study area are also provided following the list. Additional regulatory database descriptions are included in Section 17.5.

- Saddle Tanks I-95 / I-26
  Located within the study area; exact location unknown
  SPILL site, Incident ID #389993

- Whetsell Farm Site
  1452 Duncan Chapel Road, located approximately 3,150 feet west of the southern portion of the study area
  SHWS site, DHEC ID #SCR000783795

- Cooking Oil Spill
  Located within the study area; exact location unknown
  ERNS site, NRC Report #892080

- Fuel Spill
  I-26W, located within the study area; exact location unknown
  SPILL site, Incident ID #200600244

- Fuel Spill
  I-26 & I-95 Interchange, located within the study area; exact location unknown
  SPILL site, Incident ID #200304147

Several spills have been reported in the vicinity of the I-26 / I-95 interchange. ARM submitted a request for information to the DHEC Freedom of Information (FOI) office in order to obtain available incident details.

The above listed Saddle Tank incident was a spill of diesel fuel from a jack-knifed truck on July 25, 2000. Notes in the spill report indicate that it occurred north bound on I-95 at the I-26 overpass and that fuel spilled to the median. Notes further indicate that the spill was cleaned up. Based on the available information, this spill incident is considered to represent a low to moderate potential for adverse impact to the study area; however, the exact location is not clear.

A fuel spill is also indicated for I-26 West, on January 20, 2006, that apparently occurred to a wet weather ditch. However, exact location information was not provided in the incident report. The report indicates that the spill was cleaned up to DHEC's satisfaction. Based on the available information, this incident is considered to represent a low to moderate potential for adverse impact to the study area.

A fuel spill from a ruptured fuel tank occurred at the I-26 / I-95 interchange area on October 20, 2003. Notes in the spill report indicate that the spill was approximately 30 gallons and that SCDOT spread sand on the spill to absorb the fuel. Based on the available information, this incident is considered to represent a low to moderate potential for adverse impact to the study area.

No information was available through FOI for the listed cooking oil spill. The EDR site report indicates that a tanker truck carrying cooking oil was involved in a roll over accident on December 9, 2008, releasing a large quantity of the cooking oil in the vicinity of the interchange. The exact location of the incident is not known. The EDR notes indicate that a remediation team was dispatched; however, no other cleanup details were readily available. As the material (cooking oil) is not considered to be a hazardous material, this incident is considered to represent a low potential for adverse impact to the study area.

The Whetsell Farm site is an SHWS site. File information indicates that response actions consisted mainly of assessment and removal of stored pesticides. Accurate location information was not available in the file. ARM contacted Mr. Greg Cassidy, the DHEC project manager for the site. Mr. Cassidy was able to describe the location of the site, which is actually located over ½ mile to the west of the southern portion of the study area. Based on the available information and the location of the site relative to the study area, the Whetsell Farm site is considered to represent a low potential for adverse impact to the study area.

No other regulated sites were identified within the research distances from the study area as defined above. The initial EDR report covered the study area as it was originally defined. However, approximately 2,500 feet of study area was subsequently added to the southern portion of I-95. An additional EDR data report was obtained to cover this portion. No new sites of concern were contained in the additional EDR data report.

5.2 Additional Environmental Record Sources

Additional environmental record sources (ASTM non-standard), as listed in the search of environmental databases provided by EDR, were reviewed as they were encountered in the EDR reports and as considered appropriate.

5.3 Physical Setting Sources

ARM reviewed the following sources regarding the physical setting of the study area and surrounding area:

- USGS Topographic Map, 7.5 minute series – Wadboo Swamp, (SC) Quadrangle, dated 2020

According to the contour lines on the USGS topographic maps reviewed for this assessment, the study area is located approximately 100 feet above mean sea level. Topography in the area is very level. Due to the relatively flat topographic relief, groundwater flow directions are difficult to infer from the surface topography. Four Hole Swamp, a major regional drainage feature, is located approximately a mile northeast of the study area. Low lying drainage areas, creeks, and wetlands are located throughout the area.

The subject property is located within the coastal plain physiographic province of South Carolina (Maybin and Nystrom, 1997). Most of the area is underlain by the Duplin Formation, located in the coastal terraces of the Carolinas. Major lithologic components consist of sands, sandy and silty clays, and very shelly sands, which frequently overlie a phosphatic basal conglomerate. (USGS Open-File Report 2005-1323). Additionally, much of the study area is located in the Bear Bluff Formation, consisting of Pliocene aged, gray to cream colored, fossiliferous, coarse grained calcareous sand and sandy limestone (Newell, et al).

5.4 Historical Use Information on the Property

Aerial Photographs

Aerial photographs, dated 1957, 1961, 1964, 1974, 1983, 1994, 2006, 2009, 2013, and 2017 were obtained from EDR. Additionally, Google Earth aerial photographs were viewed. Conditions in the aerial photographs appeared as follows. These photographs covered the study area as it was originally defined. However, approximately 2,500 feet of study area was subsequently added to the southern portion of I-95. Additional aerial photographs for this portion, dated 1961, 1964, 1995, 2006, 2009, 2013, and 2017, were obtained from EDR.

The aerial photographs generally show the subject property to be set in a very rural and primarily agricultural and wooded area. I-26 is first evident on the 1961 photograph. I-95 is first evident on the 1974 photograph, as is the large cloverleaf interchange. S-38-1302 is evident over I-26 beginning with the 1961 aerial photograph. More ponds become evident over time and may be related to interstate and interchange construction. No landfills or other obvious environmental concerns are evident in the immediate area on the aerial photographs reviewed.

Historical Topographic Maps

The following topographic maps were reviewed as historical sources:

- USGS Topographic Map, 15 Minute – Bowman (SC) Quadrangle, dated 1920
- USGS Topographic Map, 15 Minute – Bowman (SC) Quadrangle, dated 1921
- USGS Topographic Map, 15 Minute – Bowman (SC) Quadrangle, dated 1943
- USGS Topographic Map, 7.5 Minute – Wadboo Swamp, (SC) Quadrangle, dated 1982
- USGS Topographic Map, 7.5 Minute – Wadboo Swamp, (SC) Quadrangle, dated 2014
- USGS Topographic Map, 7.5 Minute – Wadboo Swamp, (SC) Quadrangle, dated 2017
- USGS Topographic Map, 7.5 Minute – Wadboo Swamp, (SC) Quadrangle, dated 2020

1920, 1921, 1943 – The area appears very rural, agricultural, and wooded. The interstate highways are not present. Several ponds, which may be borrow pits, are noted near the northeastern portion of the study area.

1982, 2014, 2017, 2020 – The interstate highways and the cloverleaf interchange are now depicted. The area still appears very rural, agricultural, and wooded.

Summary

The available historical information indicates that the study area and vicinity have been historically very rural and only lightly developed, primarily with residences. Agricultural properties and timberland have been prevalent in the area. I-26 is first seen on the 1961 aerial photograph. I-95 appears to have been added by the early 1970s. The available historical sources did not indicate significant environmental conditions in the study area.

6.0 Site Reconnaissance

6.1 Methodology and Limiting Conditions

ARM conducted the site walkover/ reconnaissance on September 15, 2022 and September 21, 2022, in order to obtain any information regarding current conditions. Representative photographs of the study area were taken and are included in Appendix 17.3.

6.2 General Site Setting

The study area location is indicated on Figure 1 included in Appendix 17.1. Site plans showing the general study area layout are included as Figures 2 through 5 in Appendix 17.2. Sections 3.1, 3.2 and 3.4 of this report detail the general setting of the study area. The adjoining properties have been described in Section 3.5 of this report. The pertinent information collected during the site inspection is summarized in the following sections.

6.3 Observations

The study area is located around the existing I-26 / I-95 interchange in Orangeburg County, South Carolina. The study area includes approximately 2.7 miles of I-26, approximately 2.5 miles of I-95, and also an area around the S-38-1302 bridge over I-26. Details regarding sites identified in the regulatory review process are provided in Section 5.0.

I-26 consists of paved interstate highway with two travel lanes in either direction. Similarly, I-95 also consists of paved interstate highway with two travel lanes in either direction. The interchange area is a large cloverleaf style interchange with paved on and off ramps to and from the respective interstates. The portion of S-38-1302 within the study area consists of asphalt paved two lane approach to the asphalt paved, concrete decked bridge over I-26. The area is very rural, agricultural, light residential, and undeveloped timberland.

Debris, consisting primarily of concrete rubble and roofing materials, was noted adjacent to the pond on the southeast side of Whetsell Road (S-38-1302). Additional debris, consisting of an abandoned chest freezer, empty tin food cans, aerosol spray paint cans, and gel ice packs, was also noted in this area. No staining or other indications of significant contamination were noted to be associated with the debris.

Unpaved frontage roads run alongside I-26 and I-95, accessible primarily from Whetsell Road and Weathers Farm Road. These roads appear to function as access roads to undeveloped properties located along the interstates. Representative portions of these roads were traveled where accessible.

A small fenced area with a small shelter building, presumably for communications equipment, is located adjacent to the clover leaf off ramp from I-95 North / on ramp to I-26 West. A small generator with a self-contained fuel tank is located here. No evidence of leakage or other indications of environmental impact were noted here.

No evidence of gas station or industrial use was noted within or adjacent to the study area during the field reconnaissance or on aerial photographs.

7.0 Interviews

Interviews were conducted as part of the Phase I ESA investigative process and are summarized below. Additional information related to the interviews may be contained in other sections of this report, as appropriate, and interview documentation is provided in Section 17.6. Due to the multi-property nature of this assessment the Phase I ESA has been modified to be more general in scope and to provide an overall assessment of a large area. Therefore, interviews with individual property owners / managers were not generally conducted, as it would have been prohibitively time consuming to locate ownership / manager information for these multiple parcels.

7.1 Interviews with Local Government Officials

The DHEC FOI office was contacted for additional information related to sites identified in Section 5.1. Ms. Armani Brown, of the DHEC FOI office, provided the requested regulatory file information.

Mr. Greg Cassidy, DHEC project manager for the Whetsell Farm site, was interviewed, as described in Section 5.1.

7.2 Interviews with Others

No other interviews were conducted.

8.0 Findings

The following summary of findings is provided:

- The study area is located around the existing I-26 / I-95 interchange in Orangeburg County, South Carolina. The study area includes approximately 2.7 miles of I-26, approximately 2.5 miles of I-95, and also an area around the S-38-1302 bridge over I-26. I-26 consists of paved interstate highway with two travel lanes in either direction. Similarly, I-95 also consists of paved interstate highway with two travel lanes in either direction. The interchange area is a large cloverleaf style interchange with paved on and off ramps to and from the respective interstates. The portion of S-38-1302 within the study area consists of asphalt paved two lane approach to the asphalt paved, concrete decked bridge over I-26.

- Several fuel spills have been identified within or near the study area. These incidents have been further described in Section 5.1.

9.0 Opinion

Based on the site inspection, historical research, regulatory data review and interviews, it is the opinion of the environmental professional that RECs exist with respect to the study area.

10.0 Conclusions

We have performed a Corridor / Phase I ESA in general conformance with the scope and limitations of ASTM Practice E 1527-13 of the area located around the existing I-26 / I-95 interchange in Orangeburg County, South Carolina. The study area includes approximately 2.7 miles of I-26, approximately 2.5 miles of I-95, and also an area around the S-38-1302 bridge over I-26. Any exceptions to, or deletions from, this practice are described in Sections 2.4 and 11.0. This assessment has revealed no evidence of RECs in connection with the study area, except for the following:

Several fuel spills have been identified within or near the study area. These incidents have been further described in Section 5.1. File information indicates the spills were addressed. However, it is possible that small quantities of residual fuel based soil contamination may remain and may be encountered. Therefore, the listed fuel spill sites are considered to represent a low to moderate potential for adverse impact to the study area. However, precise location information was not available in the incident reports received through the DHEC FOI office. Therefore, further assessment would be logistically difficult prior to site work. Additionally, it should be noted that incidents such as these are typical of interstate and other highways that carry large volumes of truck traffic. It may be prudent to conduct further assessment of shallow soils or groundwater in the event that evidence of soil contamination Is encountered during grading or other site development activities.

11.0 Deviations

This Phase I ESA was conducted in general accordance with ASTM Standard E 1527-13 for Phase I Environmental Site Assessments. However, due to the multi-property nature of this assessment the Phase I ESA has been modified to be more general in scope and to provide an overall assessment of a large area.

12.0 Additional Services

Asbestos and Lead Based Paint Surveys of the I-95 north bound bridge over I-26, the I-95 south bound bridge over I-26, and the S-38-1302 bridge over I-26 were also conducted. The results of the surveys are provided under separate cover.

13.0 References

ASTM E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Environmental regulatory data, aerial photographs, historical topographic maps, and Sanborn Fire Insurance Map searches, provided by EDR, Inc.

Maybin and Nystrom, 1997, revised by Willoughby, Howard and Nystrom, 2005. Generalized Geologic Map of South Carolina; South Carolina Department of Natural Resources Geological Survey.

USGS Open-File Report 2005-1323, Preliminary integrated geologic map databases for the United States: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina, http://pubs.usgs.gov/of/2005/1323/.

Newell, Wayne L., Prowell, David (retired), Krantz, David, Powars, David, Mixon, Robert (retired), Stone, Byron, and Willard, Debra, in review, Surficial Geology and Geomorphology of the Atlantic Coastal Plain: USGS Open File Report, in press.

14.0 Signature(s) of Environmental Professional(s)

Report Compiled By:

Richard Ciccolella
Project Manager

Reviewed By:

Richard Pittenger
Sr. Project Manager / Principal

15.0 Qualifications of Environmental Professional(s)

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312, and we have the specific qualifications based on the education, training, and experience to assess a property of the nature, history, and setting of the Study area. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Resumes summarizing the qualifications of the Environmental Professionals that conducted this assessment are included in Appendix 17.8.

16.0 Warranty

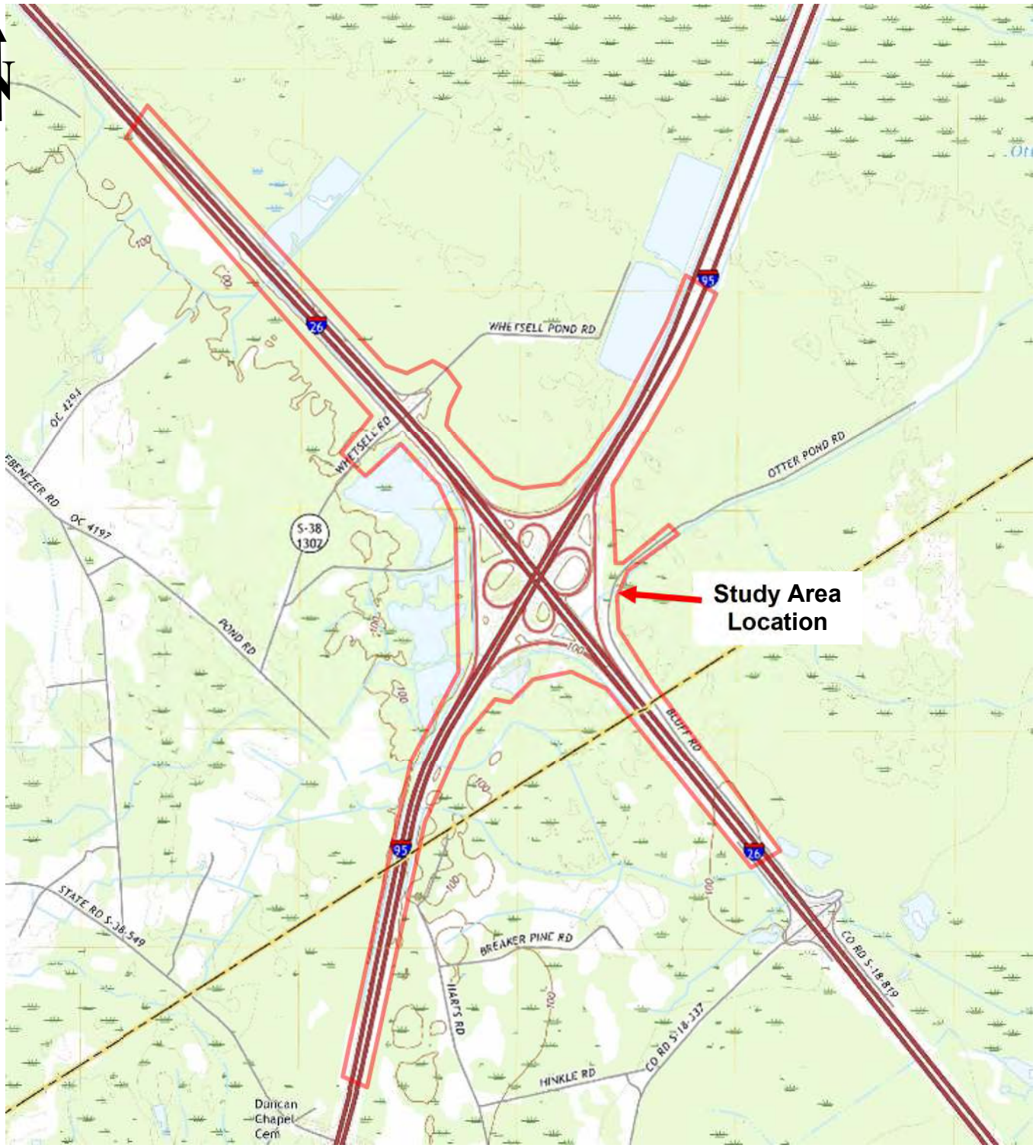
Services provided by ARM in this environmental assessment have been conducted in accordance with generally accepted environmental practices. This report has been generated solely for the use of the client. The information presented in this report is based only upon our site observations at the time of the site reconnaissance and data generated during our site reconnaissance. We cannot be responsible for the accuracy of information provided by others; however, we have no reason to suspect that any of the information provided is inaccurate. We accept no responsibility of damages or claims resulting from past or future environmental impact to the site caused by on or off-site activities or contamination, nor do we accept responsibility for subsequent remediation. This study is intended to be a non-biased assessment of on-site environmental conditions. No other warranties, either expressed or implied, are made.

17.0 APPENDICES

17.1 Site (Vicinity) Map – Figure 1
17.2 Site Plan – Figure 2
17.3 Site Photographs
17.4 Historical Research Documentation
17.5 Regulatory Records Documentation
17.6 Interview Documentation
17.7 Special Contractual Conditions Between User and Environmental Professional
17.8 Qualifications of the Environmental Professional(s)

17.1 Site (Vicinity) Map

Figure 1 – Topographic Site Location Map

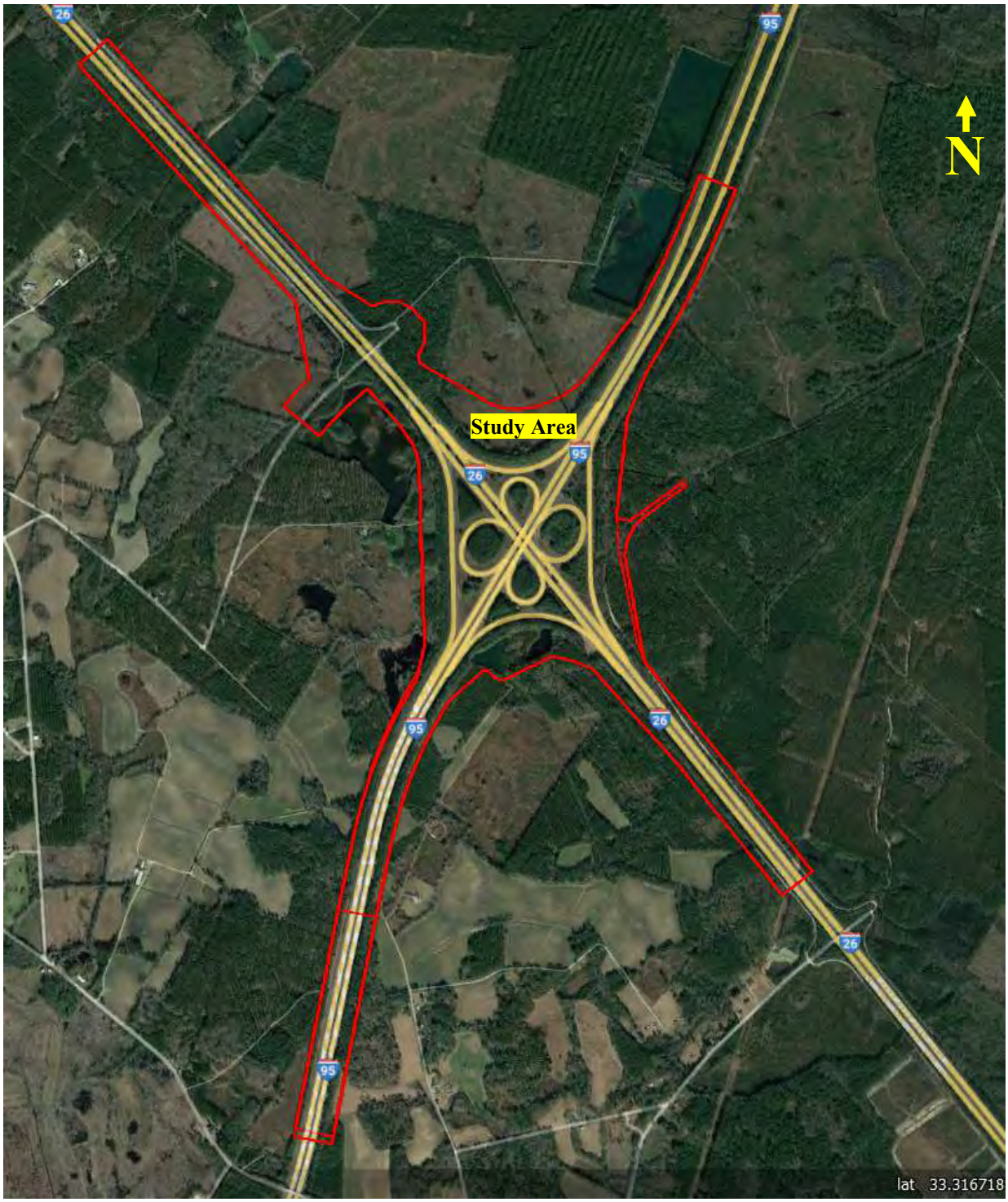


Project Corridor / Phase I ESA I-26 / I-95 Interchange Study Area Orangeburg County, South Carolina	***Figure 1*** Study Area Site Location Map USGS 2017 7.5 Minute Wadboo Swamp, SC Quad
Scale No Scale	***Date*** November 2022

ARM ENVIRONMENTAL SERVICES, INC.

17.2 Site Plan

Figure 2 – General Site Plan



Project	***Figure 2***
Corridor / Phase I ESA I-26 / I-95 Interchange Study Area Orangeburg County, South Carolina	Site Plan

Scale	***Date***	
No Scale	November 2022	ARM ENVIRONMENTAL SERVICES, INC.

17.3 Site Photographs

Photograph 1 – View of the S-38-1302 Bridge over I-26.

Photograph 2 – View looking southeast along I-26 from the S-38-1302 bridge.

Photograph 3 – View looking northwest along I-26 from the S-38-1302 bridge.

Photograph 4 – View of the I-95 bridges over I-26.

Photograph 5 – Typical view of I-26 passing beneath the I-95 bridges.

Photograph 6 – Typical view looking northwest along the unpaved frontage road along the southwest side of I-26, northwest of Weathers Farm Road.

Photograph 7 – Typical view looking northwest along the unpaved frontage road along the northeast side of I-26, northwest of Weathers Farm Road.

Photograph 8 – Typical view looking north along the unpaved frontage road along the east side of the I-26 West off ramp / I-95 north ramp, northwest of Weathers Farm Road.

Photograph 9 – View of debris located adjacent to the pond on the southeast side of Whetsell Road (S-38-1302).

Photograph 10 – View of debris near the pond on the southeast side of Whetsell Road (S-38-1302).

Photograph 11 – Typical view looking northwest along the unpaved frontage road along the southwest side of I-26, northwest of Whetsell Road (S-38-1302).

Photograph 12 – Typical view looking northwest along the unpaved frontage road along the northeast side of I-26, northwest of Whetsell Road (S-38-1302).

Photograph 13 – View of the fenced enclosure with a shelter building and generator, located adjacent to the clover leaf off ramp from I-95 North / on ramp to I-26 West.

17.4 Historical Research Documentation

I-26 / I-95 Interchange Improvements

I-26 / I-95 Interchange Improvements

Bowman, SC 29018

Inquiry Number: 7106041.2

September 06, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Date EDR Searched Historical Sources:

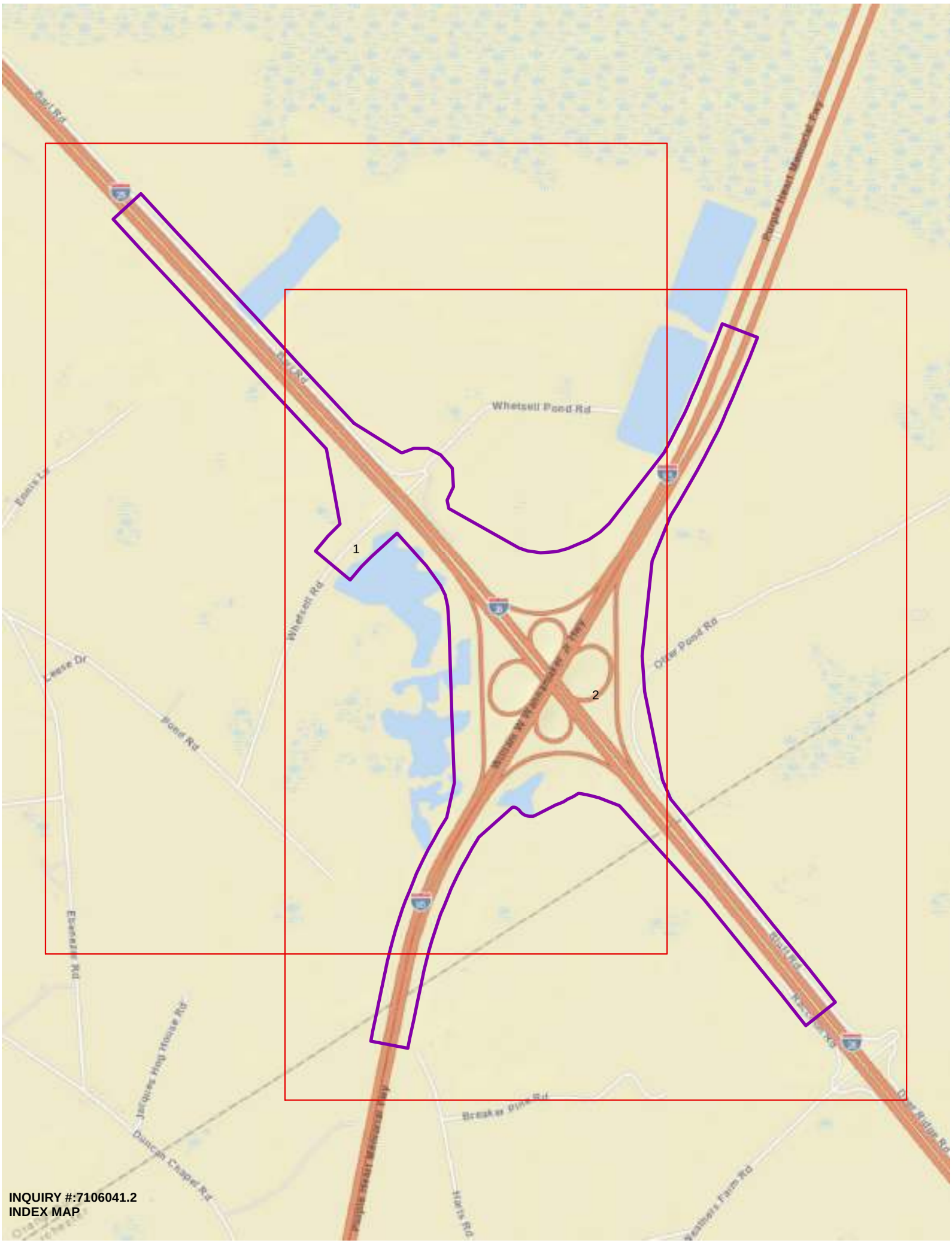
Aerial Photography September 06, 2022

Target Property:

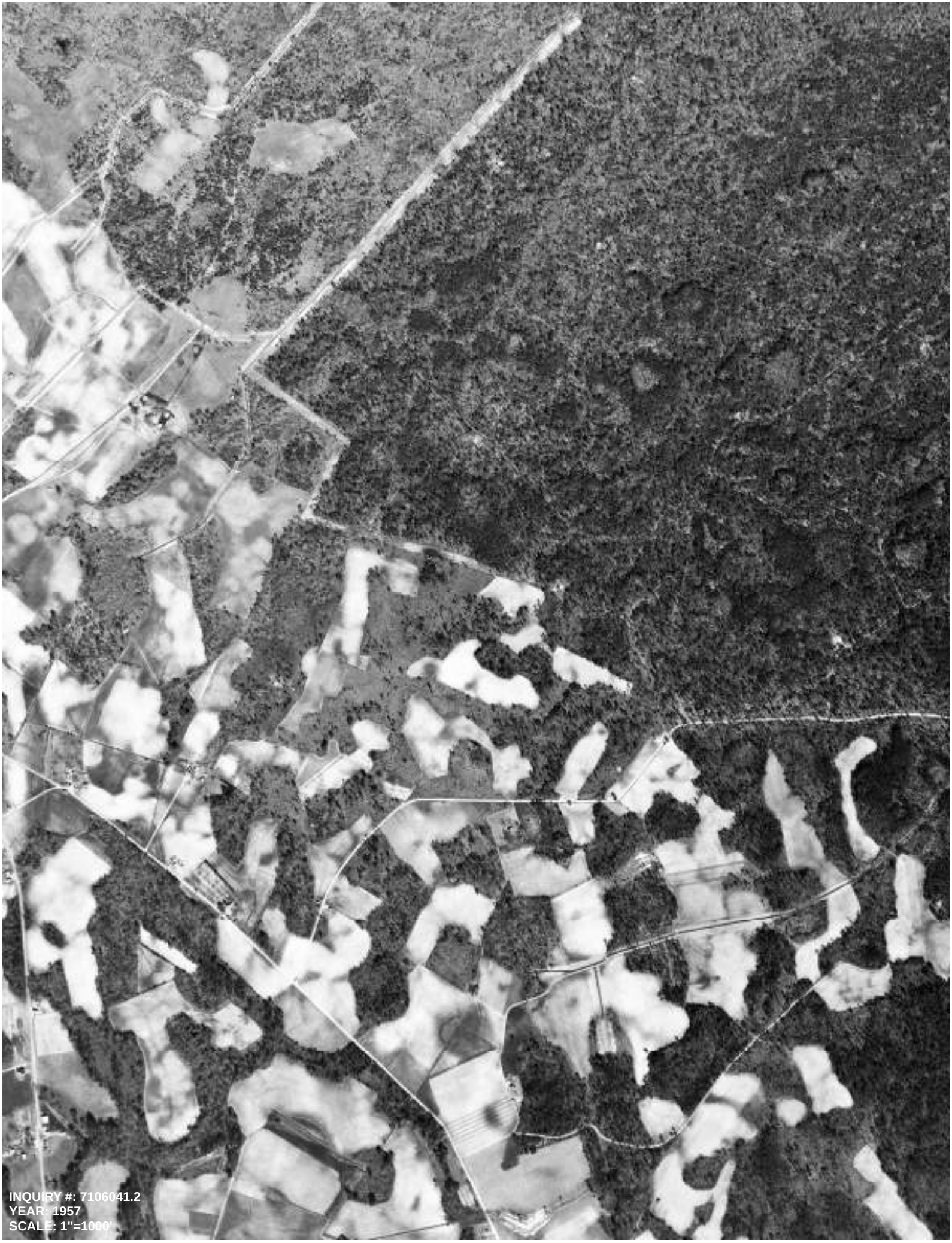
I-26/I-95 Interchange Improvements

Bowman, SC 29018

Year	***Scale***	***Details***	***Source***
1957	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1957	USGS
1961	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1961	USGS
1964	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1964	USGS
1974	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1974	USGS
1983	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1983	USGS
1994_95	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1994_95	USGS/DOQQ
2006	Aerial Photograph. Scale: 1"=1000'	Flight Year: 2006	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=1000'	Flight Year: 2009	USDA/NAIP
2013	Aerial Photograph. Scale: 1"=1000'	Flight Year: 2013	USDA/NAIP
2017	Aerial Photograph. Scale: 1"=1000'	Flight Year: 2017	USDA/NAIP



INQUIRY #:7106041.2
INDEX MAP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YEAR: 1957
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1957
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1961
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1961
SCALE: 1"=1000'


INQUIRY #: 7106941.2
YEAR: 1964
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1964
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1974
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1974
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1983
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 1983
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 1994_95
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 1994_95
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2006
SCALE: 1"=1000'

INQUIRY #: 7106041.2
YEAR: 2006
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2009
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2009
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2013
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2013
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2017
SCALE: 1"=1000'


INQUIRY #: 7106041.2
YEAR: 2017
SCALE: 1"=1000'

I-95 Extended Study Area

I-95

Bowman, SC 29018

Inquiry Number: 7172876.5

November 08, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

11/08/22

Site Name:

I-95 Extended Study Area
I-95
Bowman, SC 29018
EDR Inquiry # 7172876.5

Client Name:

ARM Environmental Services
1210 First Street South Ext
Columbia, SC 29209
Contact: Richard Ciccolella

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1995	1"=500'	Acquisition Date: January 01, 1995	USGS/DOQQ
1964	1"=500'	Flight Date: October 17, 1964	USGS
1961	1"=500'	Flight Date: October 16, 1961	USGS

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


INQUIRY #: 7172876.5
YEAR: 2017
= 500'
N
EDR

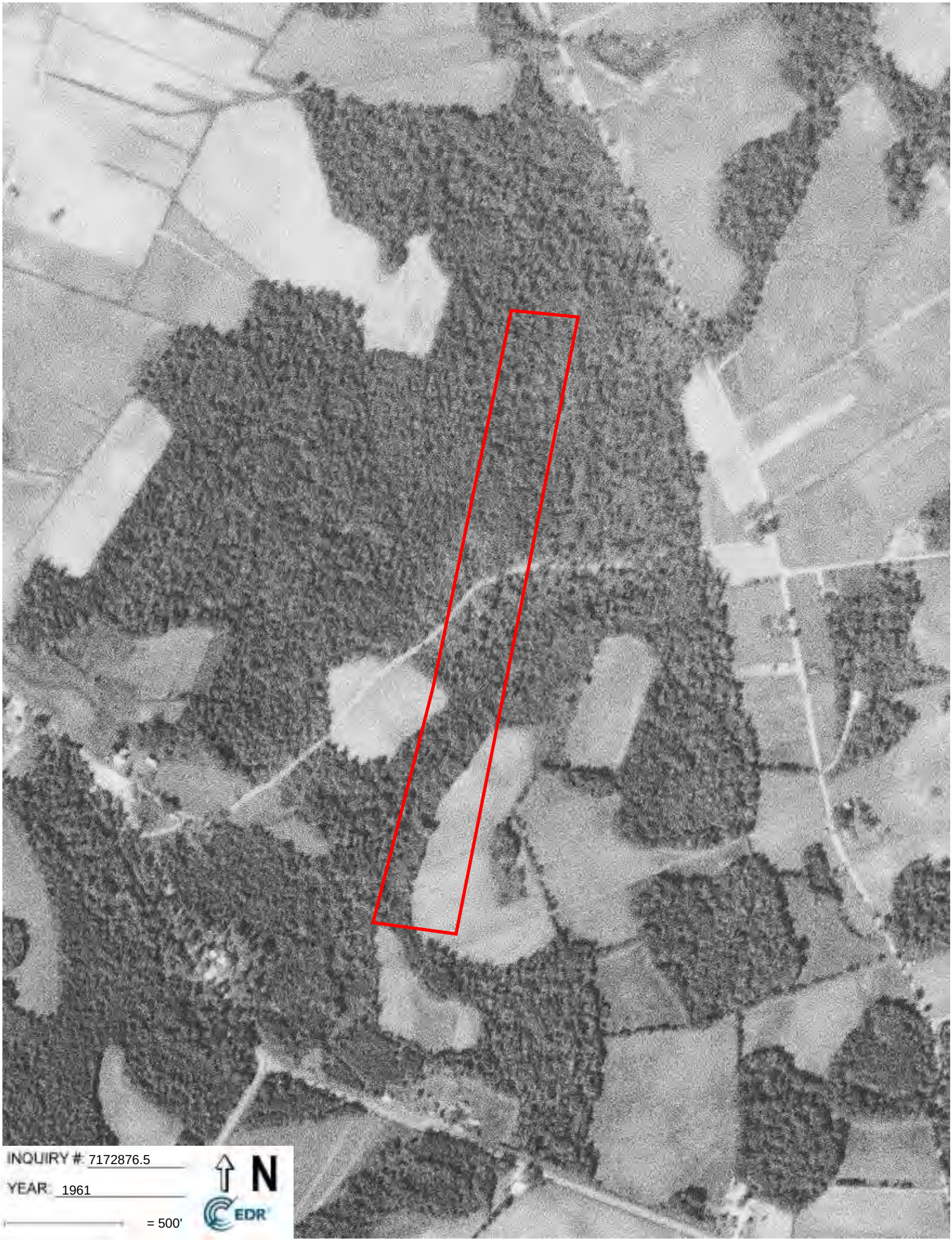

INQUIRY #: 7172876.5
YEAR: 2013
= 500'
N
EDR


INQUIRY #: 7172876.5
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 7172876.5
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 7172876.5
YEAR: 1995
= 500'
N
EDR


INQUIRY #: 7172876.5
YEAR: 1964
= 500'
N
EDR


INQUIRY #: 7172876.5
YEAR: 1961
= 500'
N
EDR

I-26 / I-95 Interchange Improvements

I-26 / I-95 Interchange Improvements

Bowman, SC 29018

Inquiry Number: 7106041.1

September 02, 2022

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

09/02/22

Site Name:	Client Name:
I-26 / I-95 Interchange Improve	ARM Environmental Services
I-26 / I-95 Interchange Improve	1210 First Street South Ext
Bowman, SC 29018	Columbia, SC 29209
EDR Inquiry # 7106041.1	Contact: Richard Ciccolella

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by ARM Environmental Services were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: 16-318-22

Coordinates:

Latitude:	33.319104 33° 19' 9" North
Longitude:	-80.5484 -80° 32' 54" West
UTM Zone:	Zone 17 North
UTM X Meters:	542034.25
UTM Y Meters:	3686754.75
Elevation:	108.41' above sea level

Maps Provided:

2020
2017
2014
1982
1943
1921
1920

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2020 Source Sheets

Wadboo Swamp
2020
7.5-minute, 24000

2017 Source Sheets

Wadboo Swamp
2017
7.5-minute, 24000

2014 Source Sheets

Wadboo Swamp
2014
7.5-minute, 24000

1982 Source Sheets

Wadboo Swamp
1982
7.5-minute, 24000
Aerial Photo Revised 1974

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1943 Source Sheets

Bowman
1943
15-minute, 62500
Aerial Photo Revised 1941

1921 Source Sheets

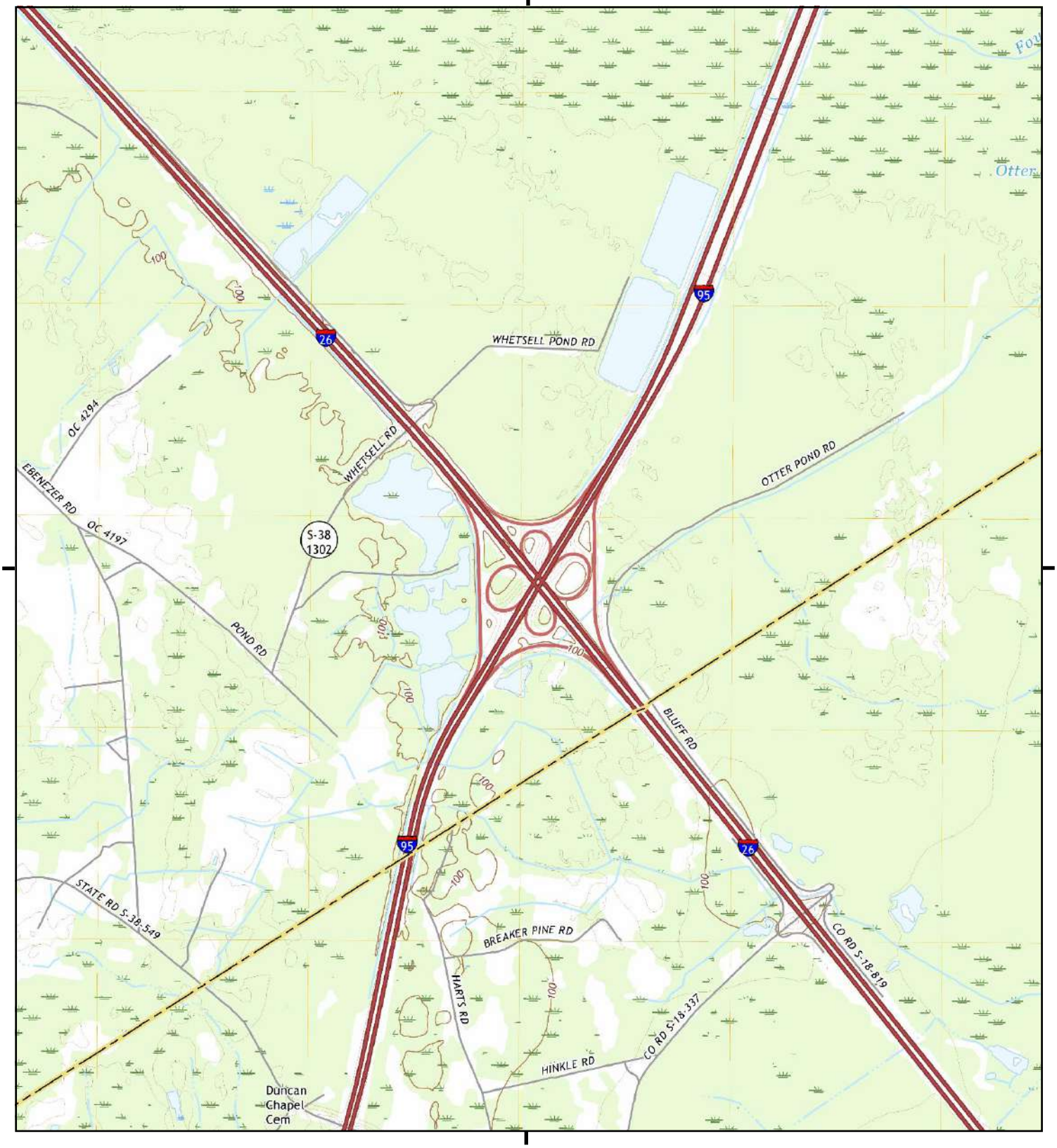
Bowman
1921
15-minute, 62500

1920 Source Sheets

Bowman
1920
15-minute, 48000

Historical Topo Map

2020



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

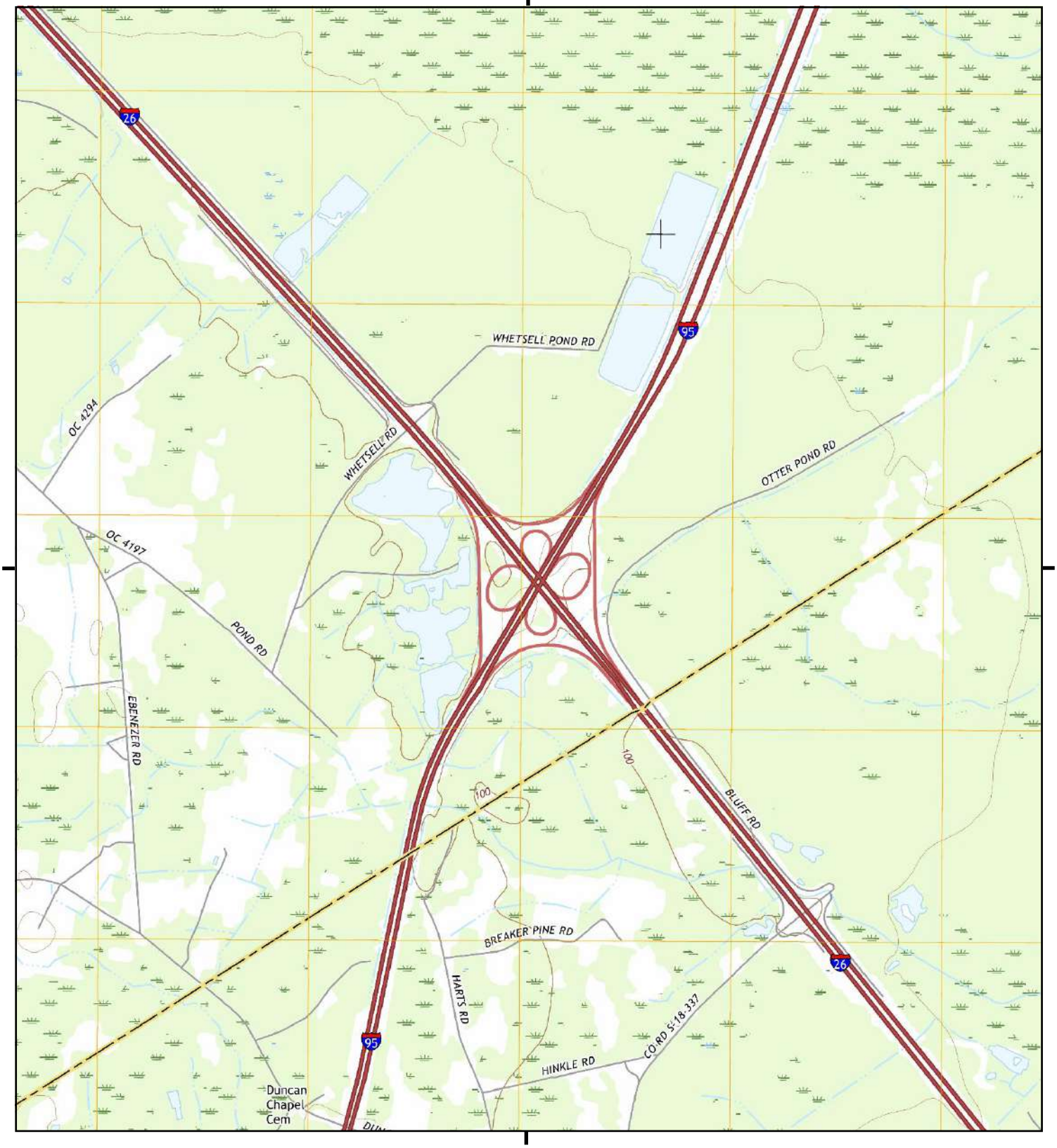
TP, Wadboo Swamp, 2020, 7.5-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N

Historical Topo Map

2017



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

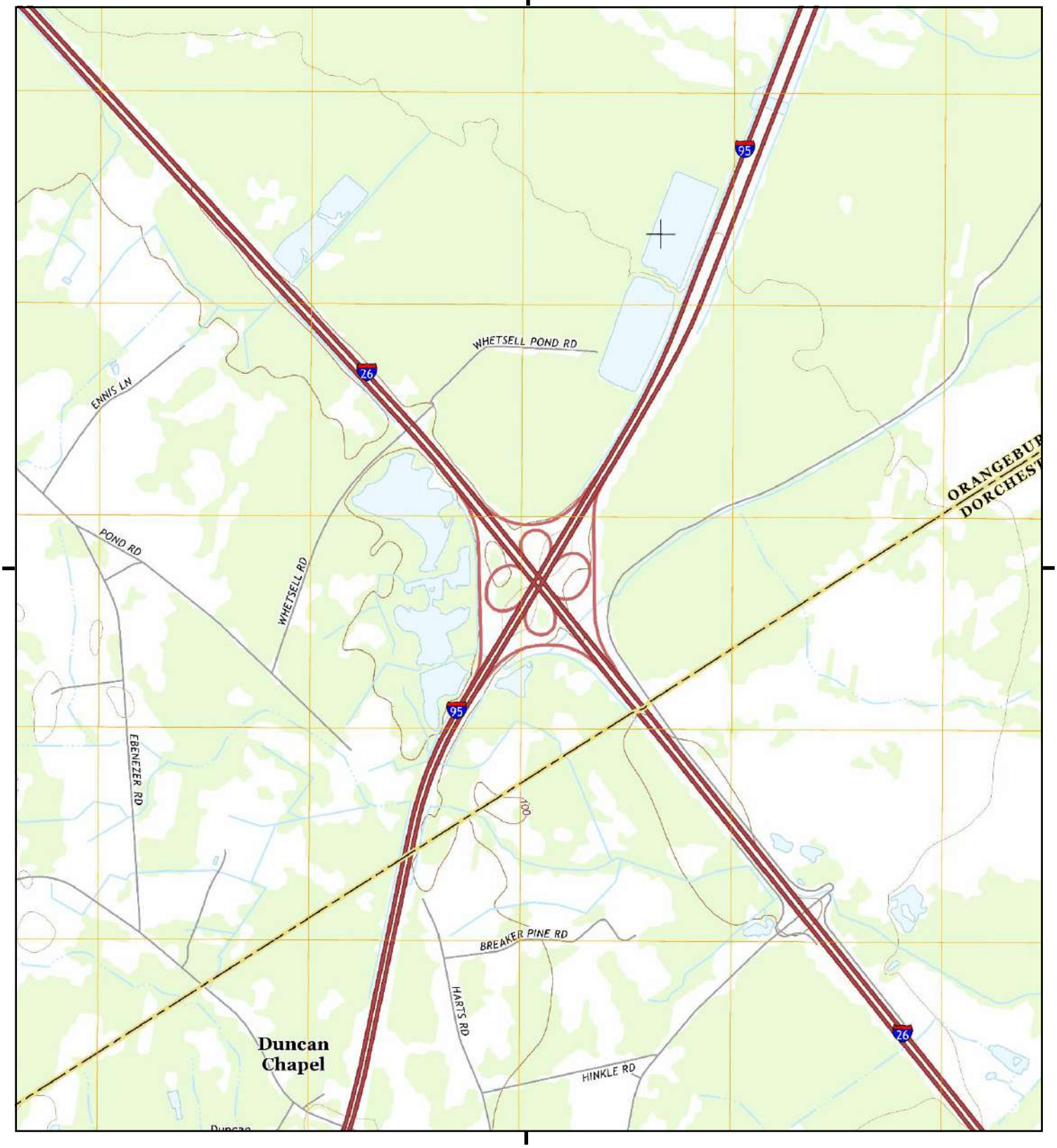
TP, Wadboo Swamp, 2017, 7.5-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N

Historical Topo Map

2014



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

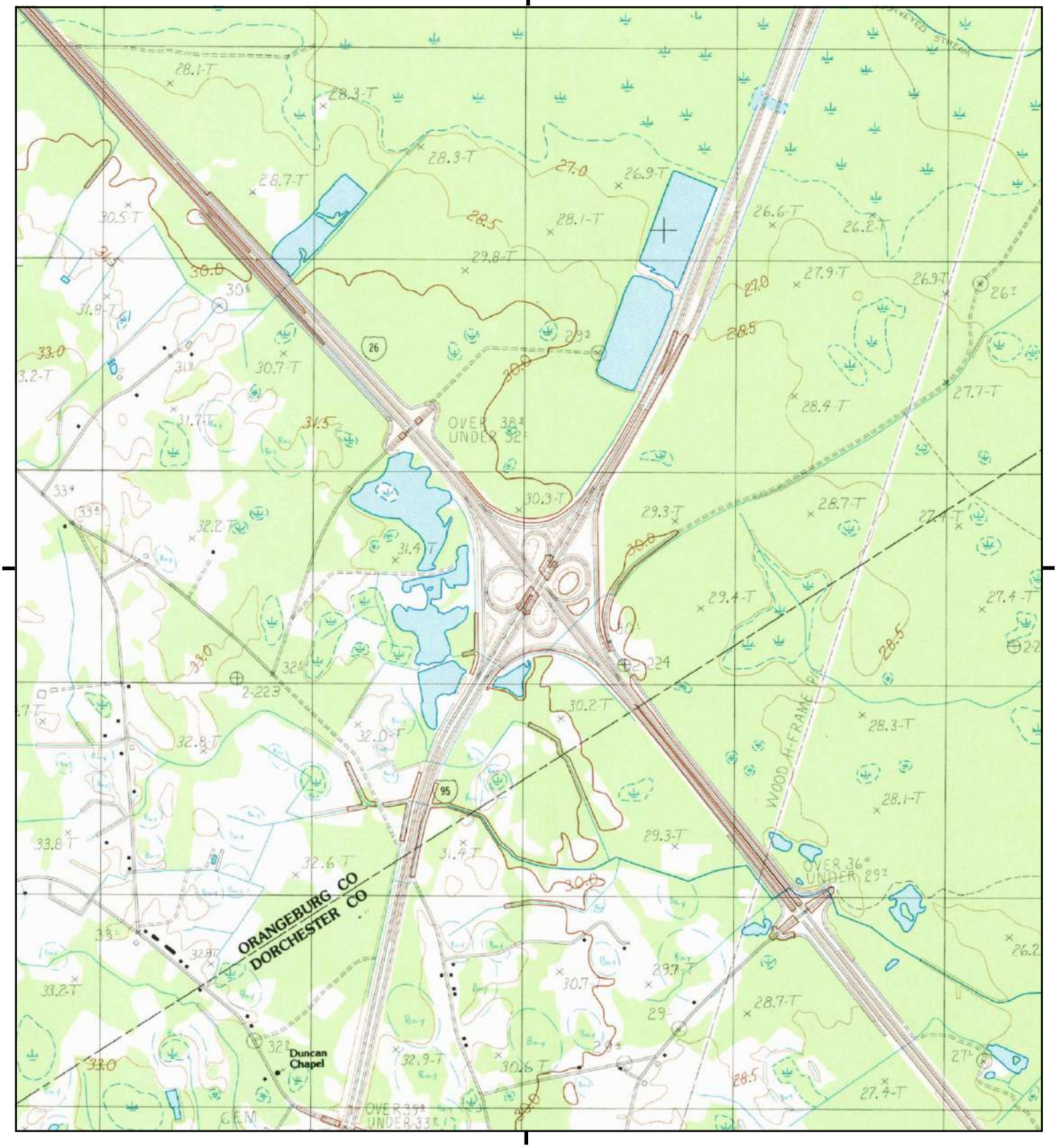
TP, Wadboo Swamp, 2014, 7.5-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N

Historical Topo Map

1982



This report includes information from the following map sheet(s).

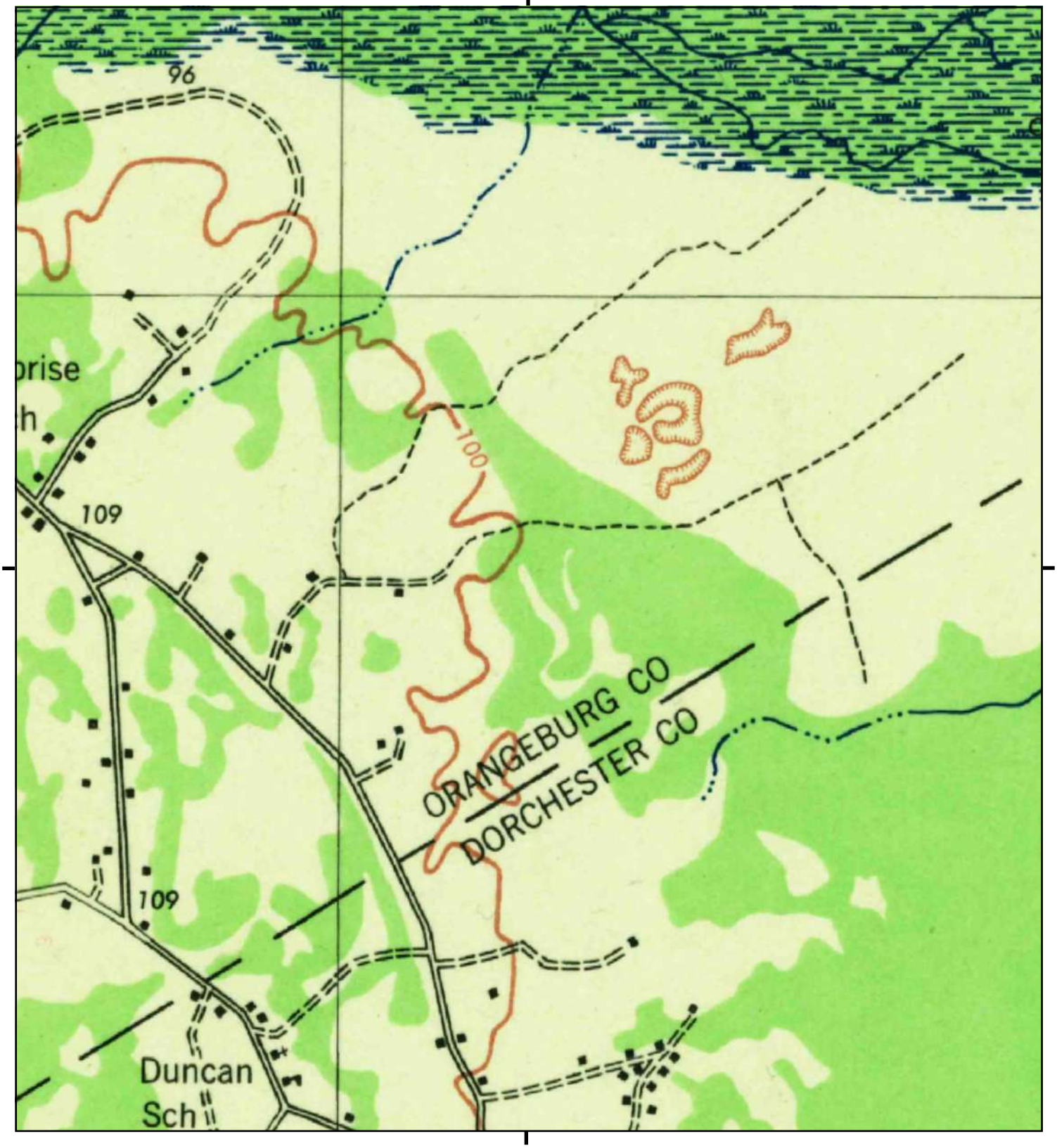
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Wadboo Swamp, 1982, 7.5-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N



This report includes information from the following map sheet(s).

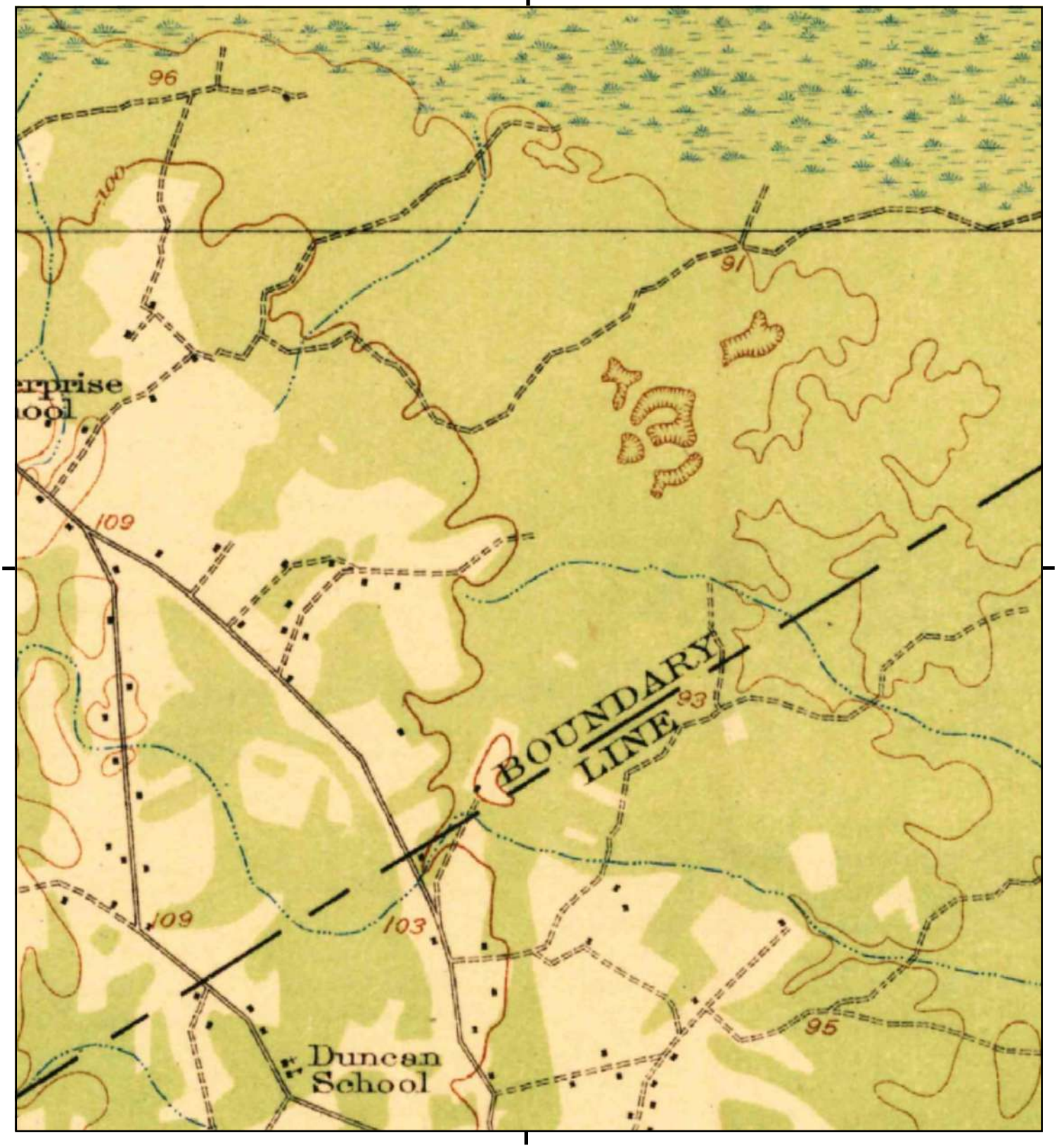
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Bowman, 1943, 15-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N



This report includes information from the following map sheet(s).

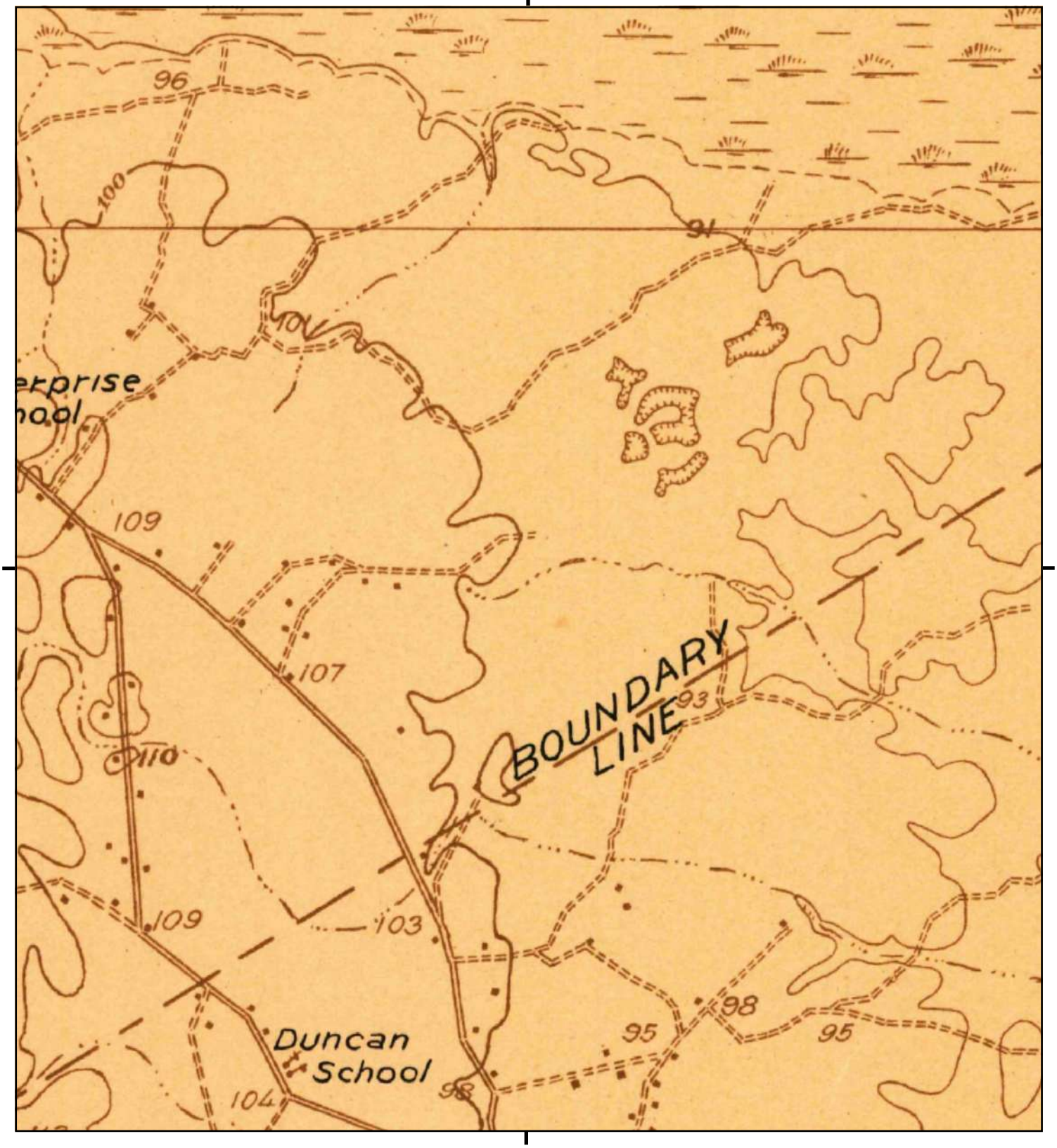
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Bowman, 1921, 15-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Bowman, 1920, 15-minute

SITE NAME: I-26 / I-95 Interchange Improvements
ADDRESS: I-26 / I-95 Interchange Improvements
Bowman, SC 29018
CLIENT: ARM Environmental Services

N

17.5 Regulatory Records Documentation

I-26 / I-95 Interchange Improvements
I-26 / I-95 Interchange Improvements
Bowman, SC 29018

Inquiry Number: 7106041.5s
September 02, 2022

EDR Area / Corridor Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

SUBJECT PROPERTY INFORMATION

ADDRESS

I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

TARGET PROPERTY SEARCH RESULTS

The Target Property was identified in the following databases.

Page Numbers and Map Identifcations refer to the EDR Area/Corridor Report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

ADDITIONAL ENVIRONMENTAL RECORDS

Records of Emergency Release Reports

SPILLS: Spills Database List

A review of the SPILLS list, as provided by EDR, and dated 05/26/2022 has revealed that there is 1 SPILLS site within the requested target property.

Site	Address	Map ID / Focus Map(s)	Page
SADDLE TANKS Incident Name: 200002015 Incident ID number: 389993	I-95 AND I-26	1 / 5	24

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Page Numbers and Map Identifcations refer to the EDR Area/Corridor Report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

SHWS: Site Assessment Section Project List

A review of the SHWS list, as provided by EDR, and dated 03/10/2022 has revealed that there is 1 SHWS site within approximately1 mile of the requested target property.

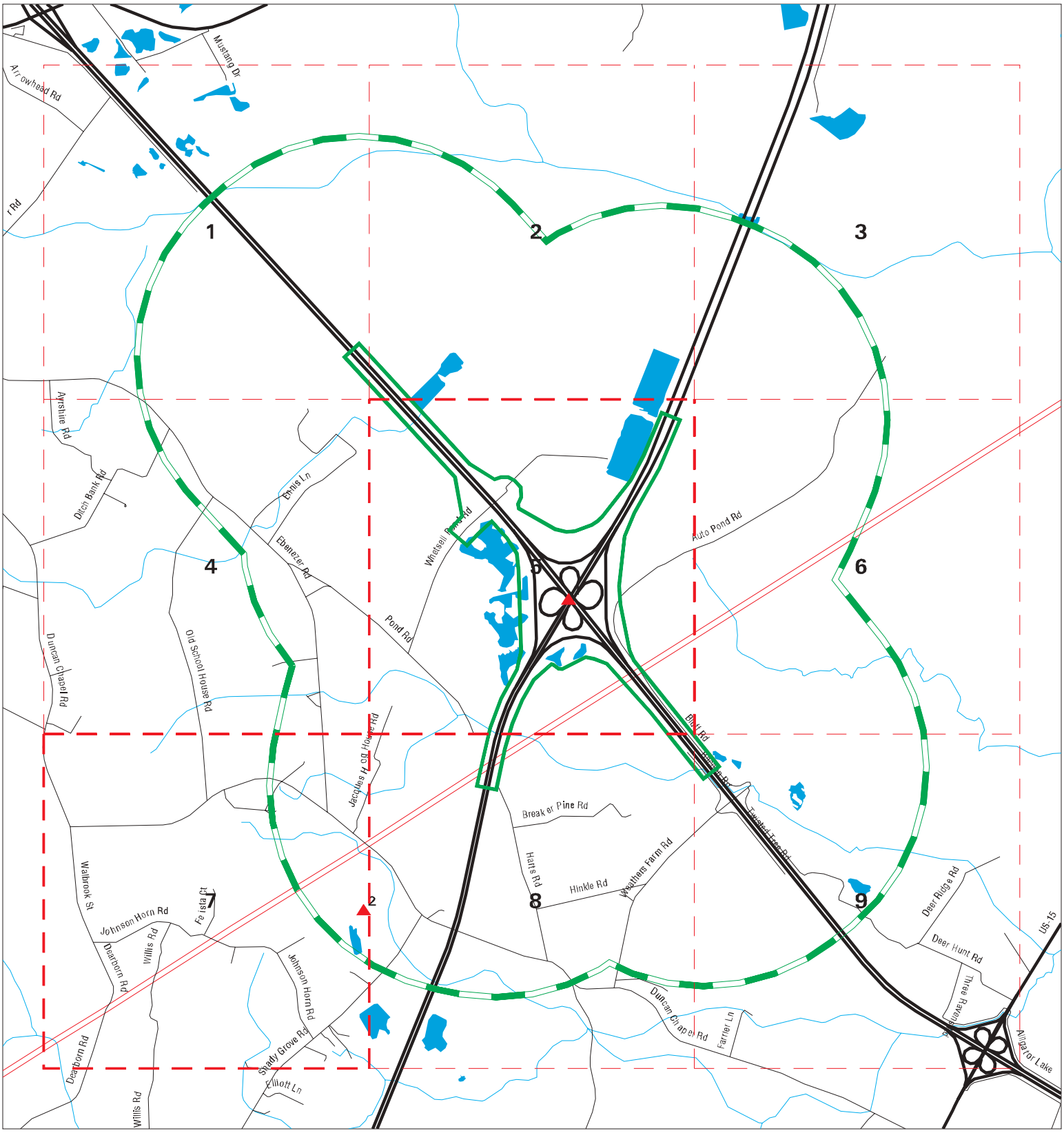
Site	Address	Direction / Distance	Map ID / Focus Map(s)	Page
WHETSELL FARM SITE EPA ID: SCR000783795	***1452 DUNCAN CHAPEL R***	***SW 1/2 - 1 (0.808 mi.)***	***2 / 7***	***24***

MAPPED SITES SUMMARY

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
1 / 5	SADDLE TANKS	I-95 AND I-26	SPILLS	TP
2 / 7	WHETSELL FARM SITE	1452 DUNCAN CHAPEL R	SHWS, ALLSITES	4267 0.808 SW

Key Map - 7106041.5s



SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22 8:52 AM

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal hazardous waste facilities								
SHWS	1.000		0	0	0	1	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
RCR	0.500		0	0	0	NR	NR	0
AUL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
ALLSITES	0.500		0	0	0	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP	1	NR	NR	NR	NR	NR	1
SPILLS 90	TP		NR	NR	NR	NR	NR	0
SPILLS 80	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
ASBESTOS	TP		NR	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
GWCI	0.500		0	0	0	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		1	0	0	0	1	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Focus Map - 1 - 7106041.5s

Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

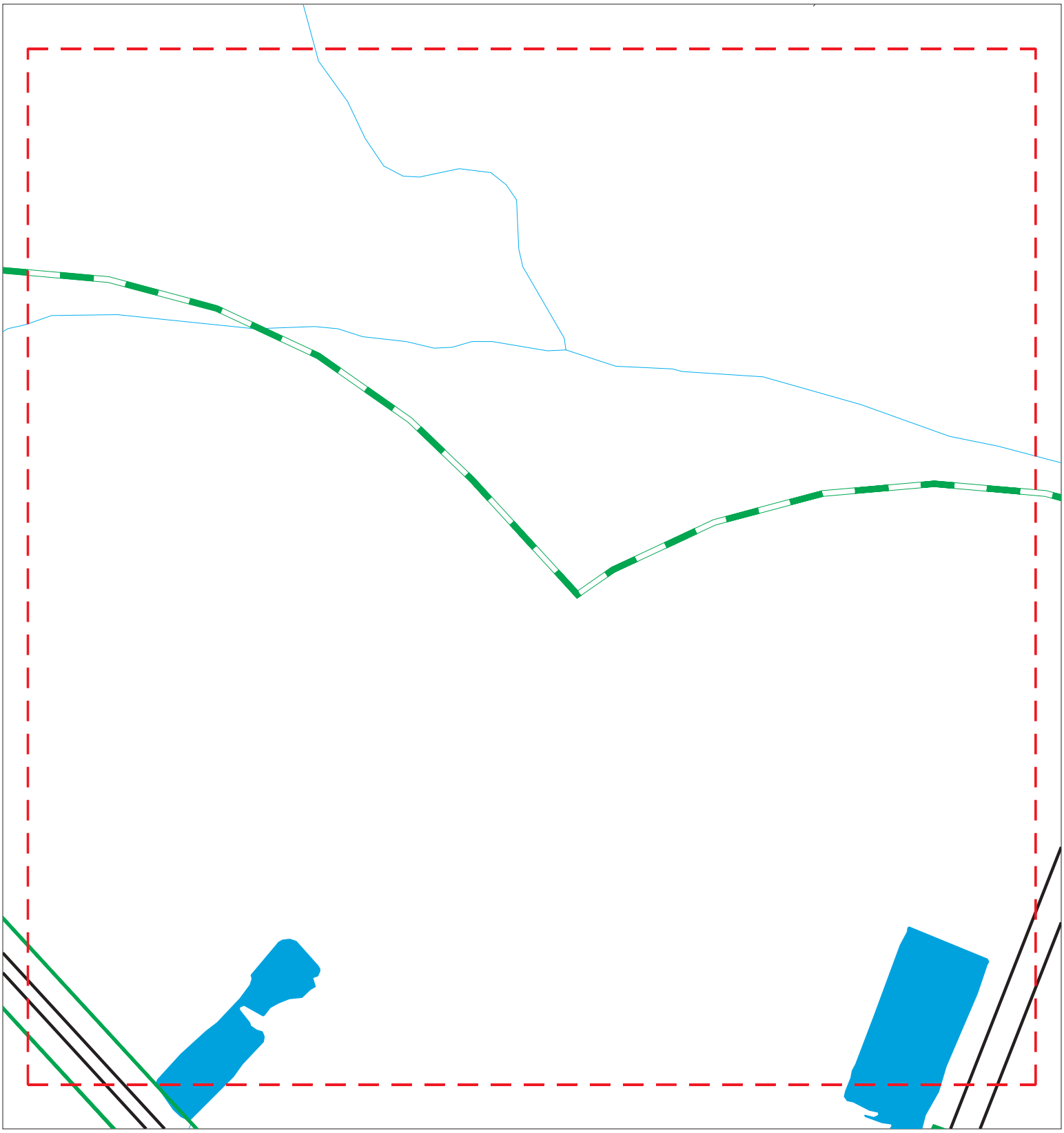
MAPPED SITES SUMMARY - FOCUS MAP 1

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 2 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

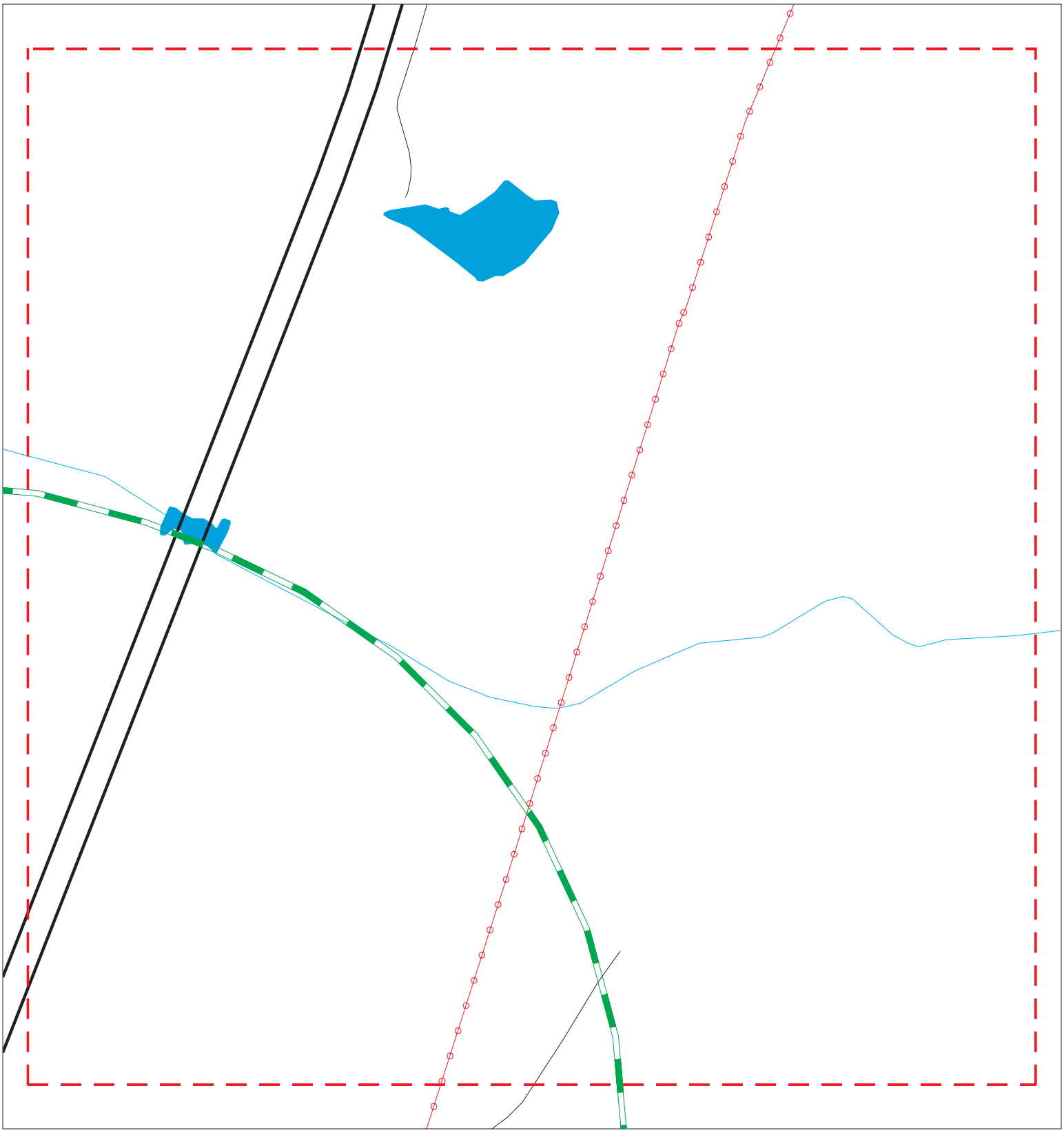
MAPPED SITES SUMMARY - FOCUS MAP 2

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 3 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

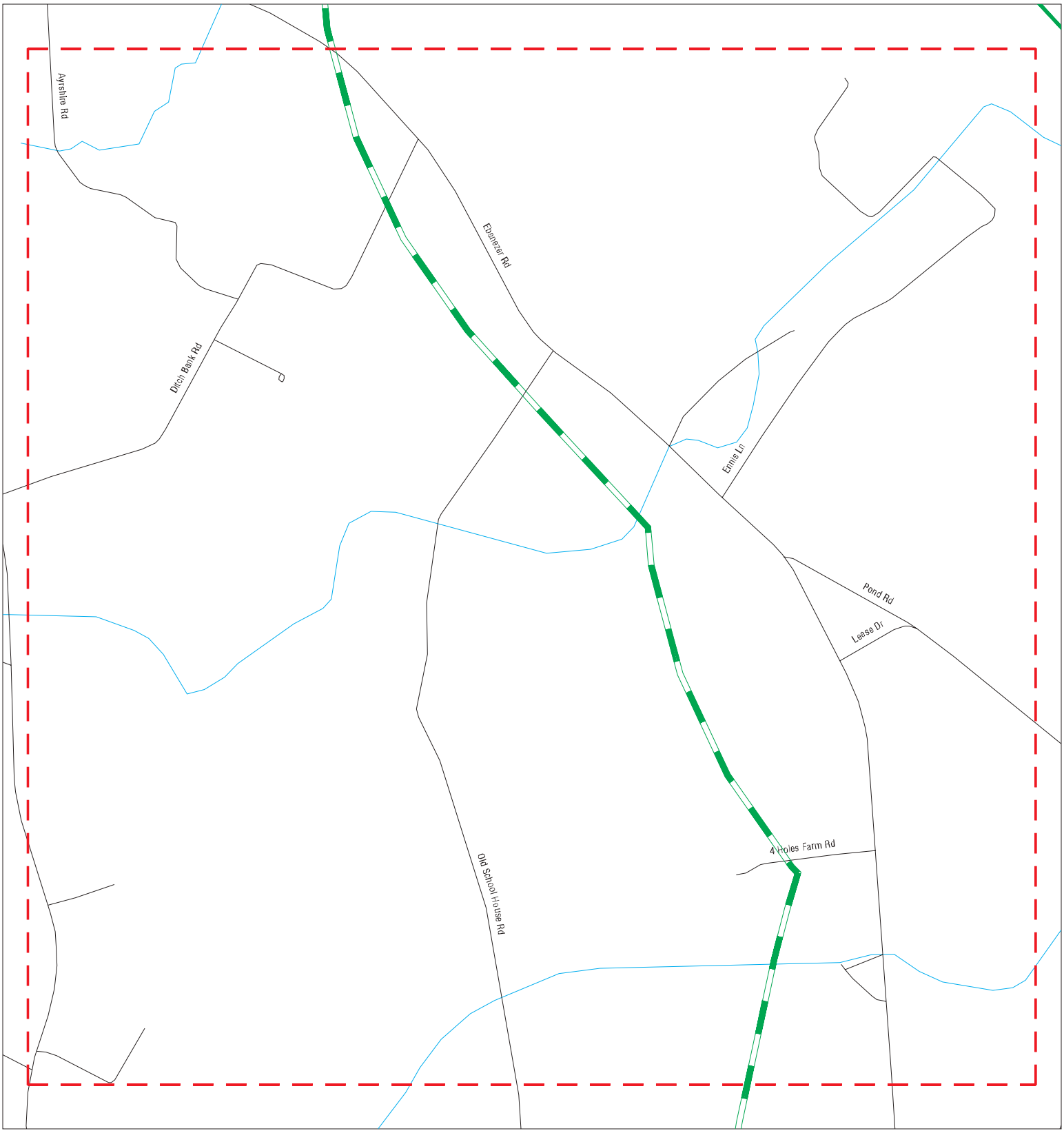
MAPPED SITES SUMMARY - FOCUS MAP 3

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 4 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

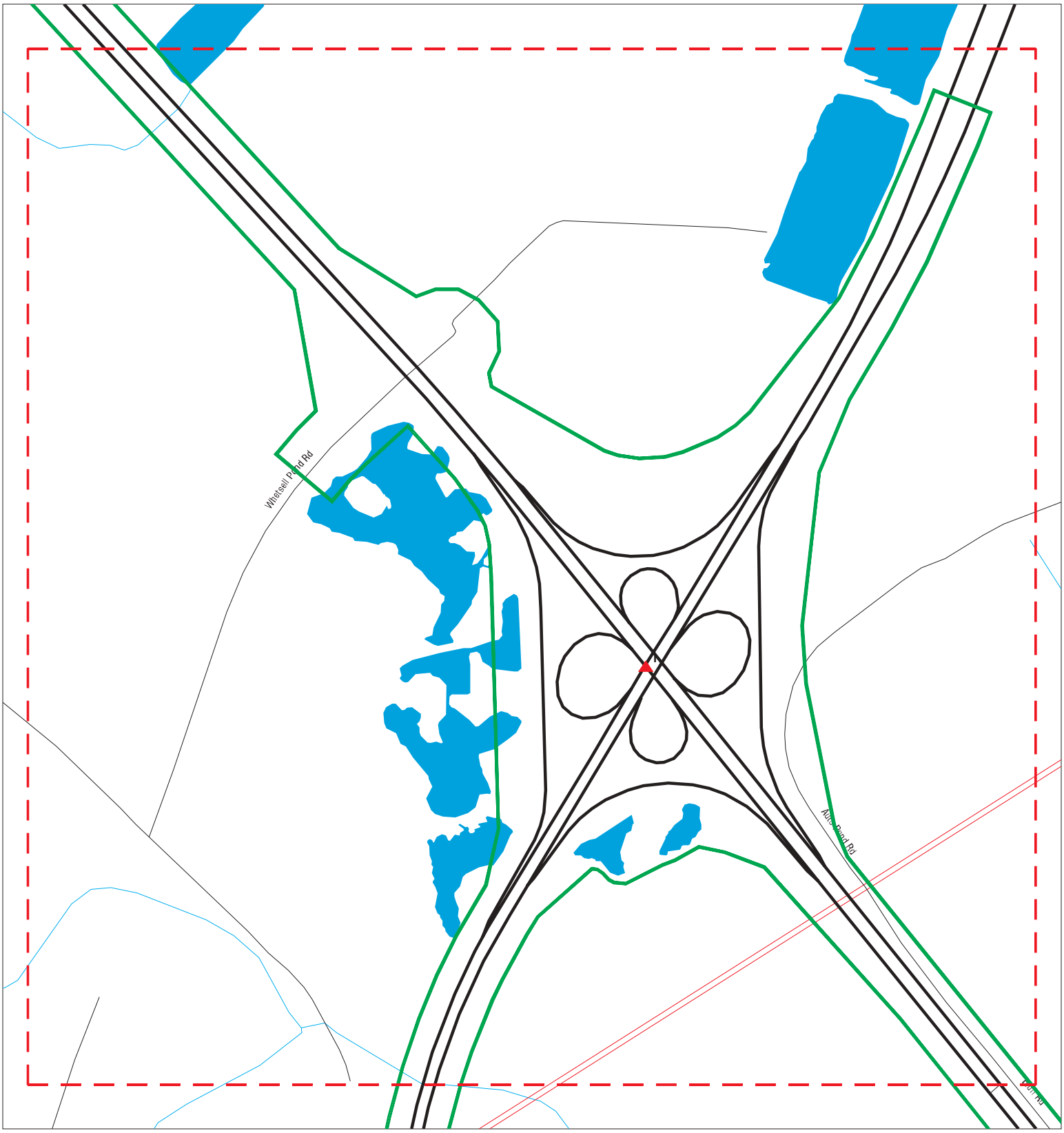
MAPPED SITES SUMMARY - FOCUS MAP 4

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 5 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

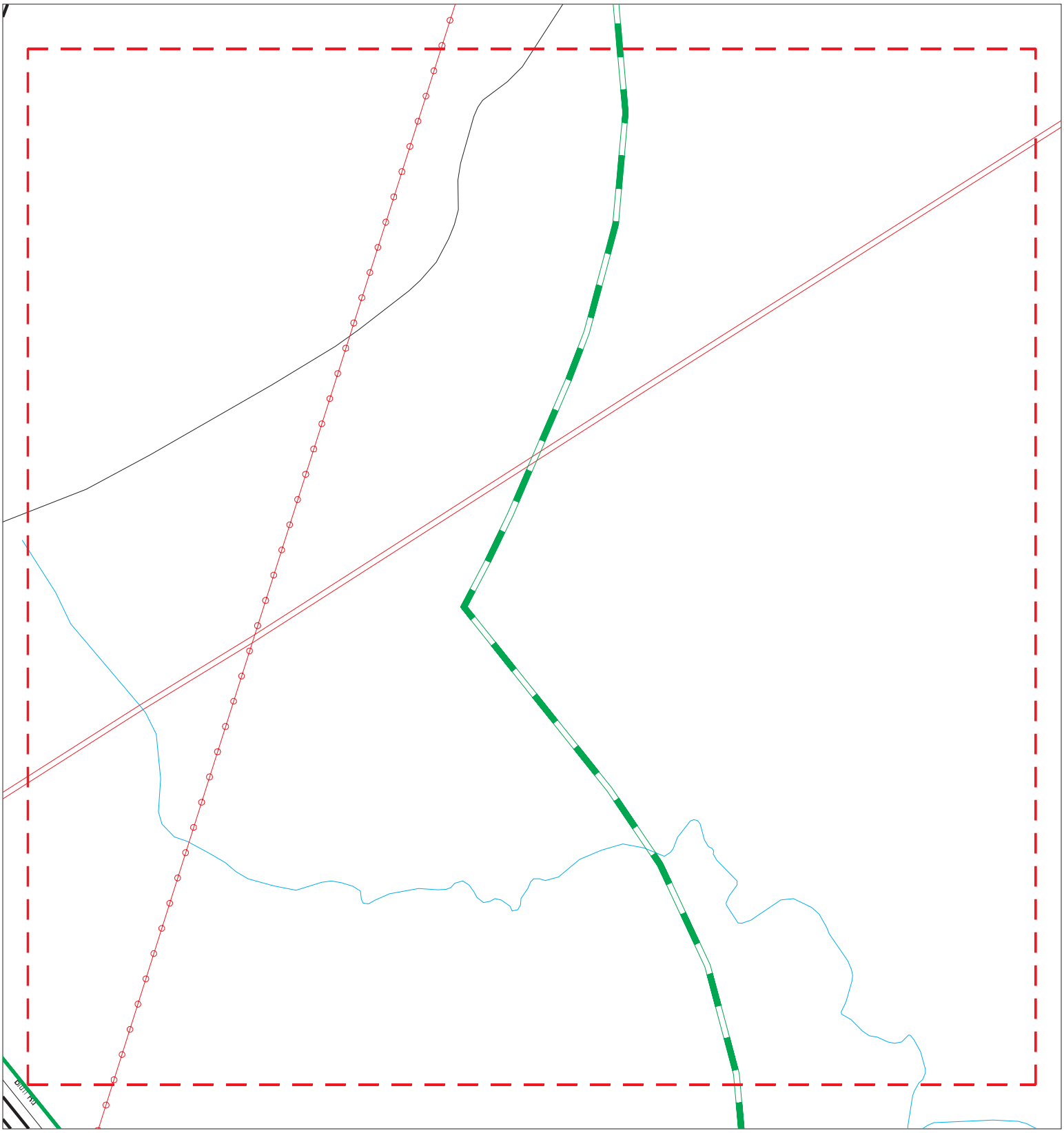
SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

MAPPED SITES SUMMARY - FOCUS MAP 5

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
1 / 5	SADDLE TANKS	I-95 AND I-26	SPILLS	TP

Focus Map - 6 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

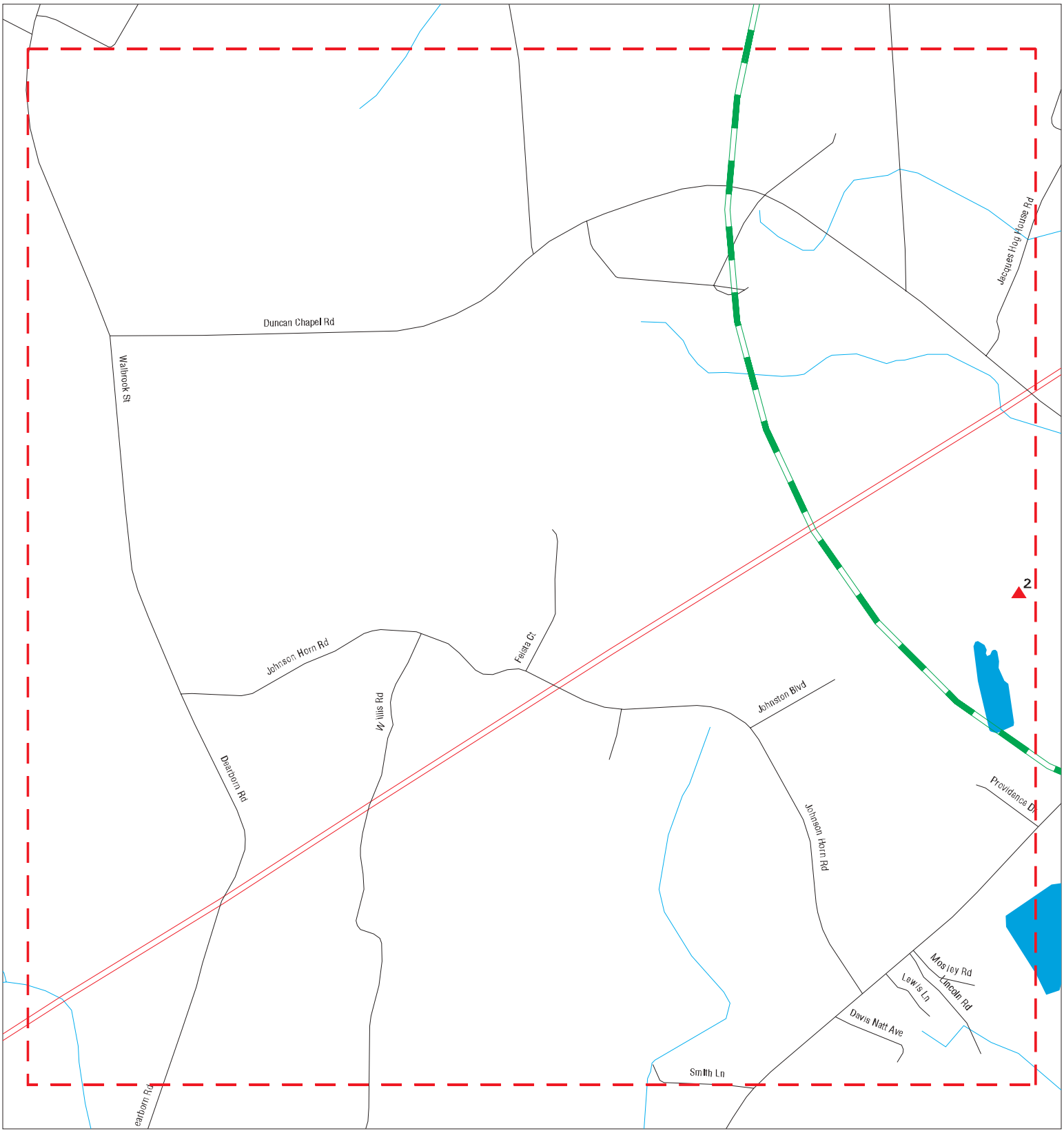
MAPPED SITES SUMMARY - FOCUS MAP 6

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 7 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

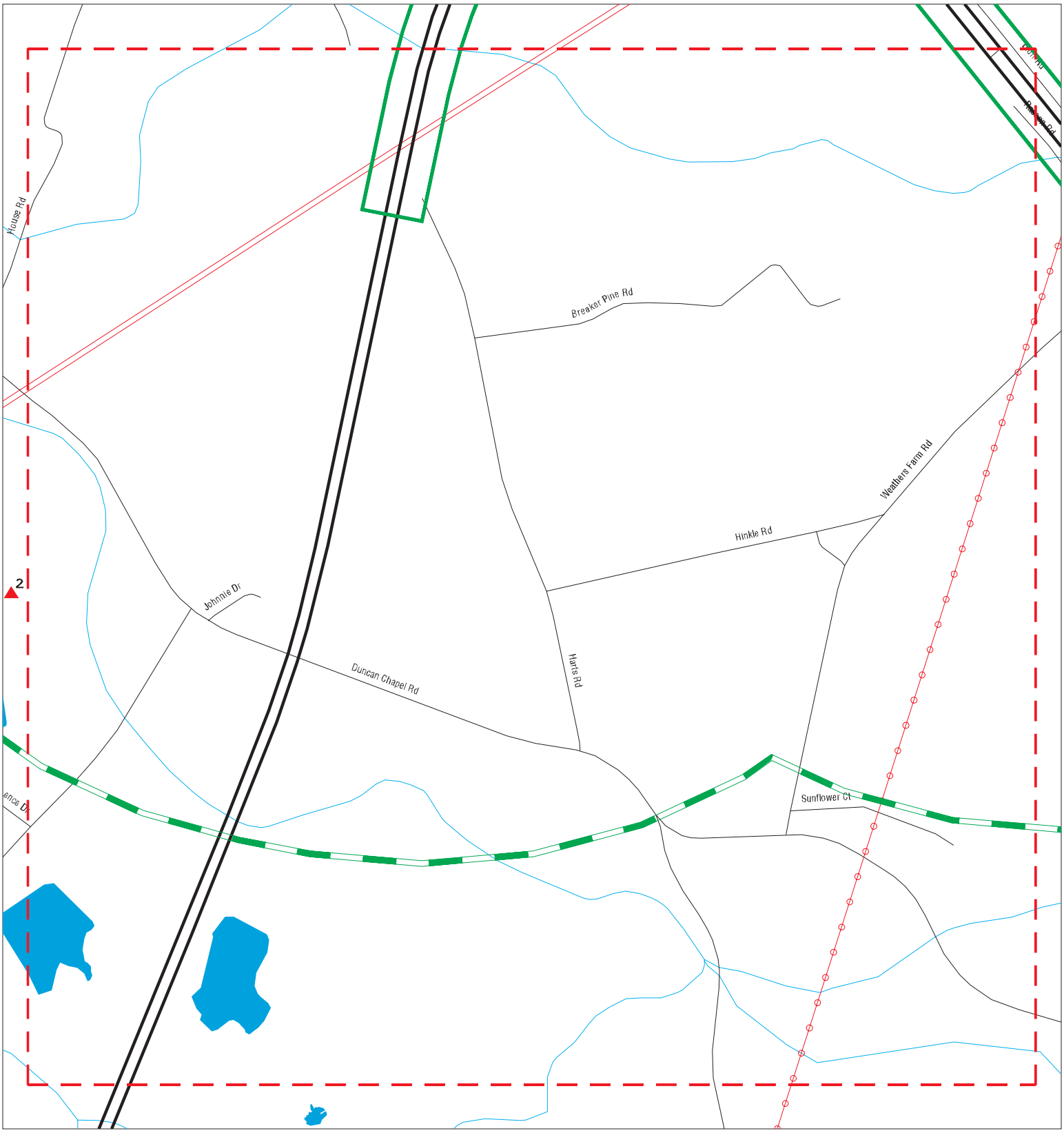
SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

MAPPED SITES SUMMARY - FOCUS MAP 7

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
2 / 7	WHETSELL FARM SITE	1452 DUNCAN CHAPEL R	SHWS, ALLSITES	4267 0.808 SW

Focus Map - 8 - 7106041.5s



Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

MAPPED SITES SUMMARY - FOCUS MAP 8

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

Focus Map - 9 - 7106041.5s

Sites
Target Property
Search Buffer
Focus Map - No Sites
Focus Map - Sites
Power Line
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA

0 1/8 1/4 Miles

SITE NAME: I-26 / I-95 Interchange Improvements	CLIENT: ARM Environmental Services
ADDRESS: I-26 / I-95 Interchange Improvements	CONTACT: Richard Ciccolella
CITY/STATE: Bowman SC	INQUIRY #: 7106041.5s
ZIP: 29018	DATE: 09/02/22

MAPPED SITES SUMMARY - FOCUS MAP 9

Target Property:
I-26 / I-95 INTERCHANGE IMPROVEMENTS
BOWMAN, SC 29018

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

1 **SADDLE TANKS** **SPILLS** **S104829083**
Target **I-95 AND I-26** **N/A**
Property **ORANGEBURG (County), SC**

Actual: **110 ft.**
Focus Map: **5**

SPILL:

Name:	SADDLE TANKS
Address:	I-95 AND I-26
City,State,Zip:	SC
Incident ID number:	389993
Incident Name:	200002015
District Logged In:	Not reported
Date DHEC notified:	07/25/2000
DHEC notification:	904
Observed date:	07/25/2000
observed Time:	900
Spill Date:	07/25/2000
Spill Time:	900
Duration:	Not reported
Created Date:	07/25/2000
Updated Date:	08/03/2000
District Name:	Aiken EQC Office
PRP Last Name:	RIM INTERNATIONAL TRUCKING
PRP First Name:	Not reported
Incident substance type:	Oil
Received by Name:	JIM RICE
Revieved by Name:	JAMES BURCKHALTER
Transportation:	Y
Surface water affected:	No
Lead Investigator Name:	JAMES BURCKHALTER
CCBEP:	No
Water body:	Not reported
Caller Last Name:	Not reported
Caller name:	Not reported
Caller phone number:	Not reported
Caller extension:	Not reported
Caller organization:	Not reported
Substance:	DIESEL
Quantity:	100
Units:	Gallons
Recovered:	100
Recovered Units:	Gallons
Comments:	Not reported

---

2 **WHETSELL FARM SITE** **SHWS** **S120052879**
SW **1452 DUNCAN CHAPEL RD** **ALLSITES** **N/A**
1/2-1 **BOWMAN, SC 29018**
0.808 mi.
4267 ft.

Actual: **107 ft.**
Focus Map: **7**

SHWS:

Name:	WHETSELL FARM SITE
Address:	1452 DUNCAN CHAPEL RD
City,State,Zip:	BOWMAN, SC 29018
EPA ID:	SCR000783795

ALLSITES:

Name:	WHETSELL FARM SITE
Address:	1452 DUNCAN CHAPEL RD

WHETSELL FARM SITE (Continued) **S120052879**

City,State,Zip:	BOWMAN, SC 29018
Brownfield:	Not reported
Brownfield Type:	Not reported
Funds Used:	No
Resp Action:	Yes
Permit Number:	Not reported
Program:	Not reported
Owner:	Please call 803-898-2000 for this information.
Project Status Code:	ACTIVE
Execute Date:	Not reported
Restrictions Filed Date:	Not yet recorded.
Cleanup Contract Complete Date:	Not reported
Project Complete Date:	Not yet completed.
File Number:	56289
Land Use Restriction:	Not yet determined.
Contamination On Site:	Pesticides/Herbicides
Acreage:	38
Soil Contamination Desc:	Not reported
Soil COCS:	Not reported
SW Sed Contamination Desc:	Not reported
SW COCS:	Not reported
GW Contamination Desc:	Not reported
GW COCS:	Not reported
Air Contamination Desc:	Not reported
Air COCS:	Not reported
Lat:	33.30322
Long:	-80.56726

Count: 26 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BOWMAN	2008892080		I-95 AND I-26 INTERCHANGE		ERNS
BOWMAN	9044067		EXIT 165 I-26		ERNS
BOWMAN	2019258435		I-26 WESTBOUND		ERNS
BOWMAN	S107692262	FUEL SPILL	I-26 W		SPILLS
BOWMAN	S117361650		I-26 EASTBOUND @ MILE MARKER 159		SPILLS
HARLEYVILLE	2004725811		HIGHWAY 453 N AND I-26	29448	ERNS
HARLEYVILLE	95276827		HIGHWAY 453 N AND I-26	29448	ERNS
HARLEYVILLE	94255883		HIGHWAY 453 N AND I-26	29448	ERNS
HARLEYVILLE	94258812		HIGHWAY 453 N AND I-26	29448	ERNS
HARLEYVILLE	2003706351		HIGHWAY 453 N AND I-26	29448	ERNS
HARLEYVILLE	98466603		HWY 453 AT I-26	29448	ERNS
HARLEYVILLE	97374867		HWY 453 AT I-26	29448	ERNS
HARLEYVILLE	9159012		I-26 AT EXIT 173		ERNS
HARLEYVILLE	2018227048		I-26 S, MM 181		ERNS
HARLEYVILLE	2008450502	I-26 EB EXIT 172B	I-26 EB EXIT 172B		HMIRS
HARLEYVILLE	S106966754	SADDLE TANK	I-26 W MM 179		SPILLS
HARLEYVILLE	S111008790		JUDGE ST @ I-26		SPILLS
HARLEYVILLE	S109015083		I-26 @ MILE MARKER 172-B		SPILLS
ORANGEBURG COUNTY	S105375610	I-95 MM 100 NORHT BOUND LANE	I-95 MM 100 N BOUND		SPILLS
ORANGEBURG COUNTY	S105039823	SADDLE TANKS	I-95 MILE MARKER 88		SPILLS
ORANGEBURG COUNTY	S105703574	LIQUOR SPILL	I-26 159 MM		SPILLS
ORANGEBURG COUNTY	S104829066	SADDLE TANKS	I-26 MARKER 157		SPILLS
ORANGEBURG COUNTY	S105958217	TRACTOR SADDLE TANK & CAR GAS TANK	I-26 E MM159		SPILLS
ORANGEBURG COUNTY	S106044889	FUEL SPILL	I-26 & I-95 INTERSECTION		SPILLS
ORANGEBURG COUNTY	S106802646	SADDLE TANK	I-26 E MM 151		SPILLS
ST GEORGE	1007243234	TRAVELAND OF ST GEORGE	I-95 & HWY 178	29477	FINDS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 06/27/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/19/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 71

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/15/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

SHWS: Site Assessment Section Project List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 03/10/2022
Date Data Arrived at EDR: 03/17/2022
Date Made Active in Reports: 04/08/2022
Number of Days to Update: 22

Source: Department of Health and Environmental Control
Telephone: 803-898-0835
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: Permitted Landfills List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/09/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 06/13/2022
Number of Days to Update: 4

Source: Department of Health and Environmental Control
Telephone: 803-734-5165
Source: Department of Health and Environmental Control, GIS Section
Telephone: 803-896-4084
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/21/2022
Date Data Arrived at EDR: 04/21/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 13

Source: Department of Health and Environmental Control
Telephone: 803-898-4350
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

UST: Comprehensive Underground Storage Tanks
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 01/07/2022
Date Made Active in Reports: 03/23/2022
Number of Days to Update: 75

Source: Department of Health and Environmental Control
Telephone: 803-896-7957
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank List
Registered Aboveground Storage Tanks.

Date of Government Version: 03/25/2004
Date Data Arrived at EDR: 08/04/2004
Date Made Active in Reports: 09/23/2004
Number of Days to Update: 50

Source: Department of Health and Environmental Control
Telephone: 803-898-4350
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

RCR: Registry of Conditional Remedies

The Bureau of Land and Waste Management established this Registry to help monitor and maintain sites that have conditional remedies. A Conditional Remedy is an environmental remedy that includes certain qualifications. These qualifications are divided into two major categories: Remedies requiring Land Use Controls and Conditional No Further Actions.

Date of Government Version: 06/13/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: Department of Health & Environmental Control
Telephone: 803-896-4000
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

AUL: Land Use Controls

The term Land Use Controls or "LUCs" encompass institutional controls, such as those involved in real estate interests, governmental permitting, zoning, public advisories, deed notices, and other legal restrictions. The term also includes restrictions on access, whether achieved by means of engineered barriers (e.g., fence or concrete pad) or by human means (e.g., the presence of security guards). Additionally, the term includes both affirmative measures to achieve the desired restrictions (e.g., night lighting of an area) and prohibitive directives (e.g., restrictions on certain types of wells for the duration of the corrective action). Considered altogether, the LUCs for a facility will provide a tool for how the property should be used in order to maintain the level of protectiveness that one or more corrective actions were designed to achieve.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/08/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 79

Source: Department of Health & Environmental Control
Telephone: 803-896-4049
Last EDR Contact: 06/08/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 06/15/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Sites

Sites participating in the Voluntary Cleanup Program. Once staff and a non-responsible party have agreed upon an approved scope of work for a site investigation and/or remediation, the party enters into a voluntary cleanup contract. Staff oversees the cleanup efforts to ensure that activities are performed to our satisfaction. Upon completion of the negotiated work in the voluntary cleanup contract, the non-responsible party receives State Superfund liability protection.

Date of Government Version: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/13/2022
Number of Days to Update: 85

Source: Department of Health and Environmental Control
Telephone: 803-896-4049
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Brownfields Sites Listing

The Brownfields component of the Voluntary Cleanup Program allows a non-responsible party to acquire a contaminated property with State Superfund liability protection for existing contamination by agreeing to perform an environmental assessment and/or remediation.

Date of Government Version: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/13/2022
Number of Days to Update: 85

Source: Department of Health & Environmental Control
Telephone: 803-896-4069
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 09/26/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Solid Waste Recycling Facilities

A listing of recycling center locations.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 03/13/2020
Date Made Active in Reports: 05/22/2020
Number of Days to Update: 70

Source: Department of Health & Enviornmental Control
Telephone: 803-896-8985
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

ALLSITES: Site Assessment & Remediation Public Record Database

The South Carolina Department of Health and Environmental Control is pleased to have the Public Record for your review. The purpose of this database is two-fold. First, it will provide to communities another form of notice of cleanup activity, allowing them to have more information about assessment and cleanup activities in their area and in the State. Second, it can assist those seeking to redevelop brownfield properties within South Carolina.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/08/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 79

Source: Department of Health & Environmental Control
Telephone: 803-896-4000
Last EDR Contact: 06/08/2022
Next Scheduled EDR Contact: 09/19/2022
Data Release Frequency: Quarterly

CDL 2: Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/08/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 85

Source: South Carolina Law Enforcement Division
Telephone: 803-896-7136
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

CDL: Clandestine Drug Lab Sites

A listing of clandestine drug lab site locations.

Date of Government Version: 01/24/2012
Date Data Arrived at EDR: 01/26/2012
Date Made Active in Reports: 02/24/2012
Number of Days to Update: 29

Source: Department of Health & Environmental Control
Telephone: 803-896-4288
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/14/2022
Number of Days to Update: 85

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

SPILLS: Spill List

Spills and releases of petroleum and hazardous chemicals reported to the Oil & Chemical Emergency Response division.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 05/27/2022
Number of Days to Update: 1

Source: Department of Health and Environmental Control
Telephone: 803-898-4111
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Semi-Annually

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 10/25/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/07/2013
Number of Days to Update: 63

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch

Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 03/26/2001
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/07/2013
Number of Days to Update: 63

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 05/11/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 73

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/14/2022
Next Scheduled EDR Contact: 09/26/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 69

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 06/23/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2022
Date Data Arrived at EDR: 04/14/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 89

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/21/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/22/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 3

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 68

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (404) 562-9900
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/02/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/01/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 73

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

AIRS: Permiited Airs Facility Listing
A listing of permitted airs facilities.

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 05/25/2022
Date Made Active in Reports: 08/12/2022
Number of Days to Update: 79

Source: Department of Health & Environmental Control
Telephone: 803-898-4279
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

ASBESTOS: Asbestos Notification Listing
Asbestos abatement & demolition project list

Date of Government Version: 04/13/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8

Source: Department of Health & Environmental Control
Telephone: 803-898-3882
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Sites
A listing of sites with coal ash ponds.

Date of Government Version: 03/20/2018
Date Data Arrived at EDR: 03/22/2018
Date Made Active in Reports: 04/25/2018
Number of Days to Update: 34

Source: Department of Health & Environmental Control
Telephone: 803-898-3964
Last EDR Contact: 06/09/2022
Next Scheduled EDR Contact: 09/26/2022
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Database
The Drycleaning Facility Restoration Trust Fund database is used to access, prioritze and cleanup contaminated registered drycleaning sites.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 04/27/2022
Date Made Active in Reports: 07/18/2022
Number of Days to Update: 82

Source: Department of Health & Environmental Control
Telephone: 803-898-3882
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Financial Assurance 1: Financial Assurance Information Listing

Financial assurance information for aolid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/09/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/22/2022
Number of Days to Update: 12

Source: Department of Health & Environmental Control
Telephone: 803-896-4067
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

Financial Assurance 2: Financial Assurance Information Listing

Hazardous waste financial assurance information.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/25/2022
Number of Days to Update: 23

Source: Department of Health & Environmental Control
Telephone: 803-898-3880
Last EDR Contact: 07/20/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information Listing

UST financial assurance information.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 01/07/2022
Date Made Active in Reports: 03/23/2022
Number of Days to Update: 75

Source: Department of Health & Environmental Control
Telephone: 803-898-3880
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

GWCI: Groundwater Contamination Inventory

An inventory of all groundwater contamination cases in the state.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 11/06/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 13

Source: Department of Health and Environmental Control
Telephone: 803-898-3798
Last EDR Contact: 06/15/2022
Next Scheduled EDR Contact: 10/03/2022
Data Release Frequency: Annually

NPDES: Waste Water Treatment Facilities Listing

A listing of waste water treatment facility locations.

Date of Government Version: 04/21/2022
Date Data Arrived at EDR: 04/21/2022
Date Made Active in Reports: 07/13/2022
Number of Days to Update: 83

Source: Department of Health & Environmental Control
Telephone: 803-898-4300
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

UIC: Underground Injection Wells Listing

A listing of underground injection wells locations.

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Department of Health & Environmental Control
Telephone: 803-898-3799
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

MANIFEST: Hazardous Waste Manifest Data

A generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage or disposal must prepare a hazardous waste manifest to accompany such shipment.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 88

Source: Department of Health & Environmental Control
Telephone: 803-898-3796
Last EDR Contact: 07/27/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health and Environmental Control in South Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Health and Environmental Control
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health and Environmental Control in South Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/15/2014
Number of Days to Update: 198

Source: Department of Health and Environmental Control
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health and Environmental Control in South Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Health and Environmental Control
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Day Care List
Source: Department of Social Services
Telephone: 803-898-7345

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Natural Resources
Telephone: 803-734-9494

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

I-95 Extended Study Area
I-95
Bowman, SC 29018

Inquiry Number: 7172876.2s
November 08, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

I-95
BOWMAN, SC 29018

COORDINATES

Latitude (North):	33.3013200 - 33ˆ 18' 4.75''
Longitude (West):	80.5558950 - 80ˆ 33' 21.22''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	541345.9
UTM Y (Meters):	3684588.0
Elevation:	102 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	15605246 WADBOO SWAMP, SC
Version Date:	2020

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150503, 20150502
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
I-95
BOWMAN, SC 29018

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	WHETSELL FARM SITE	1452 DUNCAN CHAPEL R	SHWS, ALLSITES	Higher	2353, 0.446, WSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Permitted Landfills List

Lists of state and tribal leaking storage tanks

LUST ..... Leaking Underground Storage Tank List
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Comprehensive Underground Storage Tanks
AST ..... Aboveground Storage Tank List
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

RCR ..... Registry of Conditional Remedies
AUL ..... Land Use Controls

Lists of state and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Sites
INDIAN VCP ..... Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY ..... Solid Waste Recycling Facilities
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register

CDL	Clandestine Drug Lab Sites
US CDL	National Clandestine Laboratory Register

Local Land Records

LIENS 2	CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
SPILLS	Spills Database List
SPILLS 90	SPILLS 90 data from FirstSearch
SPILLS 80	SPILLS 80 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
AIRS	Permitted Airs Facility Listing

EXECUTIVE SUMMARY

ASBESTOS ASBESTOS
COAL ASH Coal Ash Disposal Sites
DRYCLEANERS Drycleaner Database
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MANIFEST Hazardous Waste Manifest Data

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS Recovered Government Archive State Hazardous Waste Facilities List
RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

SHWS: State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

A review of the SHWS list, as provided by EDR, and dated 06/16/2022 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WHETSELL FARM SITE EPA ID: SCR000783795	***1452 DUNCAN CHAPEL R***	***WSW 1/4 - 1/2 (0.446 mi.)***	***1***	***8***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

ALLSITES: The South Carolina Department of Health and Environmental Control is pleased to have the Public Record for your review. The purpose of this database is two-fold. First, it will provide to communities another form of notice of cleanup activity, allowing them to have more information about assessment and cleanup activities in their area and in the State. Second, it can assist those seeking to redevelop brownfield properties within South Carolina.

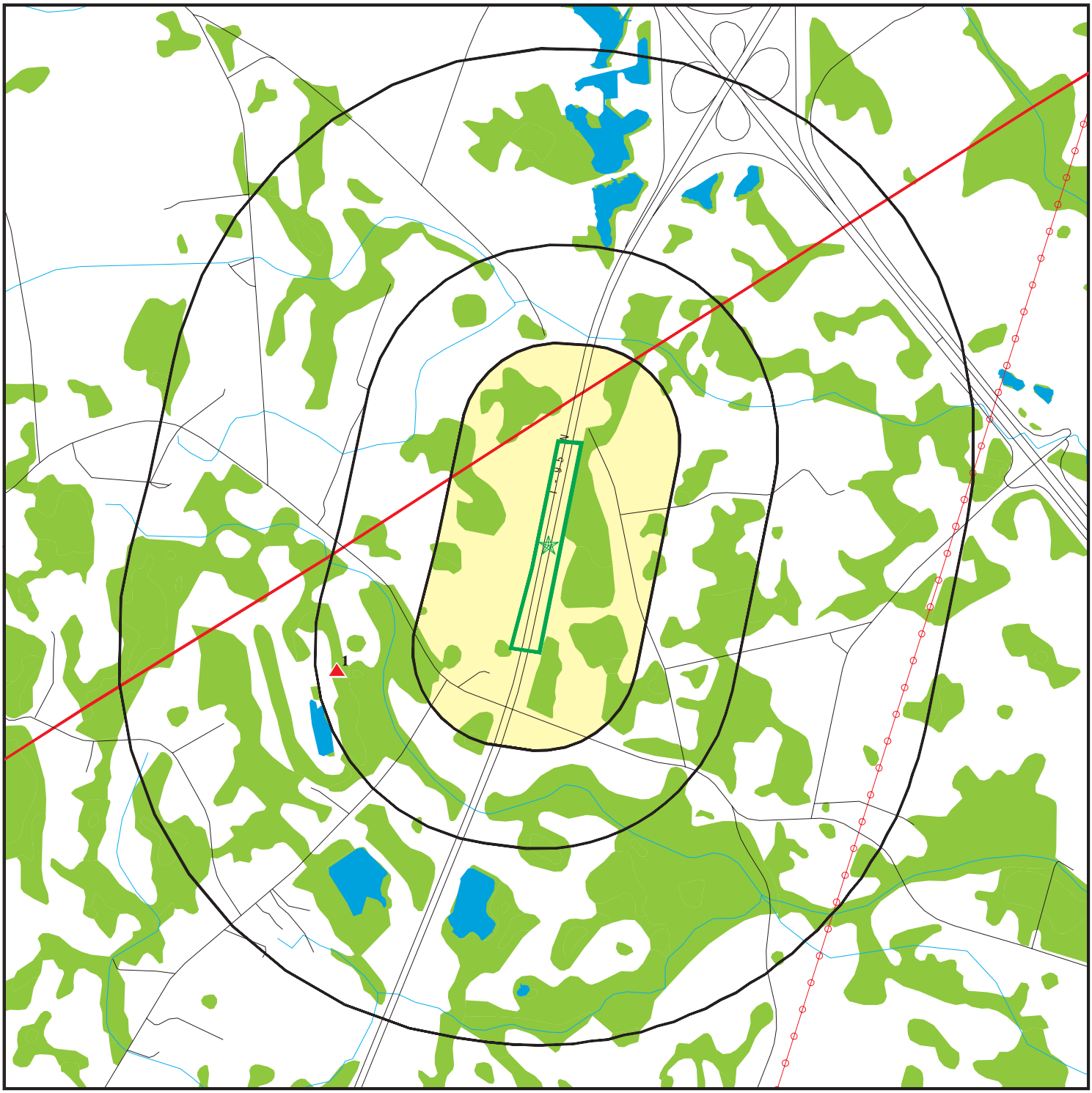
A review of the ALLSITES list, as provided by EDR, and dated 06/06/2022 has revealed that there is 1 ALLSITES site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WHETSELL FARM SITE Project Status Code: ACTIVE	***1452 DUNCAN CHAPEL R***	***WSW 1/4 - 1/2 (0.446 mi.)***	***1***	***8***

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7172876.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	I-95 Extended Study Area	CLIENT:	ARM Environmental Services
ADDRESS:	I-95 Bowman SC 29018	CONTACT:	Richard Ciccolella
LAT/LONG:	33.30132 / 80.555895	INQUIRY #:	7172876.2s
		DATE:	November 08, 2022 3:47 pm

DETAIL MAP - 7172876.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands

0 1/8 1/4 1/2 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	I-95 Extended Study Area	CLIENT:	ARM Environmental Services
ADDRESS:	I-95 Bowman SC 29018	CONTACT:	Richard Ciccolella
		INQUIRY #:	7172876.2s
LAT/LONG:	33.30132 / 80.555895	DATE:	November 08, 2022 3:48 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal hazardous waste facilities								
SHWS	1.000		0	0	1	0	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
RCR	0.500		0	0	0	NR	NR	0
AUL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
ALLSITES	0.500		0	0	1	NR	NR	1
CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
SPILLS 80	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
ASBESTOS	TP		NR	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
GWCI	0.500		0	0	0	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	0	0	2	0	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
WSW
1/4-1/2
0.446 mi.
2353 ft.

WHETSELL FARM SITE
1452 DUNCAN CHAPEL RD
BOWMAN, SC 29018

SHWS **S120052879**
ALLSITES **N/A**

Relative:
Higher

Actual:
107 ft.

SHWS:

Name:	WHETSELL FARM SITE
Address:	1452 DUNCAN CHAPEL RD
City,State,Zip:	BOWMAN, SC 29018
EPA ID:	SCR000783795

ALLSITES:

Name:	WHETSELL FARM SITE
Address:	1452 DUNCAN CHAPEL RD
City,State,Zip:	BOWMAN, SC 29018
Brownfield:	Not reported
Brownfield Type:	Not reported
Funds Used:	No
Resp Action:	Yes
Permit Number:	Not reported
Program:	Not reported
Owner:	Please call 803-898-2000 for this information.
Project Status Code:	ACTIVE
Execute Date:	Not reported
Restrictions Filed Date:	Not yet recorded.
Cleanup Contract Complete Date:	Not reported
Project Complete Date:	Not yet completed.
File Number:	56289
Land Use Restriction:	Not yet determined.
Contamination On Site:	Pesticides/Herbicides
Acreage:	38
Soil Contamination Desc:	Not reported
Soil COCS:	Not reported
SW Sed Contamination Desc:	Not reported
SW COCS:	Not reported
GW Contamination Desc:	Not reported
GW COCS:	Not reported
Air Contamination Desc:	Not reported
Air COCS:	Not reported
Lat:	33.30322
Long:	-80.56726

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

EDR ZIP Code Scan Report

ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
**** - Indicates location may or may not be in requested radius. Site has not been assigned a latitude/longitude coordinate. Further review recommended.**								
29018	1021373000		BOWMAN TEXACO FOOD MART		**	BOWMAN	SC	EDR Historical Auto Stations
29018	1020633478		I-26 & 210 STATION & RST INC	I-26 & HWY 210	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1021319209		I-26 & 210 STATION INC	I-26 & HWY 210	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1021374363		DUKES C M OIL CO	RR 1	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1022091814		BOWMAN TEXACO FOOD MART	RT 1 BOX 1690	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1021811066		EXXON	RT 1 BOX 66	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007228081	110016992487	BOWMAN TEXACO	RTE 1 PO BOX 1690	**	BOWMAN	SC	FINDS
29018	1026604005		HUFF, JAMES	ROUTE 1, BOX 1208	**	BOWMAN	SC	PRP
29018	1021562138		D & R 76 SELF SERVICE	HWY 178	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007234098	110017054701	BOWMAN MEDICAL CENTER	HWY 178	**	BOWMAN	SC	FINDS
29018	1021440374		DUKES C M OIL CO	RT 1BOX 66	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1016278608	110009310851	WHETSELL FARM SITE	ROUTE 2	**	BOWMAN	SC	FINDS
29018	1001230530	SC0002408391	WHETSELL FARM SITE	ROUTE 2		BOWMAN	SC	CERCLIS
29018	1005791301	110002186562	ROBERT MOORER JR BROILER FARM	RT 2 BOX 3800	**	BOWMAN	SC	FINDS
29018	1004595268	110011928290	RAINBOW CHRISTIAN SCHOOL	RT 2 BOX 90A	**	BOWMAN	SC	FINDS
29018	1000380031	SCD991298571	KAISER AGRICULTURAL CHEMI	HIGHWAY 210 SC		BOWMAN	SC	RCRA-NonGen
29018	1016240699	110007837984	KAISER AGRICULTURAL CHEMI	HIGHWAY 210 SC		BOWMAN	SC	FINDS
29018	1008010813	110008570395	BRAKEFIELD S EXXON	HWY 210 & I 26		BOWMAN	SC	FINDS
29018	U001119619	6803	FORMER BOWMAN SECTION SHED	SC 210 W CEDAR ST		BOWMAN	SC	GWCI, RCR, LUST, UST
29018	1007238985	110017105434	FORMER BOWMAN SECTION SHED	SC 210 W CEDAR ST	**	BOWMAN	SC	FINDS
29018	U003519504	6971	BOWMAN EXXON	I 26 & RD 36	**	BOWMAN	SC	GWCI
29018	1007231129	110017024021	BOWMAN EXXON	I 26 & RD 36	**	BOWMAN	SC	FINDS
29018	1007239132	110017106932	WILKERSON FUEL CO	I 26 & SC 210		BOWMAN	SC	FINDS
29018	1007232888	110017042083	EXPRESSWAY EXXON	I 26 & SC 210		BOWMAN	SC	FINDS
29018	1022185380		SMITH M J ESSO	HWY 36	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1026786773	110070914324	QUIKRETE CHS	160 ARISTA RD		BOWMAN	SC	FINDS
29018	1018315910		PAVESTONE	160 ARISTA RD		BOWMAN	SC	
29018	S127306977		TREMRON	160 ARISTA RD		BOWMAN	SC	AIRS
29018	1016344516	110038284816	SIMS BARK CO OF GEORGIA LLC	172 ARISTA RD		BOWMAN	SC	FINDS
29018	1012006895		SIMS BARK CO OF GEORGIA LLC	172 ARISTA RD		BOWMAN	SC	SSTS
29018	1007236619	110017080816	MATTHEWS MOBILE HOME PRK	491 BAXLEY RD		BOWMAN	SC	FINDS
29018	1026096479	110070665712	PALMETTO PLAINS	1440 BOWMAN BRANCH HWY		BOWMAN	SC	FINDS
29018	1004594541	110011864642	DBK METHOD	P.O. BOX 466	**	BOWMAN	SC	FINDS
29018	1007258033	110017310248	SAMUEL T MCGILL DMD	PO BOX 278	**	BOWMAN	SC	FINDS
29018	1004592948	110009793526	BOWMAN TOWN OF	PO BOX 37		BOWMAN	SC	FINDS
29018	1026096618	110070665867	TWE BOWMAN SOLAR PROJECT	534 BRIE STREET		BOWMAN	SC	FINDS
29018	1007234667	110017060491	GAINES MINI-STOP	187 CEDAR ST	**	BOWMAN	SC	FINDS
29018	U003521633	15801	GAINES MINI STOP	187 CEDAR ST	**	BOWMAN	SC	UST
29018	1018668531		BOWMAN CLEANERS	191 CEDAR ST	**	BOWMAN	SC	EDR Historical Cleaners
29018	S128542607		GILYARD	5167 CHARLESTON HWY		BOWMAN	SC	
29018	1007239134	110017106950	B&B CORNER MART	6204 CHARLESTON HWY		BOWMAN	SC	FINDS
29018	U003887458	6916	B&B CORNER MART	6204 CHARLESTON HWY		BOWMAN	SC	GWCI, RCR, LUST, UST
29018	1007231853	110017031433	QUICK PANTRY 3	6619 CHARLESTON HWY		BOWMAN	SC	FINDS
29018	U004018108	17290	QUICK PANTRY 3	6619 CHARLESTON HWY		BOWMAN	SC	GWCI
29018	U004254791		QUICK PANTRY 3	6619 CHARLESTON HWY		BOWMAN	SC	LUST, UST
29018	U004254758		FORMER STATION BOWMAN	6619 CHARLESTON HWY		BOWMAN	SC	LUST, UST
29018	S127646016		HOUSE	6711 CHARLESTON HWY		BOWMAN	SC	
29018	S119113893		VACANT BLDG	7206 CHARLESTON HWY		BOWMAN	SC	
29018	S119113837		VACANT BLDG	7206 CHARLESTON HWY		BOWMAN	SC	
29018	S119113924		VACANT HOUSE	7210 CHARLESTON HWY		BOWMAN	SC	
29018	1025429679		MEHERRIN AG & CHEMICAL CO - BOWMA	7904 CHARLESTON HIGHWAY	**	BOWMAN	SC	SSTS
29018	1023389848	110067069585	MEHERRIN AG & CHEMICAL CO - BOWMA	7904 CHARLESTON HIGHWAY		BOWMAN	SC	FINDS
29018	1005427750		DBK METHOD	CORNER OF PINE & OLIVER ST		BOWMAN	SC	SSTS
29018	1004593279	110011864633	DVK METHOD INC	CORNER OF PINE & OLIVER ST.		BOWMAN	SC	FINDS
29018	1007829779	110019937675	BARRY I & JULIUS C BERRY	1110 COUNTRY CLUB RD		BOWMAN	SC	FINDS
29018	1003869342	SCD987566908	HUFF BATTERY SALVAGE	COUNTY RD 170 AT INTERSTATE HWY 26		BOWMAN	SC	CERCLIS
29018	1016304769	110013797757	HUFF BATTERY SALVAGE	COUNTY RD 170 AT INTERSTATE HWY 26	**	BOWMAN	SC	FINDS
29018	1022995754	110070122779	WHETSELL FARM SITE - DHEC CLEANUP	1452 DUNCAN CHAPEL RD		BOWMAN	SC	FINDS
29018	S120052879		WHETSELL FARM SITE	1452 DUNCAN CHAPEL RD	1, WSW, 1/2 - 1	BOWMAN	SC	ALLSITES, SHWS
29018	1023679958	SCR000783795	WHETSELL FARM SITE - DHEC CLEANUP	1452 DUNCAN CHAPEL RD		BOWMAN	SC	RCRAInfo-LQG

EDR ZIP Code Scan Report

ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
29018	1007834200	110019981885	RISER FARMS INC	2107 DUNCAN CHAPEL RD		BOWMAN	SC	FINDS
29018	1022190322		COUNTRY STORE	918 DUNCAN CHAPEL RD		BOWMAN	SC	EDR Historical Auto Stations
29018	1020568249		COUNTRY STORE THE	DUNCAN CHAPEL RD	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007834701	110019986915	WHETSELL BROS FARMS	2100 EBENEZER RD		BOWMAN	SC	FINDS
29018	1007834259	110019982492	WENDY & JOHN WIMBERLY	2250 EBENEZER RD		BOWMAN	SC	FINDS
29018	1021050446		WHETSELL & LEE	EBENEZER RD	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1020574521		TRAVEL MART INC	36 EXIT 159 I26RD	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1026697760	110070871327	HUNTLEY	631 HOLSTEIN RD		BOWMAN	SC	FINDS
29018	U004016957	10290	PILOT TRAVEL CENTER 060	2064 HOMESTEAD RD		BOWMAN	SC	GWCI, RCR, LUST, UST
29018	1011491099	SCR000769976	PILOT TRAVEL CENTERS LLC	2064 HOMESTEAD RD		BOWMAN	SC	RCRA-NonGen
29018	1021030549		PILOT TRAVEL CENTERS LLC	2064 HOMESTEAD RD		BOWMAN	SC	EDR Historical Auto Stations
29018	1007232811	110017041271	PILOT TRAVEL CENTER 060	2064 HOMESTEAD RD		BOWMAN	SC	FINDS
29018	S127660876		MCDONALDS - PARTIAL DEMOLITION	2064 HOMESTEAD RD		BOWMAN	SC	
29018	U003878955	18891	SCOTCHMAN	2267 HOMESTEAD RD		BOWMAN	SC	UST
29018	1007235950	110017073897	LIL CRICKET 350	2267 HOMESTEAD RD		BOWMAN	SC	FINDS
29018	1007236435	110017078954	LION S DEN	2269 HOMESTEAD RD		BOWMAN	SC	FINDS
29018	1007837588	110020015794	L D MANAGEMENT INC	2269 HOMESTEAD RD		BOWMAN	SC	FINDS
29018	98435798			HOMESTEAD HWY IN WOODED	**	BOWMAN	SC	ERNS
29018	S128052513		PALMETTO CORPORATION OF CONWAY	HOMESTEAD RD	**	BOWMAN	SC	AIRS
29018	1027264596		PALMETTO CORP/HOMESTEAD PIT	HOMESTEAD ROAD	**	BOWMAN	SC	
29018	1027306981	110071299820	PALMETTO CORP/HOMESTEAD PIT	HOMESTEAD ROAD	**	BOWMAN	SC	FINDS
29018	S127659705		GARAGE BUILDING	216 HOPE LN		BOWMAN	SC	
29018	1021844623		TRAVEL MART INC	I-26	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007834322	110019983115	EDDIE & MELISSA JUDY	824 KIZER RD		BOWMAN	SC	FINDS
29018	1007834654	110019986443	MYERS BROTHERS DAIRY	2721 LANDSDOWNE RD		BOWMAN	SC	FINDS
29018	1008010806	110008570260	PILOT TRAVEL CENTERS LLC	LORI WRIGHT	**	BOWMAN	SC	FINDS
29018	1019971617		DENNIS A MC IVA MAC	MAIN ST	**	BOWMAN	SC	EDR Historical Cleaners
29018	1018827268		BOWMAN CLEANERS	MAIN ST	**	BOWMAN	SC	EDR Historical Cleaners
29018	1007244513	110017163282	CONTINENTAL TELEPHONE CO	MAIN ST	**	BOWMAN	SC	FINDS
29018	1021162781		DANTZLER WILLIAM DUPREE	MAIN ST	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1020633454		DANTZLER WILLIAM DUPREE	MAIN ST	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1021457036		WEATHERS J R SHELL SERVICE STN	S MAIN ST	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007242392	110017141109	ANDYS SERVICE STATION	S MAIN ST	**	BOWMAN	SC	FINDS
29018	U000482862	11514	ANDYS SERVICE STATION	S MAIN ST	**	BOWMAN	SC	LUST, UST
29018	1018295825		BOWMAN TOWN OF	OFF KIZER RD		BOWMAN	SC	ICIS
29018	S109515761		BOWMAN TOWN OF	OFF KIZER RD	**	BOWMAN	SC	NPDES
29018	S119111370		MEHERRIN AGRI & CHEMICAL - METAL BL	521 RAIL ST		BOWMAN	SC	
29018	S119111379		MEHERRIN AGRI & CHEMICAL	521 RAIL ST		BOWMAN	SC	
29018	S119121748		BOWMAN POST OFFICE	RAILROAD AV @ MAIN ST	**	BOWMAN	SC	
29018	1021242772		TRAVEL MART INC	I-26 RD 36 EXIT 159	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007246385	110017182608	BOWMAN TOWN OF (SC3810004)-PLANT (	100 REEVESVILLE RD		BOWMAN	SC	FINDS
29018	1020394729		TRAVEL MART INC	I-26 ROAD 36 EXIT 159	**	BOWMAN	SC	EDR Historical Auto Stations
29018	1007231904	110017031950	BOWMAN SUPERMARKET	211 SMITH ST		BOWMAN	SC	FINDS
29018	U003631831	16413	BOWMAN SUPERMARKET	211 SMITH ST		BOWMAN	SC	GWCI, RCR, LUST, UST
29018	1014834931	110040713270	BOWMAN SUPERMARKET	227 SMITH ST		BOWMAN	SC	FINDS
29018	1020259293		UNITED BUSINESS ASSOCIATES	SMITH & MAGNOLIA STREETS		BOWMAN	SC	EDR Historical Auto Stations
29018	1014835030	110041271995	PETER R STOKES IV MINE	640 STOKES CT		BOWMAN	SC	FINDS
29018	1007231091	110017023638	BOWMAN MAINTENANCE SHOP	168 TORONTO LN		BOWMAN	SC	FINDS
29018	U003519505	6788	BOWMAN MAINTENANCE SHOP	168 TORONTO LN		BOWMAN	SC	GWCI, RCR, LUST, UST
29018	1021586132		BILLY AUTOMOTIVE SERVICE	1017 TWO CHURCH RD		BOWMAN	SC	EDR Historical Auto Stations
29018	1007236130	110017075822	A L FELDER TRUCKING INC	152 URBAN DR		BOWMAN	SC	FINDS
29018	U003631606	11308	EXXON 3	5323 VANCE RD		BOWMAN	SC	LUST, UST
29018	1020716300		BRAKEFIELD ENTERPRISES INC	5323 VANCE RD		BOWMAN	SC	EDR Historical Auto Stations
29018	1022234634		SMITH JB & PA	5448 VANCE RD		BOWMAN	SC	EDR Historical Auto Stations
29018	U004291717		FLYING J	5448 VANCE RD		BOWMAN	SC	LUST, UST
29018	U003929917	10321	FLYING J	5448 VANCE RD		BOWMAN	SC	GWCI, BROWNFIELDS, VCP,

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29018	1021580414		BOWMAN TEXACO FOOD MART	5458 VANCE RD		BOWMAN	SC	ALLSITES, RCR, SHWS EDR Historical Auto Stations
29018	1007226150	110016972837	MACS QUICK C LLC	5463 VANCE RD		BOWMAN	SC	FINDS
29018	U003631485	10326	EXIT 165	5463 VANCE RD		BOWMAN	SC	LUST, UST
29018	1007233755	110017051125	SMITH TRUCKING INC	5605 VANCE RD		BOWMAN	SC	FINDS
29018	1006081742		V P KISER LUMBER CO INC	6903 VANCE RD		BOWMAN	SC	UST
29018	S108282521		V P KISER LUMBER CO INC	6903 VANCE RD		BOWMAN	SC	AIRS
29018	1004595297	110001669230	V P KISER LUMBER CO INC	6903 VANCE RD		BOWMAN	SC	FINDS
29448	1021382563		WAY RONALD J		**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	2008866748				**	HARLEYVILLE	SC	ERNS
29448	1025748889		HARLEYVILLE QUARRY & CEMENT PLANT			HARLEYVILLE	SC	
29448	1022877159		HARLEYVILLE QUARRY		**		SC	
29448	2010110576				**	HARLEYVILLE	SC	HMIRS
29448	1025574031		GIANT CLAY PIT			HARLEYVILLE	SC	
29448	1025703969		HARLEYVILLE QUARRY & CEMENT PLANT			HARLEYVILLE	SC	
29448	1025593303		GIFFORD HILL MARL PIT(HARLEYVILLE Q			HARLEYVILLE	SC	
29448	S127620783		GIANT CONCRETE -CANCELLED-		**	HARLEYVILLE	SC	
29448	1025568610		HARLEYVILLE QUARRY			HARLEYVILLE	SC	
29448	1025572717		GIANT PORTLAND MARL PIT(HARLEYVILL			HARLEYVILLE	SC	
29448	1020803809		WAY ENTERPRISES INC	I-26 & HWY 453	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1022090758		JAMES GROCERY & SERVICE STAT	RR 1	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1020402079		JAMES GROCERY & SERVICE STAT	RT 1	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1008010203	110008545556	BB SMITH #1 MHP	RT 1 BOX 70	**	GEORGETOWN	SC	FINDS
29448	1021284971		B & B TRUCK STOP	RT 1 HWY 16 & I 26	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1021909886		E Z SHOP HORIZON	2722 HIGHWAY 15 N		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1007227154	110016983040	DIXIE BOY 10	2722 HWY 15 N		HARLEYVILLE	SC	FINDS
29448	U003631170	3018	E Z SHOP 27	2722 HWY 15 N		HARLEYVILLE	SC	GWCI, RCR, LUST, UST
29448	1021402806		B & B TRUCK STOP	2877 HIGHWAY 15 N		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1020287836		JOHNNYS SERVICE STATION	HIGHWAY 178 W	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1020548545		OWENS JOHN A	HWY 178	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1021923834		JOHNNYS SERVICE STATION	HWY 178	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1015736405	SCD062704861	GIFFORD-HILL/HARLEYVILLE PLANT	IH 26 & HWY 453		HARLEYVILLE	SC	CERCLIS-NFRAP, RCRA-CESQG
29448	1000179713	SCD981021926	DELCON (SC) INC	RT 443 N		HARLEYVILLE	SC	RCRA-NonGen
29448	94255883			HIGHWAY 453 N AND I-26	**	HARLEYVILLE	SC	ERNS
29448	2004725811			HIGHWAY 453 N AND I-26	**	HARLEYVILLE	SC	ERNS
29448	94258812			HIGHWAY 453 N AND I-26	**	HARLEYVILLE	SC	ERNS
29448	95276827			HIGHWAY 453 N AND I-26	**	HARLEYVILLE	SC	ERNS
29448	2003706351			HIGHWAY 453 N AND I-26	**	HARLEYVILLE	SC	ERNS
29448	1016240394	110007832480	DELCON (SC) INCORPORATED	HIGHWAY 453 NORTH	**	HARLEYVILLE	SC	FINDS
29448	U003525603	2966	STAR REDI MIX INC	HWY 453	**	HARLEYVILLE	SC	LUST, UST
29448	96359945			HWY 453	**	HARLEYVILLE	SC	ERNS
29448	1007236025	110017074734	POWERSCREEN OF GEORGIA INC	HWY 453	**	HARLEYVILLE	SC	FINDS
29448	1021089983		SOUTHERN CHEMICAL HAULERS INC	HWY 453	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	93157697			HWY 453	**	HARLEYVILLE	SC	ERNS
29448	1007230007	110017012338	STAR REDI MIX INC	HWY 453	**	HARLEYVILLE	SC	FINDS
29448	S127670824		GIANT CONCRETE	HWY 453	**	HARLEYVILLE	SC	
29448	1000321393	110070751068	GIANT CEMENT CO	HWY 453 & I-26 (654 JUDGE ST)		HARLEYVILLE	SC	CORRACTS, PADS, ICIS, FINDS, RCRAInfo-LQG, TRIS, RCRAInfo-TSDF, RAATS
29448	97374867			HWY 453 AT I-26	**	HARLEYVILLE	SC	ERNS
29448	98466603			HWY 453 AT I-26	**	HARLEYVILLE	SC	ERNS
29448	1016982722	110007400213	GIANT RESOURCE RECOVERY CO	HWY 453 N @ I 26		HARLEYVILLE	SC	FINDS
29448	1008008921	110002175798	RONNIE S BP STATION	SC 453	**	HARLEYVILLE	SC	FINDS
29448	S118175944		CONCRETE SUPPLY CO LLC - HARLEYVIL	522 7-MILE RD	**	HARLEYVILLE	SC	AIRS
29448	1004593616	110007184411	E&C WILLIAMS	BOWMAN RD		HARLEYVILLE	SC	FINDS
29448	1020924917		WAY RONALD J	PO BOX 116	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	2007829837			PO BOX 218	**	HARLEYVILLE	SC	ERNS

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29448	1012094620	110038794659	GIANT RESOURCE-CLOSED	PO BOX 218		HARLEYVILLE	SC	FINDS
29448	1016307998	110017067948	GIFFORD HILL & CO INC	PO BOX 326	**	HARLEYVILLE	SC	FINDS
29448	1007834114	110019981037	BLUE CIRCLE CEMENT	PO BOX 326	**	HARLEYVILLE	SC	FINDS
29448	98422734			PO BOX 326	**	HARLEYVILLE	SC	ERNS
29448	1007226038	110016971589	CONTINENTAL CONSTRUCTION	PO BOX 366	**	HARLEYVILLE	SC	FINDS
29448	1007243374	110017151428	SYSTECH ENVIRONMENTAL CORPORATI(	PO BOX 66	**	HARLEYVILLE	SC	FINDS
29448	1024922267		EGERIA DIRT PIT	146 BROWN TOWN RD.		HARLEYVILLE	SC	
29448	A100205615	1896	RISCHER MINING & TRUCKING	146 BROWNTOWN RD		HARLEYVILLE	SC	AST
29448	1004781306	SCR000762146	RISHER MINING & TRUCKING INC	146 BROWNTOWN RD		HARLEYVILLE	SC	RCRA-CESQG
29448	1008010516	110008555170	ACKERMAN MHP	CALES LN	**	WALTERBORO	SC	FINDS
29448	S119121817		CANTLEY RESIDENCE	275 CANTLEY RD		HARLEYVILLE	SC	
29448	1004779791	110002196329	FLEET WORLD INCORPORATED	9324 CHARLESTON HWY		HARLEYVILLE	SC	RCRA-CESQG, FINDS
29448	1012094852	110038792508	SOUTHERN COLOR N.A. INC.	100 COMMERCE AVE		HARLEYVILLE	SC	FINDS
29448	1005436847		SKEETER GO INC	DEER RUN	**	HARLEYVILLE	SC	SSTS
29448	1006288988	110011843407	SKEETER COMPANY	DEER RUN/PO BOX 354	**	HARLEYVILLE	SC	FINDS
29448	1005792453	110002310892	RONNIE S WHEEL CRUSHING SERVICE	237 DOGWOOD TRAIL		DORCHESTER	SC	FINDS
29448	1020962715		EDS PIT SHOP	EXIT 82 OF I-95 & HWY 178	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	S127623151		FERNWOOD BAPTIST CHURCH	200 FERNWOOD DR	**	HARLEYVILLE	SC	
29448	S127646503		FERNWOOD BAPTIST CHURCH F BUILDIN	200 FERNWOOD DR		SPARTANBURG	SC	
29448	1024719735		EADIE'S DIVA D ENTERPRISES CROWN C	GABLE FARM RD	**	HARLEYVILLE	SC	
29448	1025444957	110033017651	EADIE'S DIVA D ENTERPRISES CROWN C	GABLE FARM RD	**	HARLEYVILLE	SC	FINDS
29448	1025485430		CGT-DORCHESTER COMPRESSOR STATI	534 GAVINS RD		HARLEYVILLE	SC	
29448	1025983409	110070595553	CGT-DORCHESTER COMPRESSOR STATI	534 GAVINS RD		HARLEYVILLE	SC	FINDS
29448	1025888259	SCR000786368	CGT-DORCHESTER COMPRESSOR STATI	534 GAVINS RD	**	HARLEYVILLE	SC	RCRA-CESQG
29448	1005613856	110056423348	DORCHESTER EXCAVATING	GIANT CEMENT	**	HARLEYVILLE	SC	FINDS
29448	1005790289	110002236189	DORCHESTER DIRT PIT	GIANT CEMENT PLANT SITE		HARLEYVILLE	SC	FINDS
29448	1018288885		HARLEYVILLE, TOWN OF	HARLEYVILLE-PO BOX 35		HARLEYVILLE	SC	ICIS
29448	S127621478		JENKINS HILLS ELEMENTARY	145 HILL ST		HARLEYVILLE	SC	
29448	S127646548		JENKINS HILLS ELEMENTARY	145 HILL ST		HARLEYVILLE	SC	
29448	S127646505		JENKINS HILL ELEMENTARY	145 HILL ST		HARLEYVILLE	SC	
29448	1007234711	110017060936	JENKINS HILL ELEM SCHOOL	HILL ST		HARLEYVILLE	SC	FINDS
29448	S119008610		DORCHESTER EXCAVATING INC	HOLCIM CEMENT SITE	**	HOLLY HILL	SC	AIRS
29448	S127639587		HARLEYVILLE EXCHANGE - 131 SOUTH R.	HOME TELEPHONE CO	**	HARLEYVILLE	SC	
29448	S127621646		JENKINS ELEMENTARY	145 HULL ST		HARLEYVILLE	SC	
29448	S127560049			2154 US HWY 15 N		HARLEYVILLE	SC	CDL
29448	1016184945	110002196392	CSX TRANSPORTATION	SC HWY 453 500 WATER ST	**	HARLEYVILLE	SC	FINDS
29448	1004779665	SC0000001357	CSX TRANSPORTATION	SC HWY 453 500 WATER ST	**	HARLEYVILLE	SC	RCRA-NonGen
29448	1004780806	SCD991278482	SCA SERVICES CHARLESTON LANDFILL	US HWY 78	**	ROSINVILLE	SC	RCRA-NonGen
29448	1016274708	110008567522	SCA SERVICES CHARLESTON LANDFILL	US HWY 78	**	ROSINVILLE	SC	FINDS
29448	1020490281		WAY ENTERPRISES INC	I26-HWY 453	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	U004067062	19251	HARLEYVILLE TRUCK STOP INC	137 JUDGE ST		HARLEYVILLE	SC	UST
29448	1020543368		HARLEYVILLE TRUCK STOP	137 JUDGE ST		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1000992037	110002252348	SOUTHERN TANK TRANSPORT INCORPO	198 JUDGE ST		HARLEYVILLE	SC	RCRA-NonGen, FINDS
29448	S118175943		ARGOS CEMENT LLC HARLEYVILLE CEME	463 JUDGE ST		HARLEYVILLE	SC	AIRS
29448	U004017113	11221	ARGOS CEMENT LLC HARLEYVILLE CEME	463 JUDGE ST		HARLEYVILLE	SC	NPDES, LUST, UST
29448	1000230110	110001666064	ARGOS CEMENT HARLEYVILLE PLANT	463 JUDGE ST		HARLEYVILLE	SC	ICIS, SHWS, FINDS, TRIS
29448	1024922232		HARLEYVILLE MINE & PLANT	463 JUDGE ST		HARLEYVILLE	SC	
29448	S127659100		ARGOS CEMENT - HARLEYVILLE	463 JUDGE ST		HARLEYVILLE	SC	
29448	S127666138		LAFARGE NORTH AMERICA SHIPPING OF	463 JUDGE ST		HARLEYVILLE	SC	
29448	S120980369		ARGOS HARLEYVILLE CEMENT PLANT	463 JUDGE ST		HARLEYVILLE	SC	
29448	2001552546			463 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	1014199711		LAFARGE BUILDING MATERIALS - HARLE'	463 JUDGE STREET		HARLEYVILLE	SC	TSCA
29448	2001580722			463 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	1016948213		ARGOS HARLEYVILLE	463 JUDGE STREET		HARLEYVILLE	SC	TSCA
29448	A100267793	1832	BLUE CIRCLE CEMENT - LAFARGE	463 JUDGE STREET		HARLEYVILLE	SC	AST
29448	1020173800		WAYS ENTERPRISES INC	495 JUDGE ST		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	A100267532	984	RONNIES STATION	495 JUDGE STREET		HARLEYVILLE	SC	AST
29448	S127651035		GIANT CEMENT COMPANY BURNER BUIL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127643330		GIANT CEMENT CO GRR LAB TRAILER 1	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127647400		GIANT CEMENT COMPANY - COMPRESSC	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127670641		GIANT CEMENT - STORAGE WAREHOUSE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127650585		GIANT CEMENT COMPANY OUTDOOR PIF	654 JUDGE ST		HARLEYVILLE	SC	
29448	1007114455		GIANT CEMENT COMPANY	654 JUDGE ST		HARLEYVILLE	SC	FTTS
29448	S127641815		PARKING SHED 13 - GIANT CEMENT CO	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642305		GIANT CEMENT COMPANY - CARPENTRY	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127641814		PARKING SHED #14 - GIANT CEMENT CO	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127649762		OLD FINISH MILL MILLER'S SHACK	654 JUDGE ST		HARLEYVILLE	SC	

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29448	S127651647		GIANT CEMENT COMPANY - #4 & 5 FINISH	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127663524		GIANT CEMENT - CLINKER BLDG	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642568		GIANT CEMENT COMPANY RESEARCH LA	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127651036		GIANT CEMENT COMPANY BREAK ROOM	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127650834		GIANT CEMENT COMPANY #2 KLIN FEED	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127647152		GIANT CEMENT GRR LAB LOCKER ROOM	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127650173		GIANT CEMENT COMPANY OLD FINISH MI	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642058		GIANT CEMENT - CARPENTER SHOP	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127631767		GIANT CONCRETE - -PROJECT CANCELLE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642302		GIANT CEMENT COMPANY - STORAGE (1(	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127645412		GIANT CEMENT CO PARKING GARAGE BL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127646992		GIANT CEMENT CO- OLD RAW MILL BUILD	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642056		GIANT CEMENT - PLANT OFFICE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642301		GIANT CEMENT COMPANY - STORAGE (1	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127638837		OLD FINISH MILL BLDG- GIANT CEMENT	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127631643		GIANT CEMENT - LAB 1	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127650174		GIANT CEMENT COMPANY MARL DRYER	654 JUDGE ST		HARLEYVILLE	SC	
29448	U003970172	2962	GIANT CEMENT PLANT	654 JUDGE ST		HARLEYVILLE	SC	SPILLS
29448	S127650175		GIANT CEMENT COMPANY MCC BLDG	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127643331		GIANT CEMENT CO GRR LAB TRAILER 2	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127670640		GIANT CEMENT - RESEARCH LAB	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127651034		GIANT CEMENT COMPANY HAZARDOUS M	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642057		GIANT CEMENT - BRICK STORAGE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127631837		GIANT CONCRETE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127645409		GIANT CEMENT CO PARKING GARAGE BL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127621536		GIANT CEMENT---PROJECT CANCELLED--	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127641816		PARKING SHED #12 GIANT CEMENT CO	654 JUDGE ST		HARLEYVILLE	SC	
29448	2003634958			654 JUDGE ST		HARLEYVILLE	SC	ERNS
29448	S127650176		GIANT CEMENT COMPANY OLD RAW MILL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127670692		GIANT CONCRETE - ---PROJECT CANCELL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127645408		GIANT CEMENT CO PARKING GARAGE BL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642304		GIANT CEMENT COMPANY - GARAGE (8)	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642570		GIANT CEMENT COMPANY GATE HOUSE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127641528		GIANT CEMENT COMPANY - GRR OFFICE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127647022		GIANT CEMENT CO- LUBE SHOP	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127651033		GIANT CEMENT COMPANY LUBE SHOP	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127650832		GIANT CEMENT COMPANY MCC BUILDING	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127645411		GIANT CEMENT CO PARKING GARAGE BL	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127641813		OPEN STORAGE SHED (5)	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127650835		GIANT CEMENT COMPANY BUILDING 114	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642569		GIANT CEMENT COMPANY PLANT OFFICE	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127642303		GIANT CEMENT COMPANY - BRICK STOR	654 JUDGE ST		HARLEYVILLE	SC	
29448	S108282158		GIANT CLINKER SHED	654 JUDGE ST		HARLEYVILLE	SC	AIRS, NPDES, SPILLS
29448	S127647705		GIANT CEMENT COMPANY - WASH MILL F	654 JUDGE ST		HARLEYVILLE	SC	
29448	S127628950		#2 FINISH MILL & MOTOR STORAGE BLDG	654 JUDGE ST AND HWY 453		HARLEYVILLE	SC	
29448	2003703610			654 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	1011825910		GIANT CEMENT COMPANY	654 JUDGE STREET		HARLEYVILLE	SC	RMP
29448	1014199159		GIANT CEMENT CO	654 JUDGE STREET		HARLEYVILLE	SC	TSCA
29448	1014628764		RAW MILL & KILN #5 DRIVE PIER	654 JUDGE STREET		HARLEYVILLE	SC	PCB TRANSFORMER
29448	99469556			654 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	A100267563	1034	GIANT CEMENT CO (GRR)	654 JUDGE STREET		HARLEYVILLE	SC	AST
29448	98422854			654 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	2005761452			654 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	2015113567			654 JUDGE STREET		HARLEYVILLE	SC	ERNS
29448	1016126319	110017087301	SAND SCIENCE INC - PORTABLE CRUSHE	LEFARGE CEMENT COMPANY	**	HARLEYVILLE	SC	FINDS
29448	1007246117	110017179890	UTSEY ONE STOP	106 E MAIN ST		HARLEYVILLE	SC	FINDS
29448	U003522119	11573	HARLEYVILLE ONE STOP	106 E MAIN ST		HARLEYVILLE	SC	GWCI, RCR, LUST, UST
29448	U003631787	14734	CARTERS FAST STOP 4	108 E MAIN ST(HWY 178)		HARLEYVILLE	SC	GWCI, RCR, LUST, UST
29448	1007248175	110017201062	CARTERS FAST STOP 4	108 EAST MAIN ST(HWY 178)		HARLEYVILLE	SC	FINDS
29448	S127650848		RESIDENCE	121 W MAIN ST		HARLEYVILLE	SC	
29448	S123792386		FIRST NATIONAL BANK HARLEYVILLE BR	143 W MAIN ST		HARLEYVILLE	SC	
29448	1021676009		HOT SPOT	153 W MAIN ST		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1021553779		UTSEY LAWRENCE A	327 MAIN ST	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1022203962		JAMES GROCERY & SERVICE STN	849 E MAIN ST		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1010040889	110028113752	HARLEYVILLE	968 E. MAIN STREET		HARLEYVILLE	SC	ICIS, FINDS
29448	1021627023		SHIEDERS GULF SERVICE STATION	MAIN ST	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1020801574		HARLEYVILLE ONE STOP SERVICE	MAIN ST	**	HARLEYVILLE	SC	EDR Historical Auto

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ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
								Stations
29448	S127637212		FORMER JOHNSTON INN	MAIN ST	**	JOHNSTON	SC	
29448	1007243773	110017155549	HARLEYVILLE GULF	MAIN ST & RAILROAD AVE		HARLEYVILLE	SC	FINDS
29448	U003522118	12394	HARLEYVILLE GULF	MAIN ST & RAILROAD AVE		HARLEYVILLE	SC	LUST, UST
29448	1020898924		HARLEYVILLE ONE STOP SERVICE	MAIN STREET	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1024609452	110070397813	DORCHESTER BIOMASS	609 7 MILE ROAD	**	HARLEYVILLE	SC	FINDS
29448	1014835814	110043432309	DORCHESTER BIOMASS LLC	7 MILE RD	**	HARLEYVILLE	SC	FINDS
29448	1012094775	110038792241	SOUTHERN BULK HAULERS-CLOSED	7 MILE RD AT RTE 453	**	HARLEYVILLE	SC	FINDS
29448	S127620619		RESIDENCE	41 MILL RD		SPARTANBURG	SC	
29448	1010349413	110030769639	PARAGON SITEWORK CONT/MILLPOND	MILLPOND RD	**	HARLEYVILLE	SC	FINDS
29448	1008180897		GIANT CEMENT COMPANY	P O BOX 352 / HIGHWAY 453 NORTH		HARLEYVILLE	SC	
29448	1010004589		GIANT CEMENT COMPANY	P O BOX 352 / HIGHWAY 453 NORTH		HARLEYVILLE	SC	FTTS
29448	S108051597	SC0000005004	HARLEYVILLE TOWN OF	OFF HWY 89	**	HARLEYVILLE	SC	NPDES
29448	1004780048	SCD069336659	TRUCK SERVICE INC	OFF SC 453	**	HARLEYVILLE	SC	RCRA-CESQG
29448	1005853384	110008566667	TRUCK SERVICE INCORPORATED	OFF SC 453	**	HARLEYVILLE	SC	FINDS
29448	1010331930	SCR000768101	CAROLINA COMPOSITES	139 PIONEER GYM RD		HARLEYVILLE	SC	RCRA-NonGen
29448	S111382795		GLOBAL RECOVERY LLC	139 PIONEER GYM RD.		HARLEYVILLE	SC	SWRCY
29448	1006818324	110002175841	HARLEYVILLE TOWN OF	119 SOUTH RAILROAD AVENUE		HARLEYVILLE	SC	FINDS
29448	S127635589		HARLEYVILLE ELEM SCHOOL	163 S RAILROAD AVE		HARLEYVILLE	SC	
29448	S127635734		HARLEYVILLE ELEMENTARY SCHOOL CA	163 S RAILRODAD AVE	**	HARLEYVILLE	SC	
29448	1012094739	110038794686	TENN-CAROLINA-CLOSED	SC RD S-18-50, SC HWY 453	**	HARLEYVILLE	SC	FINDS
29448	1020992338		JOHNNIES SERVICE STATION	U S HWY 178 WEST	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1021975064		JOHNNIES SERVICE STATION	U S HWY 178 WEST	**	HARLEYVILLE	SC	EDR Historical Auto Stations
29448	A100267567		SOUTHERN BULK HAULERS (HQ)	SAFETY ST	**	HARLEYVILLE	SC	AST
29448	1001030651	110002252375	NATIONAL AUDOBON SOCIETY	331 SANCTUARY RD		HARLEYVILLE	SC	RCRA-NonGen, FINDS
29448	1008008923	110002175814	F BEIDLER FOREST	336 SANCTUARY RD		HARLEYVILLE	SC	FINDS
29448	S127616848		CHARLES DANTELER RESIDENCE	920 SECOND BEND ROAD		HARLEYVILLE	SC	
29448	A100174781	1526	STARTRANS INC	223 SEVEN MILE ROAD		HARLEYVILLE	SC	AST
29448	1004593615	6823	SANTEE CARRIERS DIV TIC UNITED COR	261 SEVEN MILE RD		HARLEYVILLE	SC	LUST, UST
29448	1004781258	SCR000761650	SANTEE CARRIERS DIV TIC UNITED CORI	261 SEVEN MILE RD		HARLEYVILLE	SC	RCRA-NonGen
29448	A100158122	1042	SANTEE CARRIERS (HQ)	261 SEVEN MILE ROAD		HARLEYVILLE	SC	AST
29448	S128052479		EDISTO REDI-MIX	277 SEVEN MILE RD	**	HARLEYVILLE	SC	AIRS
29448	1027112114	110071141701	EDISTO REDI-MIX	277 SEVEN MILE RD		HARLEYVILLE	SC	FINDS
29448	1026930052		EDISTO REDI-MIX	277 SEVEN MILE RD	**	HARLEYVILLE	SC	
29448	U003525393	2936	GRR STORAGE BUILDING	482 SEVEN MILE RD		HARLEYVILLE	SC	UST
29448	1000408121	SCD981759020	SOUTHERN BULK HAULERS INC	482 SEVEN MILE RD		HARLEYVILLE	SC	RCRA-NonGen
29448	1016240430	110007833087	SOUTHERN BULK HAULERS, INC.	482 SEVEN MILE ROAD		HARLEYVILLE	SC	FINDS
29448	S127509636		ORANGEBURG REDI-MIX CONCRETE INC	522 SEVEN MILE RD	**	HARLEYVILLE	SC	AIRS
29448	1026900731		ORANGEBURG REDI-MIX CONCRETE INC	522 SEVEN MILE RD	**	HARLEYVILLE	SC	
29448	1016118319	110008551316	STAR REDI-MIX INC - HARLEYVILLE	522 SEVEN MILE RD		HARLEYVILLE	SC	FINDS
29448	1026540577	110070834466	DORCHESTER BIOMASS LLC	609 SEVEN MILE RD	**	HARLEYVILLE	SC	FINDS
29448	S118175949		DORCHESTER BIOMASS LLC	609 SEVEN MILE RD		HARLEYVILLE	SC	AIRS
29448	1021707008		RONNIES OFFICE	229 SHIELDS DR		HARLEYVILLE	SC	EDR Historical Auto Stations
29448	1011998460	110038244520	CAROLINA EASTERN - SAUNDERS FARM	1548 STOKES RD		WALTERBORO	SC	FINDS
29448	S113910688			TUNNEL RD	**	HARLEYVILLE	SC	CDL
29448	1027103132	110009811579	GIANT CEMENT WASHIE RD SAND MN	WASHIE RD	**	DDORCHESTER	SC	FINDS
29448	1024922278		WASHIE ROAD SAND MINE	WASHIE ROAD		HARLEYVILLE	SC	
29477	1021338040		SWEATMANS GROCERY		**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1025580598		JANET PLANT			SAINT GEORGE	SC	
29477	1025770552		EAST COOPER MINE			SAINT GEORGE	SC	
29477	S127639910		ITT INDUSTRIES - TRANSDUCER ROOM	5154 HWY #78	**	SAINT GEORGE	SC	
29477	1021614680		TRAVEL MART*	I-26 & U S 15	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007243234	110017149986	TRAVELAND OF ST GEORGE	I-95 & HWY 178	**	ST GEORGE	SC	FINDS
29477	1008010234	110008545903	JERRY S TRUCK STOP	I95 & 178	**	ST GEORGE	SC	FINDS
29477	1021597956		BARSHAS TEXACO & DISCOUNT FIRE	RR 1 BOX 317	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021988628		D J S GULF STATION	RT 1 BOX 178	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020227696		BARSHAS TEXACO & DISCOUNT FIRE	RT 1 BOX 317	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007224862	110016959291	GRETA S	RT 1 PO BOX 35	**	ST. GEORGE	SC	FINDS
29477	U003524192	2922	PARLER STATION	1435 HWY 15 S		ST GEORGE	SC	GWCI, RCR, LUST, UST
29477	1007238349	110017098825	PARLER STATION	1435 HWY 15 SOUTH		ST GEORGE	SC	FINDS
29477	1008010017	110002328669	WAGERS DAY CARE CENTER	1725 HWY 15 N		ST GEORGE	SC	FINDS
29477	S127617307		INDIAN FIELD UMC	2030 HWY 15 NORTH		ST GEORGE	SC	

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29477	2008876841			2054 HIGHWAY 15 NORTH		ST GEORGE	SC	ERNS
29477	A100267548	4	MIMS OIL CO INC	651 HWY 15 SOUTH		ST. GEORGE	SC	AST
29477	1004781214	SCR000761155	SOUTHEASTERN OIL	960 HWY 15 SOUTH		ST GEORGE	SC	RCRA-NonGen
29477	1021932527		M & M TRUCK STOP	HIGHWAY 15 & HIGHWAY 26	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021342209		SKYLINE TIRE SERVICE	HIGHWAY 15 SOUTH	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020222153		COLSONS GARAGE & WRECKER SVC	HWY 15	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1008010244	110008546010	DORCHESTER ICE COMPANY	HWY 15	**	ST GEORGE	SC	FINDS
29477	1008010231	110008545841	SIMONS DAY CARE CENTER	HWY 15	**	ST GEORGE	SC	FINDS
29477	1021567924		JOHNSTON M B OIL CORP	HWY 15 N	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007242808	110017145613	LEGRANDE FENDER INC	HWY 15 N		ST GEORGE	SC	FINDS
29477	1020658886		JOHNSTON M B OIL CORP	HWY 15 N	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	U003523134	12147	LEGRANDE FENDER INC	HWY 15 N		ST GEORGE	SC	GWCI, RCR, LUST, UST
29477	U003521723	3068	GEORGE STROBEL SERVICE STATION	HWY 15 N	**	ST GEORGE	SC	LUST, UST
29477	1020548551		WAGERS JOHN DAVID	HWY 15 NORTH	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021529842		WAGERS JOHN DAVID	HWY 15 NORTH	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007245379	110017172307	GEORGE STROBEL SERVICE STA	HWY 15 NORTH		ST GEORGE	SC	FINDS
29477	1021628551		SKYLINE TIRE SERVICE	HWY 15 SOUTH	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007245380	110017172316	OPAL 15	HWY 15 SOUTH		ST GEORGE	SC	FINDS
29477	1020627597		SKYLINE TIRE SERVICE	HWY 15 SOUTH	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021737831		MONEY SAVER TRUCK STOP	US 15 AND I 26	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007230004	110017012285	BECKER SAND & GRAVEL CO INC	US 15 SOUTH	**	ST GEORGE	SC	FINDS
29477	1008010563	110008555802	RALPH INFINGERS GROCERY	HWY 178 @ HWY 15	**	ROSINVILLE	SC	FINDS
29477	1022185385		INFINGERS BILL GR & SV STN	HWY 178 N	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020402771		INFINGERS BILL GR & SV STN	HWY 178 N	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1008009857	110002309118	BLOSSOM DAY CARE CENTER	S 18 19	**	GROVER	SC	FINDS
29477	1021704374		MONEY SAVER TRUCK STOP	HWY 26	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007233398	110017047275	DORCHESTER COUNTY AIRPORT	RT 3 BOX 296	**	ST GEORGE	SC	FINDS
29477	1000461933	SCD987578366	SIMON LG INDUSTRIES INC	ROUTE 3, ACADEMY ROAD		ST. GEORGE	SC	RCRA-NonGen
29477	1018160403	110066987130	DOMINION CAROLINA GAS TRANSMISSIO	26-100 HWY 78	**	ST GEORGE	SC	RCRA-NonGen, FINDS
29477	1016120530	110002331101	UNIVERSAL REFINING OF SC LLC	4371 HIGHWAY 78		SAINT GEORGE	SC	FINDS
29477	A100267518	1069	JBS OIL INC.	4371 HWY 78		ST. GEORGE	SC	AST
29477	1000125555	SCD981932122	UNIVERSAL ENVIRONMENTAL SERVICES	4371 HWY 78		ST. GEORGE	SC	RCRA-CESQG
29477	1016935397		UNIVERSAL ENVIRONMENTAL SERVICES	4371 HWY 78		SAINT GEORGE	SC	
29477	1007832841	110019968310	CALVARY BAPTIST CHURCH	4554 HWY 78		SAINT GEORGE	SC	FINDS
29477	1000108458	SCD982114621	ITT CONOFLOW	5154 HWY 78		ST GEORGE	SC	RCRA-CESQG
29477	1020402052		GREENS UNION 76	HIGHWAY 78	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021279166		S & S MART	HWY 78	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021142168		BRABHAM OIL CO INC	HWY 78 & I 95	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021036355		SHIEDERS SMALL ENGINES	HWY 78 & I-95	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1008010562	110008555795	DORCHESTER COUNTY PUPLIC WKS WO	HWY 78 @ 89	**	SAINT GEORGE	SC	FINDS
29477	1022113140		INFINGERS BILL GR & SV STN	HWY 78 N	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020347423		JERRYS UNION 76	178 EX 82 I95	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007243217	110017149799	JERRYS TRUCK STOP	I 95 & HWY 178 EXIT	**	ST GEORGE	SC	FINDS
29477	1020490303		JERRYS UNION 76	I 95 178 EX 82	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007245319	110017171692	GREENES UNION 76	I 95 AND HWY 78	**	ST GEORGE	SC	FINDS
29477	1021018292		INFINGERS AMOCO	I 95 N 178	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021359132		WAGERS WALTER	<	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021998113		WAGERS WALTER	<	**	SAINT GEORGE	SC	EDR Historical Auto Stations

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29477	S117361532		BID GROUP TECH	176 ACADEMY RD		SAINT GEORGE	SC	AIRS
29477	1016184942	110002196301	SIMON LG INDUSTRIES INCORPORATED	176 ACADEMY RD		SAINT GEORGE	SC	FINDS
29477	1017385750	110062741109	COMACT EQUIPMENT US INC	176 ACADEMY RD		SAINT GEORGE	SC	FINDS
29477	1016185189	110002252507	DORCHESTER SCHOOL BUS SHOP	347 ACADEMY RD		SAINT GEORGE	SC	FINDS
29477	U003603753	2927	DORCHESTER SCHOOL BUS SHOP	347 ACADEMY RD		ST GEORGE	SC	LUST, UST
29477	1004780335	SCD982171969	DORCHESTER SCHOOL BUS SHOP	347 ACADEMY RD		ST GEORGE	SC	RCRA-CESQG
29477	1026638624		SOUTH CAROLINA DEPARTMENT OF EDU	347 ACADEMY ROAD		ST. GEORGE	SC	PRP
29477	1000575692	SCD987581170	TERRA FIRST INC	ACADEMY RD HWY 167&168 INTERSE		ST GEORGE	SC	RCRA-NonGen
29477	1016240601	110007836208	TERRA FIRST INC	ACADEMY RD HWY 167&168 INTERSE	**	SAINT GEORGE	SC	FINDS
29477	S120983403		RESIDENTIAL	101 ANN AST		SAINT GEORGE	SC	
29477	1007240956	110017126171	DORCHESTER SOIL & WATER CONSERVA	ATTN: WILFRED L PACE DISTRICT CONSE	**	ST. GEORGE	SC	FINDS
29477	1007648007	110020063839	SCDOT/GROVER PIT	AUTUMN RUM RD		ST GEORGE	SC	FINDS
29477	S119120344		RESIDENCE	3 BEHLING CT		ST GEORGE	SC	
29477	1007224890	110016959576	BLACKS KITCHEN	PO BOX 139	**	ST. GEORGE	SC	FINDS
29477	1007228019	110016991861	AFTER SCHOOL/SUMMER FUN	PO BOX 186-1	**	ST GEORGE	SC	FINDS
29477	1007836653	110020006438	KEITH BRITT TRUCKING & CONSTRUCTIC	PO BOX 334	**	SAINT GEORGE	SC	FINDS
29477	1007224860	110016959273	GREENE S REST	PO BOX 616	**	ST GEORGE	SC	FINDS
29477	1021019817		WEATHERS SERVICE STATION	100 CAROLINA AVE		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1012094478	110038794613	US COCOA MAT CORP-CLOSED	CEDAR & MURRAY ST		ST GEORGE	SC	FINDS
29477	1027144857	110071202478	SEFA TRANSPORTATION INC	9324 CHARLESTON HWY		ST GEORGE	SC	FINDS
29477	U003970177	3036	QUICK PANTRY 29	9481 CHARLESTON HWY		ST GEORGE	SC	GWCI, RCR, LUST, UST
29477	1020174897		CARNS SHELL LLC	9481 CHARLESTON HWY		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007260120	110017332028	RAINBOW GAS 14	9481 CHARLESTON HWY		ST GEORGE	SC	FINDS
29477	1022186908		FINNEY-WITT ENTERPRISES INC	9484 CHARLESTON HWY		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	U004291334		JERRY S TRUCK STOP	9484 CHARLESTON HWY		SAINT GEORGE	SC	UIC, LUST, UST
29477	1007245318	110017171683	JERRYS TRUCK STOP	9484 CHARLESTON HWY		ST GEORGE	SC	FINDS
29477	U003521887	3061	JERRYS TRUCK STOP	9484 CHARLESTON HWY		ST GEORGE	SC	GWCI
29477	1019326520	SCR000782748	WILCO TRAVEL PLAZA 4576	9587 CHARLESTON HWY		ST GEORGE	SC	RCRA-NonGen
29477	1021531110		WILCOHESS LLC	9587 CHARLESTON HWY		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007247379	110017192839	WILCO FUEL PLAZA 930	9587 CHARLESTON HWY		ST GEORGE	SC	FINDS
29477	1018382804	110069457386	WILCO TRAVEL PLAZA 4576	9587 CHARLESTON HWY		ST GEORGE	SC	FINDS
29477	U003631881	17642	PILOT 4576	9587 CHARLESTON HWY		ST GEORGE	SC	LUST, UST
29477	1018313409	110064836398	HESS # 40715	9587 CHARLESTON HWY		ST. GEORGE	SC	ICIS, FINDS
29477	1020848951		BILLYS TOWING INC	9606 CHARLESTON HWY		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007236633	110017080950	PPI #1	9607 CHARLESTON HWY		SAINT GEORGE	SC	FINDS
29477	1021704385		ST GEORGE BP NO 2	9607 CHARLESTON HWY		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	U003631177	3026	INFINGERS AMOCO	9607 CHARLESTON HWY		ST GEORGE	SC	GWCI, LUST, UST
29477	1007226524	110016976600	INFINGERS AMOCO	9607 CHARLESTON HWY		ST GEORGE	SC	FINDS
29477	U004255176		ENK 894	9607 CHARLESTON HWY		SAINT GEORGE	SC	UST
29477	1007228084	110016992511	RAY S REST	9471 CHS HWY	**	ST GEORGE	SC	FINDS
29477	1007240670	110017123174	ST GEORGE GOLF CLUB	218 CLUB HOUSE CIR DR		ST GEORGE	SC	FINDS
29477	94235750			218 CLUBHOUSE CIRCLE		ST GEORGE	SC	ERNS
29477	1017385752	110062741127	USCOA LLC	160 COCOA ST		SOUTH CAROLINA	SC	FINDS
29477	1024418652	110070336839	69427 - U S COCOA MAT LLC	160 COCOA STREET		SAINT GEORGE	SC	FINDS
29477	1004595171	110002473118	USCOA INTERNATIONAL CORP	COCOA & MURRAY STREETS		SAINT GEORGE	SC	FINDS
29477	1007246766	110017186588	USCOA INTL CORP	COCOA ST		ST GEORGE	SC	FINDS
29477	1022150379		ST GEORGE AMOCO	129 CONNELLY HAYNES RD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1024438619	110070914004	CAROLINA GAS TRANSMISSION LLC - DO	COUNTY ROAD S-18-37	**	SAINT GEORGE	SC	FINDS
29477	S127509595		CAROLINA GAS TRANSMISSION LLC DOR	COUNTY ROAD S-18-37	**	SAINT GEORGE	SC	AIRS
29477	1005852609	110006840516	TRULUCK CONSTRUCTION REEVES EDIS	COUNTY ROUTE 19	**	SAINT GEORGE	SC	FINDS
29477	S119008700			616 COWTAIL RD		ST GEORGE	SC	CDL
29477	1007243895	110017156762	DORCHESTER PW/TRANQUIL ACRES N	DORCHESTER PW/PO BOX 416	**	ST GEORGE	SC	FINDS
29477	1007243894	110017156753	DORCHESTER PW/STRATTON CAPERS	DORCHESTER PW/PO BOX 416	**	ST GEORGE	SC	FINDS
29477	1007243893	110017156744	DORCHESTER PW/ASHLEY FOREST	DORCHESTER PW/PO BOX 416	**	ST GEORGE	SC	FINDS
29477	S128050958		116 INTERSTATE DRIVE BUILDING	116 INTERSTATE DRIVE		ST. GEORGE	SC	
29477	1007233909	110017052776	JOSEPH N BYRON JR DMD	100 DUKES ST		ST GEORGE	SC	FINDS
29477	S127022936		777 DURHAMS CORNER RD-RESIDENCE	777 DURHAMS CORNER RD	**	REEVESVILLE	SC	
29477	1008009856	110002309109	ALLEGRETTO S MEAT MKT	190 FOX RUN RD		SAINT GEORGE	SC	FINDS
29477	S128050539		WMES	351 GARVIN ST		ST.GEORGE	SC	
29477	1007257003	110017299449	DORCHESTER COUNTY HEALTH DEPT ST	201 GAVIN ST		ST GEORGE	SC	FINDS
29477	S128541480		411 GAVIN ST	411 GAVIN ST		ST GEORGE	SC	
29477	S128542027		411 GAVIN ST	411 GAVIN ST		ST GEORGE	SC	
29477	S120980211		301 E GEORGE ST	301 E GEORGE ST		SAINT GEORGE	SC	
29477	1008008930	110002175903	DOR WEIGH STA I-26 EAST	HARRY REEDY	**	ST GEORGE	SC	FINDS

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29477	1008009522	110002228875	DOR WEIGH STA I-26 WEST	HARRY REEDY	**	ST GEORGE	SC	FINDS
29477	1018121938	110064620664	DORCHESTER CO/UPPER DORCHESTER	125 HEATHERWOOD DR		SAINT GEORGE	SC	ICIS, FINDS
29477	S110530006		DORCHESTER CO/UPPER DORCHESTER	125 HEATHERWOOD DR		SAINT GEORGE	SC	NPDES
29477	S128542017		107 HORNE ST	107 HORNE ST		SAINT GEORGE	SC	
29477	S128541473		107 HORNE ST	107 HORNE ST		SAINT GEORGE	SC	
29477	S128542018		201 HORNE ST	201 HORNE ST		SAINT GEORGE	SC	
29477	S128541474		201 HORNE ST	201 HORNE ST		SAINT GEORGE	SC	
29477	A100267794	1656	ST. GEORGE AIRPORT - DORCHESTER C(	541 HORNE TAYLOR RD		ST GEORGE	SC	AST
29477	1008008926	110002175850	HUGHES TRAILER PARK	805 HORNE ST		ST GEORGE	SC	FINDS
29477	U003525575	15293	ST GEORGE AIRPORT	HORNE TAYLOR RD	**	ST GEORGE	SC	LUST, UST
29477	1007231702	110017029865	ST GEORGE AIRPORT	HORNE TAYLOR RD	**	ST GEORGE	SC	FINDS
29477	1008008927	110002175869	NOW INC	304 HUDSON RD		ST GEORGE	SC	FINDS
29477	1008010019	110002328687	J&T SWEATMAN S BBQ	2095 US HWY 15N		ST GEORGE	SC	FINDS
29477	1007226566	110016977039	ST GEORGE CHIP MILL	SC HWY 78 BOX 717	**	ST GEORGE	SC	FINDS
29477	U003526389	14511	GRUBER, W	US HWY 15 S		ST GEORGE	SC	LUST, UST
29477	1022200680		S & S MART	US HWY 78 AT I-95	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021626116		WEATHERS DAVID C	HWYS 178 & 15	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021022741		GREEN JOHN T JR	I-95	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021323351		FINNEY-WITT ENTERPRISES INC	I95/HWY 178	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	U004253515		ST GEORGE MAINTENANCE FACILITY	5225 E JIM BILTON BLVD	**	SAINT GEORGE	SC	LUST, UST
29477	S128182507		ST GEORGE MAINTENANCE FACILITY	5225 E JIM BILTON BLVD	**	SAINT GEORGE	SC	
29477	1004780256	SCD982113995	SCDOT ST GEORGE	5225 E JIM BILTON BLVD	**	ST GEORGE	SC	RCRA-CESQG
29477	U003604094	2916	ST GEORGE MAINTENANCE FACILITY	5225 E JIM BILTON BLVD		SAINT GEORGE	SC	GWCI, RCR
29477	U004255582		ST GEORGE MAINTENANCE FACILITY	5225 E JIM BILTON BLVD	**	SAINT GEORGE	SC	LUST, UST
29477	S128182522		ST GEORGE MAINTENANCE FACILITY	5225 E JIM BILTON BLVD	**	SAINT GEORGE	SC	
29477	1016119535	110007834273	SCDOT SAINT GEORGE	5225 EAST JIM BILTON BOULEVARD		ST GEORGE	SC	FINDS
29477	S125479163		ST GEORGE SUBSTATION STORAGE SHE	5808 W JIM BILTON BLVD		SAINT GEORGE	SC	
29477	1016184944	110002196365	JIM BILTON FORD INCORPORATED	5866 W JIM BILTON BLVD		SAINT GEORGE	SC	FINDS
29477	1004780901	SCR000002378	JIM BILTON FORD INC	5866 W JIM BILTON BLVD		ST GEORGE	SC	RCRA-CESQG
29477	1007231914	110017032058	E Z SHOP 14	5963 W JIM BILTON BLVD		ST GEORGE	SC	FINDS
29477	U003631813	15486	E Z SHOP 14	5963 W JIM BILTON BLVD		ST GEORGE	SC	GWCI, RCR, LUST, UST
29477	1021279181		BRABHAM OIL COMPANY INC	5963 W JIM BILTON BLVD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S126294115		ST. GEORGE PLAZA	5982 W. JIM BILTON BLVD.		ST. GEORGE	SC	
29477	U003631664	11813	ST GEORGE EXXON	5987 JIM BILTON BLVD		ST GEORGE	SC	LUST, UST
29477	1007239468	110017110419	ST GEORGE EXXON	5987 JIM BILTON BLVD		ST GEORGE	SC	FINDS
29477	1020716310		SELF SERVE INC	5987 W JIM BILTON BLVD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	U004107264	19302	SHOWTIME FIREWORKS	6012 JIM BILTON BLVD		SAINT GEORGE	SC	UST
29477	U003930053	11931	ST GEORGE BP	6118 JIM BILTON BLVD		ST GEORGE	SC	LUST, UST
29477	1007245673	110017175386	ST GEORGE BP	6118 JIM BILTON BLVD		ST GEORGE	SC	FINDS
29477	1020394748		SELF SERVE INC	6118 W JIM BILTON BLVD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007243515	110017152891	RAINBOW GAS GARDEN 8	6131 JIM BILTON BLVD		ST GEORGE	SC	FINDS
29477	U003631186	3035	RAINBOW GAS GARDEN 8	6131 JIM BILTON BLVD		ST GEORGE	SC	GWCI, UIC, RCR, LUST, UST
29477	1022138107		SELF SERVE INC	JIM BULTON BLVD	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S127650169		PREMIER ENVIRONMENTAL SERVICES - \	100 KLAUBER ST		SAINT GEORGE	SC	
29477	1006931475	SCR000764696	PREMIER ENVIRONMENTAL SERVICES IN	100 KLAUBER ST		ST GEORGE	SC	RCRA-NonGen
29477	1001969329	SCR000075473	SCDOT ST GEORGE	LOT B JIM BILTON BLVD	**	ST GEORGE	SC	RCRA-NonGen
29477	1008010609	110008556623	BRAX N RIGGS	LOU ANN RIGGS	**	ST GEORGE	SC	FINDS
29477	1020943079		LARRYS GULF & GROCERY	715 N MAIN STREET	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S127617102		203 MAY ST - ZARBO	203 MAY ST		SAINT GEORGE	SC	
29477	1007229961	110017011856	SOUTHERN BELL STGRSCMA	MAY ST		ST GEORGE	SC	FINDS
29477	1016184943	110002196347	ISLAND DIRT INC.	202 W MEMORIAL BLVD		SAINT GEORGE	SC	FINDS
29477	1007234781	110017061659	BOBS AUTO CENTER	306 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	U003519455	14825	BOBS AUTO CENTER	306 MEMORIAL BLVD		ST GEORGE	SC	GWCI, UIC, RCR, LUST, UST
29477	1019973775		DIXIE CLEANERS	400 E MEMORIAL BLVD		SAINT GEORGE	SC	EDR Historical Cleaners
29477	1007233898	110017052669	WILLIAM SCOTT GARRIS DMD	5442 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	1007243191	110017149539	M&M QUICK STOP	5514 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	U003730116	3048	ME&M QUICK STOP	5514 MEMORIAL BLVD		ST GEORGE	SC	GWCI, RCR, LUST, UST
29477	1007231906	110017031978	JERRY B OWENS	5553 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	U003631946	16411	OWENS, JERRY	5553 MEMORIAL BLVD		ST GEORGE	SC	LUST, UST
29477	1022181775		BOWEN RICK	5568 MEMORIAL BLVD		SAINT GEORGE	SC	EDR Historical Auto

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ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
								Stations
29477	U003631164	2944	JD'S ONE STOP	5568 MEMORIAL BLVD		ST GEORGE	SC	LUST, UST
29477	1007230011	110017012374	RICKBORNS HORIZON	5568 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	1007243514	110017152882	CORNER STOP 48	5581 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	U004018622	3040	QUICK PANTRY 12/FAST POINT/CITGO	5581 MEMORIAL BLVD		ST GEORGE	SC	GWCI, RCR, LUST, UST
29477	1020144259		CITGO FAST POIN	5581 MEMORIAL BLVD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1019973782		DIXIE CLEANERS	5582 MEMORIAL BLVD		SAINT GEORGE	SC	EDR Historical Cleaners
29477	1007241925	110017136222	PALMETTO CHIROPRACTIC	5582 MEMORIAL BLVD		ST GEORGE	SC	FINDS
29477	S127639595		PIGGLY WIGGLY #51	5583 MEMORIAL BLVD		SAINT GEORGE	SC	
29477	S127619870		PIGGLY WIGGLY #51	5583 MEMORIAL BLVD		SAINT GEORGE	SC	
29477	1019977684		DUKES DRY CLEANERS	5678 MEMORIAL BLVD		SAINT GEORGE	SC	EDR Historical Cleaners
29477	1025914445		DOMINION ENERGY SC ST GEORGE	5733 MEMORIAL BLVD		SAINT GEORGE	SC	
29477	1025983425	110070595570	DOMINION ENERGY SC ST GEORGE	5733 MEMORIAL BLVD		SAINT GEORGE	SC	FINDS
29477	1025888277	SCR000786541	DOMINION ENERGY SC ST GEORGE	5733 MEMORIAL BLVD		SAINT GEORGE	SC	RCRA-CESQG
29477	A100267645	1379	SCE&G - ST. GEORGE CREW QUARTERS	5733 MEMORIAL BLVD.		ST. GEORGE	SC	AST
29477	S127623913		SCE&G ST GEORGE TRANSMISSION SWI	5808 MEMORIAL BLVD		SAINT GEORGE	SC	
29477	1020202104		SELF SERVE INC	5987 MEMORIAL BLVD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1018596890		ACE DRY CLEANERS	756 W MEMORIAL BLVD	**	SAINT GEORGE	SC	EDR Historical Cleaners
29477	1000111213	SCD982110397	DUKES DRY CLEANERS	756 W MEMORIAL BLVD		ST GEORGE	SC	RCRA-NonGen
29477	1016185190	110002252525	DUKES DRY CLEANERS	756 W MEMORIAL BLVD HWY 78		SAINT GEORGE	SC	FINDS
29477	1022109657		BEHLING GROCERY	901 MEMORIAL BLVD	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020806397		BEHLING GROCERY	901 W MEMORIAL BLVD	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S125920670		ADULT LEARNING CENTER	121 S METTS ST		SAINT GEORGE	SC	
29477	S127619330		WILLIAMS MEMORIAL ELEMENTARY SCH	290 S METTS ST		SAINT GEORGE	SC	
29477	S127663461		WILLIAMS MEMORIAL ES	290 S METTS ST		SAINT GEORGE	SC	
29477	1016301203	110012223682	J&J TRUCKING	384 N METTS ST		SAINT GEORGE	SC	FINDS
29477	1005418357	SCR000762435	J&J TRUCKING	384 N METTS ST	**	ST GEORGE	SC	RCRA-NonGen
29477	S127624533		ST GEORGE MIDDLE SCHOOL	600 MINUS ST		SAINT GEORGE	SC	
29477	1006329121	110012707384	WESTVACO ST. GEORGE CHIP MILL	107 MOTEL DR.		SAINT GEORGE	SC	FINDS
29477	U004127764		PILOT TRAVEL CENTER 493	113 MOTEL DR		SAINT GEORGE	SC	UST
29477	1007260076	110017331582	TEXAMART EXIT 77 STORE 107	121 MOTEL DR		ST GEORGE	SC	FINDS
29477	U003631195	3039	CARTERS 121	121 MOTEL DR		ST GEORGE	SC	LUST, UST
29477	1022003384		INFINGERS AMOCO	I-95 N	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021110092		INFINGERS AMOCO	I-95 N 178	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020169693		INFINGERS AMOCO	I-95 NORTH	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020955640		SWEATMANS GROCERY	OFF OLD WIRE RD	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S103245616		CHARLESTON LANDFILL	S ON HWY 78 FROM INT HWY 15		ROSINVILLE	SC	ALLSITES, SHWS
29477	S125363160			103 PARK ST	**	ST GEORGE	SC	CDL
29477	1020287130		HUTTOS SHELL STATION	100 S PARLER AVE		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1000233755	SCD982109167	ST GEORGE GULF	101 PARLER AVE		ST GEORGE	SC	RCRA-NonGen
29477	S127637488		SERVICE STATION	101 PARLER ST	**	SAINT GEORGE	SC	
29477	1020318593		WEATHERS GULF SERVICE	101 S PARLER ST		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S127617235		PARLOR AVE ST GEORGE	105 N PARLER AVE		SAINT GEORGE	SC	
29477	S127616621		109 N PARLOR AVE- DEMO	109 N PARLER AVE		ST. GEORGE	SC	
29477	S120982832		ST GEORGE UNITED METHODIST CHURC	120 N PARLER AV		SAINT GEORGE	SC	
29477	1016185191	110002252614	COLSONS B S	210 S PARLER AVE		SAINT GEORGE	SC	FINDS
29477	1000835507	SCD987595832	COLSONS BODY SHOP	210 S PARLER AVE		ST GEORGE	SC	RCRA-NonGen
29477	1020960039		HEATON JERRY CORDELL	224 N PARLER AVE		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1000408126	SCD982109480	WEATHERS GULF	301 NORTH PARLER		ST GEORGE	SC	RCRA-NonGen
29477	1020222219		HONEST JOHNNYS FIREWORKS	315 S PARLER AVE		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S125363164			321 S PARLER AVE		ST GEORGE	SC	CDL
29477	U003908263	18907	PERSAUD CONVENIENCE STORE	414 S PARLER AVE		ST GEORGE	SC	LUST, UST
29477	1007226028	110016971419	AWRATEY PERSAUD DBA PERSAUDS CO	414 S PARLER AVE		ST GEORGE	SC	FINDS
29477	S119121269		SINGLE FAMILY RESIDENCE	502 N PARLER DR		SAINT GEORGE	SC	
29477	1021943067		CARSONS AMOCO	503 N PARLER AVE		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	U004255615		CARSONS AMOCO	503 N PARLER AVE		ST GEORGE	SC	LUST, UST
29477	U003930715	3027	CARSONS AMOCO	503 N PARLER AVE		ST GEORGE	SC	GWCI, RCR
29477	U004253505		ST GEORGE AMOCO	503 N PARLER AVE		ST GEORGE	SC	UST

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29477	S128051025		507 NORTH PARLER AVENUE JOB#3775-2	507 N PARLER AVE		SAINT GEORGE	SC	
29477	1007116370	SCR000763078	PREMIER ENVIRONMENTAL SERVICES IN	601 N PARLER AVE		ST GEORGE	SC	RCRA-NonGen
29477	1020316846		LARRYS GULF & GROCERY	715 N PARLER AVE		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020430300		MINUS EXXON SERVICE STATION	N PARLER & SOCIETY	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021901714		MINUS ESSO SERVICE STATION	N PARLER & SOCIETY	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021717535		MINUS EXXON SERVICE STATION	N PARLER AVE & SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021088491		MINUS EXXON SERVICE STATION	N PARLER AVE & SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S128891225		FORMER NORFOLK SOUTHERN RR FACIL	PARLER AVE AT N RAILROAD AV	**	SAINT GEORGE	SC	LUST
29477	1007224651	110016957131	FORMER NORFOLK SOUTHERN RR FACIL	PARLER AVE AT N RAILROAD AVE	**	SAINT GEORGE	SC	FINDS
29477	U003930660	18978	FORMER NORFOLK SOUTHERN RR FACIL	PARLER AVE AT N RAILROAD AVE	**	SAINT GEORGE	SC	GWCI, UST
29477	1007245294	110017171442	ARNOLD STEWARD	S PARLER & RAILROAD AVE		ST GEORGE	SC	FINDS
29477	S116706419		ARNOLD STEWARD	S PARLER & RAILROAD AVE	**	ST GEORGE	SC	UIC
29477	1005418334	SC0000988329	SCARNG ST GEORGE	SOUTH PARLER AVE	**	ST GEORGE	SC	RCRA-NonGen
29477	U003631208	3051	ARNOLD STEWARD	101 S PARLOR AVE		ST GEORGE	SC	RCR, LUST, UST
29477	1022158809		WEATHERS GULF SERVICE	301 N PARLOR		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007258135	110017311416	R WHALEY DURR HARTZOG PIT	302 N PARLOR AVE		SAINT GEORGE	SC	FINDS
29477	1022029005		CARSONS AMOCO	503 PARLOR AVE	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1001225607	110002239836	THE BODY SHOP	3001 PIEDMONT AVE		MYRTLE BEACH	SC	RCRA-CESQG, FINDS
29477	93158651			POLK SWAMP	**	ST. GEORGE	SC	ERNS
29477	1011910845	110037285586	PREMIER ENVIRONMENTAL SERVICES FI	POSTAL ADDRESS IS UNAVAILABLE FOR	**	ST. GEORGE	SC	FINDS
29477	1014834860	110040709926	ARNOLD STEWARD RELEASE 2	108 RAILROAD AVE SE		SAINT GEORGE	SC	FINDS
29477	1014834859	110040709917	ARNOLD STEWARD RELEASE 1	108 RAILROAD AVE SE		SAINT GEORGE	SC	FINDS
29477	S123163267		HOUSE	200 NW RAILROAD AVE		SAINT GEORGE	SC	
29477	1019977679		DUKES CLEANERS	RAILROAD AVE	**	SAINT GEORGE	SC	EDR Historical Cleaners
29477	1014834865	110040712798	ANCRUM	RAILROAD AVE & S PARLER AVE		ST GEORGE	SC	FINDS
29477	1007244632	110017164539	RAINBOW TEXACO #14	RAINBOW GAS GARDEN #14/TEXACO	**	SAINT GEORGE	SC	FINDS
29477	1018799658		WIMBERLY JR JULIUS W	101 E RAYSOR ST		SAINT GEORGE	SC	EDR Historical Cleaners
29477	1018705013		WIMBERLY DRY CLEANERS	101 RAYSOR ST	**	SAINT GEORGE	SC	EDR Historical Cleaners
29477	1018933481		WIMBERLY JR JULIUS W	101 W RAYSOR ST		SAINT GEORGE	SC	EDR Historical Cleaners
29477	1020059982		PAUL CLEANERS	222 RAYSOR		SAINT GEORGE	SC	EDR Historical Cleaners
29477	1007240893	110017125500	RIVER RIDGE FARMS	600 RAYSOR ST		ST GEORGE	SC	FINDS
29477	S123792402		FORMER DAYS INN - POOL HOUSE	128 INTERSTATE RD		SAINT GEORGE	SC	
29477	S127654036		CEDARWOOD - APT #8	300 REED ST		SAINT GEORGE	SC	
29477	S125237943		OLD COURTHOUSE	101 RIDGE ST		SAINT GEORGE	SC	
29477	S123792548		ROY TURNER	200 RIDGE ST		SAINT GEORGE	SC	
29477	1010003335		DORCHESTER COUNTY SD #4	500 RIDGE ST		ST GEORGE	SC	FTTS
29477	1008178888		DORCHESTER COUNTY SD #4	500 RIDGE ST		ST GEORGE	SC	
29477	1004595129	110011522940	DORCHESTER COUNTY SD #4	500 RIDGE ST		SAINT GEORGE	SC	FINDS
29477	S128919424		DORCHESTER SCHOOL DISTRICT FOUR	500 RIDGE STREET		ST. GEORGE	SC	
29477	S128919836		DORCHESTER SCHOOL DISTRICT FOUR	500 RIDGE STREET		ST. GEORGE	SC	
29477	1007275801		DORCHESTER COUNTY SCHOOL DISTRIC	500 RIDGE STREET		ST. GEORGE	SC	FTTS
29477	1020121627		WIMBERLY DRY CLEANERS	106 ROYSON ST	**	SAINT GEORGE	SC	EDR Historical Cleaners
29477	1021769437		TRAVELAND OF S C INC	U S HWY 178 & 15	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1022003023		SWEATMANS GROCERY	113 SANDY BRANCH RD		SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1007245141	110017169874	HUGHEY E AND SHERYL A REEVES	305 SARAH ST		SAINT GEORGE	SC	FINDS
29477	S126295021		DORCHESTER COUNTY DETENTION CEN	200 SEARS ST		SAINT GEORGE	SC	
29477	S126293065		OLD DETENTION CENTER	200 SEARS STREET		ST. GEORGE	SC	
29477	1021806046		HILLS QUICK STOP INC	101 SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021615627		HILLS QUICK STOP	101 SOCIETY STREET	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020121626		WIMBERLY DRY CLEANERS	102-04 N/S SOCIETY	**	SAINT GEORGE	SC	EDR Historical Cleaners
29477	1021667061		KIZER SERVICE STATION	208 SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1022206022		KIZER SERVICE STATION	208 SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020175340		REEVESVILLE REAL EST & INSUR	311 SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1021088461		BEHLINGS GROCERY	901 SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	1020658878		BEHLINGS GROCERY	901 SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations

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29477	1021762187		BEHLINGS GROCERY	SOCIETY ST	**	SAINT GEORGE	SC	EDR Historical Auto Stations
29477	S127559814			100 STOKES BRIDGE RD		ST GEORGE	SC	CDL
29477	S127560317			744 STOKES BRIDGE RD	**	ST GEORGE	SC	CDL
29477	1016184939	110002196276	SC FC COASTAL NURS	158 TREE FARM RD		SAINT GEORGE	SC	FINDS
29477	1000230254	SCD982098717	SC FORESTRY COMM COASTAL NUR	158 TREE FARM RD		ST. GEORGE	SC	RCRA-NonGen
29477	S126293202		COASTAL REGION TREE NURSERY	181 TREE FARM RD		ST. GEORGE	SC	
29477	S123792390		COASTAL NURSERY OFFICE	181 TREE FARM RD		SAINT GEORGE	SC	
29477	S126293914		COASTAL REGION TREE NURSERY	181 TREE FARM RD		ST. GEORGE	SC	
29477	S121352548			TWO BRIDGES RD	**	ST GEORGE	SC	CDL
29477	S128541481		118 WASHINGTON HEIGHTS ST	118 WASHINGTON HTS		SAINT GEORGE	SC	
29477	S128542032		118 WASHINGTON HEIGHTS ST	118 WASHINGTON HTS		SAINT GEORGE	SC	
29477	S128541482		120 WASHINGTON HEIGHTS ST	120 WASHINGTON HTS		SAINT GEORGE	SC	
29477	S128541998		120 WASHINGTON HEIGHTS ST	120 WASHINGTON HTS		SAINT GEORGE	SC	
29477	S118693055			109 WHITRIDGE LN		ST GEORGE	SC	CDL
29477	1007830033	110019940199	SCDOT WILCO TRUCK PLAZA	930 WILCO TRUCK PLAZA	**	SAINT GEORGE	SC	ICIS, FINDS
29477	1004781147	SCR000075754	SCDOT WILCO TRUCK PLAZA	930 WILCO TRUCK PLAZA	**	ST GEORGE	SC	RCRA-NonGen
29477	S117884531			114 WINNINGHAM RD		ST GEORGE	SC	CDL
29477	1007835937	110019999279	TRANSGLOBAL TRUCKING	320 WINNINGHAM RD		SAINT GEORGE	SC	FINDS
29477	1001969333	SCR000075515	TRANSGLOBAL	320 WINNINGHAM RD		ST GEORGE	SC	RCRA-NonGen
29477	1010451703	110031274902	BANKS CONSTRUCTION CO/SHANNON	2560 WIRE RD		SAINT GEORGE	SC	FINDS
29477	S116710461			2800 WIRE RD		ST GEORGE	SC	CDL
29477	1010690607	110033175267	CRYSTAL MINERALS MINE	WIRE RD	**	ST GEORGE	SC	FINDS
29477	1016044493	110054984816	MURRAY SAND CO INC/MATTHEW FIN	WIRE RD STATE RD S-18-19	**	GROVER	SC	FINDS
29477	1006327596	110012684201	MEM LLC/MIXSON MINE	WIRE ROAD		ST GEORGE	SC	FINDS
29477	1027145255	110071202911	DORCHESTER LOGISTICS INC/TOBACCO	WIRE ROAD S-18-19	**	GROVER	SC	FINDS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/16/2022
Date Data Arrived at EDR: 08/22/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/15/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/15/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

SHWS: Site Assessment Section Project List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 06/16/2022
Date Data Arrived at EDR: 06/24/2022
Date Made Active in Reports: 09/12/2022
Number of Days to Update: 80

Source: Department of Health and Environmental Control
Telephone: 803-898-0835
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: Permitted Landfills List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/09/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 06/13/2022
Number of Days to Update: 4

Source: Department of Health and Environmental Control
Telephone: 803-734-5165
Source: Department of Health and Environmental Control, GIS Section
Telephone: 803-896-4084
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/13/2022
Number of Days to Update: 78

Source: Department of Health and Environmental Control
Telephone: 803-898-4350
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

UST: Comprehensive Underground Storage Tanks
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 01/07/2022
Date Made Active in Reports: 03/23/2022
Number of Days to Update: 75

Source: Department of Health and Environmental Control
Telephone: 803-896-7957
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank List
Registered Aboveground Storage Tanks.

Date of Government Version: 03/25/2004
Date Data Arrived at EDR: 08/04/2004
Date Made Active in Reports: 09/23/2004
Number of Days to Update: 50

Source: Department of Health and Environmental Control
Telephone: 803-898-4350
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

RCR: Registry of Conditional Remedies

The Bureau of Land and Waste Management established this Registry to help monitor and maintain sites that have conditional remedies. A Conditional Remedy is an environmental remedy that includes certain qualifications. These qualifications are divided into two major categories: Remedies requiring Land Use Controls and Conditional No Further Actions.

Date of Government Version: 06/13/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: Department of Health & Environmental Control
Telephone: 803-896-4000
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

AUL: Land Use Controls

The term Land Use Controls or "LUCs" encompass institutional controls, such as those involved in real estate interests, governmental permitting, zoning, public advisories, deed notices, and other legal restrictions. The term also includes restrictions on access, whether achieved by means of engineered barriers (e.g., fence or concrete pad) or by human means (e.g., the presence of security guards). Additionally, the term includes both affirmative measures to achieve the desired restrictions (e.g., night lighting of an area) and prohibitive directives (e.g., restrictions on certain types of wells for the duration of the corrective action). Considered altogether, the LUCs for a facility will provide a tool for how the property should be used in order to maintain the level of protectiveness that one or more corrective actions were designed to achieve.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/08/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 79

Source: Department of Health & Environmental Control
Telephone: 803-896-4049
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

VCP: Voluntary Cleanup Sites

Sites participating in the Voluntary Cleanup Program. Once staff and a non-responsible party have agreed upon an approved scope of work for a site investigation and/or remediation, the party enters into a voluntary cleanup contract. Staff oversees the cleanup efforts to ensure that activities are performed to our satisfaction. Upon completion of the negotiated work in the voluntary cleanup contract, the non-responsible party receives State Superfund liability protection.

Date of Government Version: 07/11/2022
Date Data Arrived at EDR: 07/13/2022
Date Made Active in Reports: 09/27/2022
Number of Days to Update: 76

Source: Department of Health and Environmental Control
Telephone: 803-896-4049
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Brownfields Sites Listing

The Brownfields component of the Voluntary Cleanup Program allows a non-responsible party to acquire a contaminated property with State Superfund liability protection for existing contamination by agreeing to perform an environmental assessment and/or remediation.

Date of Government Version: 07/11/2022
Date Data Arrived at EDR: 07/13/2022
Date Made Active in Reports: 09/27/2022
Number of Days to Update: 76

Source: Department of Health & Environmental Control
Telephone: 803-896-4069
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Solid Waste Recycling Facilities

A listing of recycling center locations.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 03/13/2020
Date Made Active in Reports: 05/22/2020
Number of Days to Update: 70

Source: Department of Health & Enviornmental Control
Telephone: 803-896-8985
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 07/29/2022
Date Data Arrived at EDR: 08/18/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

ALLSITES: Site Assessment & Remediation Public Record Database

The South Carolina Department of Health and Environmental Control is pleased to have the Public Record for your review. The purpose of this database is two-fold. First, it will provide to communities another form of notice of cleanup activity, allowing them to have more information about assessment and cleanup activities in their area and in the State. Second, it can assist those seeking to redevelop brownfield properties within South Carolina.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/08/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 79

Source: Department of Health & Environmental Control
Telephone: 803-896-4000
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

CDL 2: Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 09/22/2022
Number of Days to Update: 24

Source: South Carolina Law Enforcement Division
Telephone: 803-896-7136
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

CDL: Clandestine Drug Lab Sites

A listing of clandestine drug lab site locations.

Date of Government Version: 01/24/2012
Date Data Arrived at EDR: 01/26/2012
Date Made Active in Reports: 02/24/2012
Number of Days to Update: 29

Source: Department of Health & Environmental Control
Telephone: 803-896-4288
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/29/2022
Date Data Arrived at EDR: 08/18/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 11

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

SPILLS: Spill List

Spills and releases of petroleum and hazardous chemicals reported to the Oil & Chemical Emergency Response division.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 05/27/2022
Number of Days to Update: 1

Source: Department of Health and Environmental Control
Telephone: 803-898-4111
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Semi-Annually

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 10/25/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/07/2013
Number of Days to Update: 63

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch

Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 03/26/2001
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/07/2013
Number of Days to Update: 63

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (404) 562-8651
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/13/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/18/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/27/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 69

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 10/24/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 10/27/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 59

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 68

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 60

Source: EPA
Telephone: (404) 562-9900
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/25/2022
Date Data Arrived at EDR: 07/01/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

AIRS: Permiited Airs Facility Listing

A listing of permitted airs facilities.

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 05/25/2022
Date Made Active in Reports: 08/12/2022
Number of Days to Update: 79

Source: Department of Health & Environmental Control
Telephone: 803-898-4279
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

ASBESTOS: Asbestos Notification Listing

Asbestos abatement & demolition project list

Date of Government Version: 10/17/2022
Date Data Arrived at EDR: 10/18/2022
Date Made Active in Reports: 11/03/2022
Number of Days to Update: 16

Source: Department of Health & Environmental Control
Telephone: 803-898-3882
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Sites

A listing of sites with coal ash ponds.

Date of Government Version: 03/20/2018
Date Data Arrived at EDR: 03/22/2018
Date Made Active in Reports: 04/25/2018
Number of Days to Update: 34

Source: Department of Health & Environmental Control
Telephone: 803-898-3964
Last EDR Contact: 09/08/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Database

The Drycleaning Facility Restoration Trust Fund database is used to access, prioritze and cleanup contaminated registered drycleaning sites.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 04/27/2022
Date Made Active in Reports: 07/18/2022
Number of Days to Update: 82

Source: Department of Health & Environmental Control
Telephone: 803-898-3882
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Financial Assurance 1: Financial Assurance Information Listing

Financial assurance information for aolid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 06/22/2022
Date Data Arrived at EDR: 06/23/2022
Date Made Active in Reports: 09/12/2022
Number of Days to Update: 81

Source: Department of Health & Environmental Control
Telephone: 803-896-4067
Last EDR Contact: 08/30/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

Financial Assurance 2: Financial Assurance Information Listing

Hazardous waste financial assurance information.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/25/2022
Number of Days to Update: 23

Source: Department of Health & Environmental Control
Telephone: 803-898-3880
Last EDR Contact: 07/20/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information Listing

UST financial assurance information.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 01/07/2022
Date Made Active in Reports: 03/23/2022
Number of Days to Update: 75

Source: Department of Health & Environmental Control
Telephone: 803-898-3880
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

GWCI: Groundwater Contamination Inventory

An inventory of all groundwater contamination cases in the state.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 11/06/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 13

Source: Department of Health and Environmental Control
Telephone: 803-898-3798
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Annually

NPDES: Waste Water Treatment Facilities Listing

A listing of waste water treatment facility locations.

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/13/2022
Number of Days to Update: 78

Source: Department of Health & Environmental Control
Telephone: 803-898-4300
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

UIC: Underground Injection Wells Listing

A listing of underground injection wells locations.

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Department of Health & Environmental Control
Telephone: 803-898-3799
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

MANIFEST: Hazardous Waste Manifest Data

A generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage or disposal must prepare a hazardous waste manifest to accompany such shipment.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 88

Source: Department of Health & Environmental Control
Telephone: 803-898-3796
Last EDR Contact: 10/27/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health and Environmental Control in South Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Health and Environmental Control
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health and Environmental Control in South Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/15/2014
Number of Days to Update: 198

Source: Department of Health and Environmental Control
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health and Environmental Control in South Carolina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Health and Environmental Control
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/08/2022
Date Made Active in Reports: 10/21/2022
Number of Days to Update: 74

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Day Care List
Source: Department of Social Services
Telephone: 803-898-7345

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Natural Resources
Telephone: 803-734-9494

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

I-95 EXTENDED STUDY AREA
I-95
BOWMAN, SC 29018

TARGET PROPERTY COORDINATES

Latitude (North):	33.30132 - 33ˆ 18’ 4.75’’
Longitude (West):	80.555895 - 80ˆ 33’ 21.22’’
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	541345.9
UTM Y (Meters):	3684588.0
Elevation:	102 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	15605246 WADBOO SWAMP, SC
Version Date:	2020

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

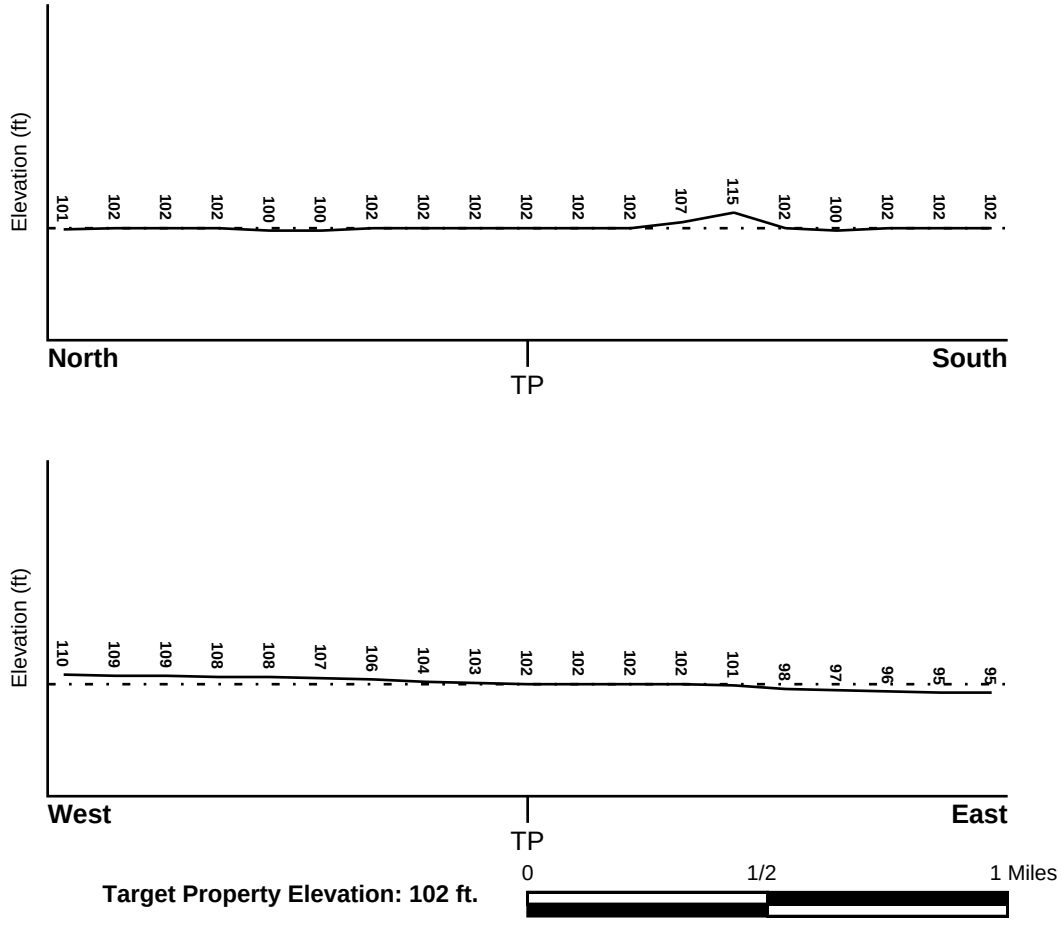
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
Not Reported	

Additional Panels in search area:	FEMA Source Type
45075C0630C	FEMA FIRM Flood data
45075C0635C	FEMA FIRM Flood data
45075C0640C	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
WADBOO SWAMP	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

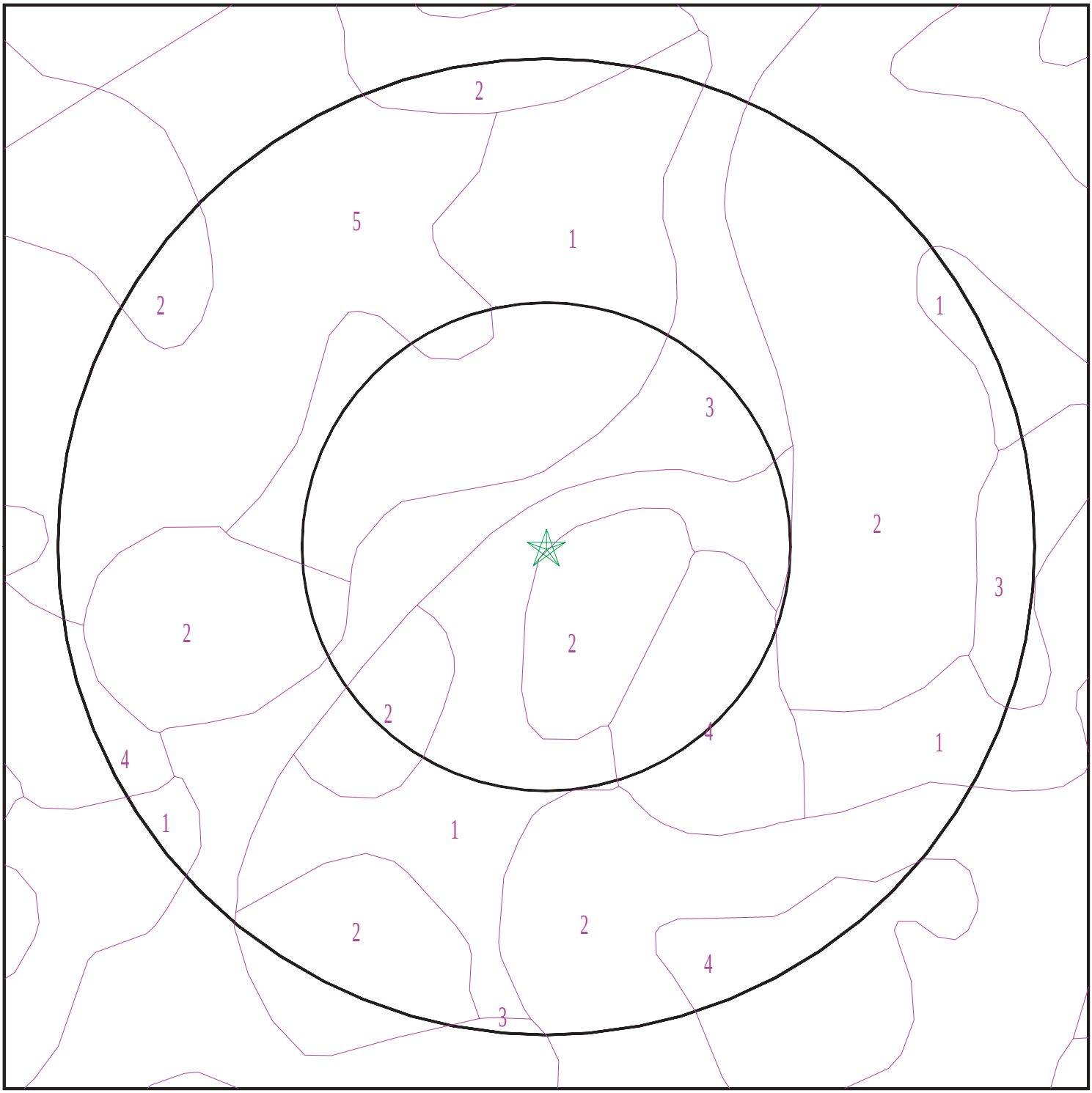
Era:	Cenozoic
System:	Tertiary
Series:	Eocene Claiborne Group
Code:	Te2 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7172876.2s



★ Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	I-95 Extended Study Area	CLIENT:	ARM Environmental Services
ADDRESS:	I-95 Bowman SC 29018	CONTACT:	Richard Ciccolella
LAT/LONG:	33.30132 / 80.555895	INQUIRY #:	7172876.2s
		DATE:	November 08, 2022 3:48 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: LYNCHBURG

Soil Surface Texture:
Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 31 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
2	7 inches	79 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6

Soil Map ID: 2

Soil Component Name: GOLDSBORO

Soil Surface Texture:
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 76 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches		Not reported	Not reported	Max: Min:	Max: Min:
2	14 inches	61 inches		Not reported	Not reported	Max: Min:	Max: Min:
3	61 inches	79 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: RAINS

Soil Surface Texture:

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
2	9 inches	42 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
3	42 inches	55 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
4	55 inches	79 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6

Soil Map ID: 4

Soil Component Name: PANTEGO

Soil Surface Texture:
Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Very poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 23 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	74 inches	78 inches		Not reported	Not reported	Max: 42 Min: 4	Max: 6 Min: 3.6
2	18 inches	74 inches	sandy clay loam	Not reported	Not reported	Max: 42 Min: 4	Max: 6 Min: 3.6
3	0 inches	18 inches		Not reported	Not reported	Max: 42 Min: 4	Max: 6 Min: 3.6

Soil Map ID: 5

Soil Component Name: COXVILLE

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 23 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 3.6
2	11 inches	79 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 3.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

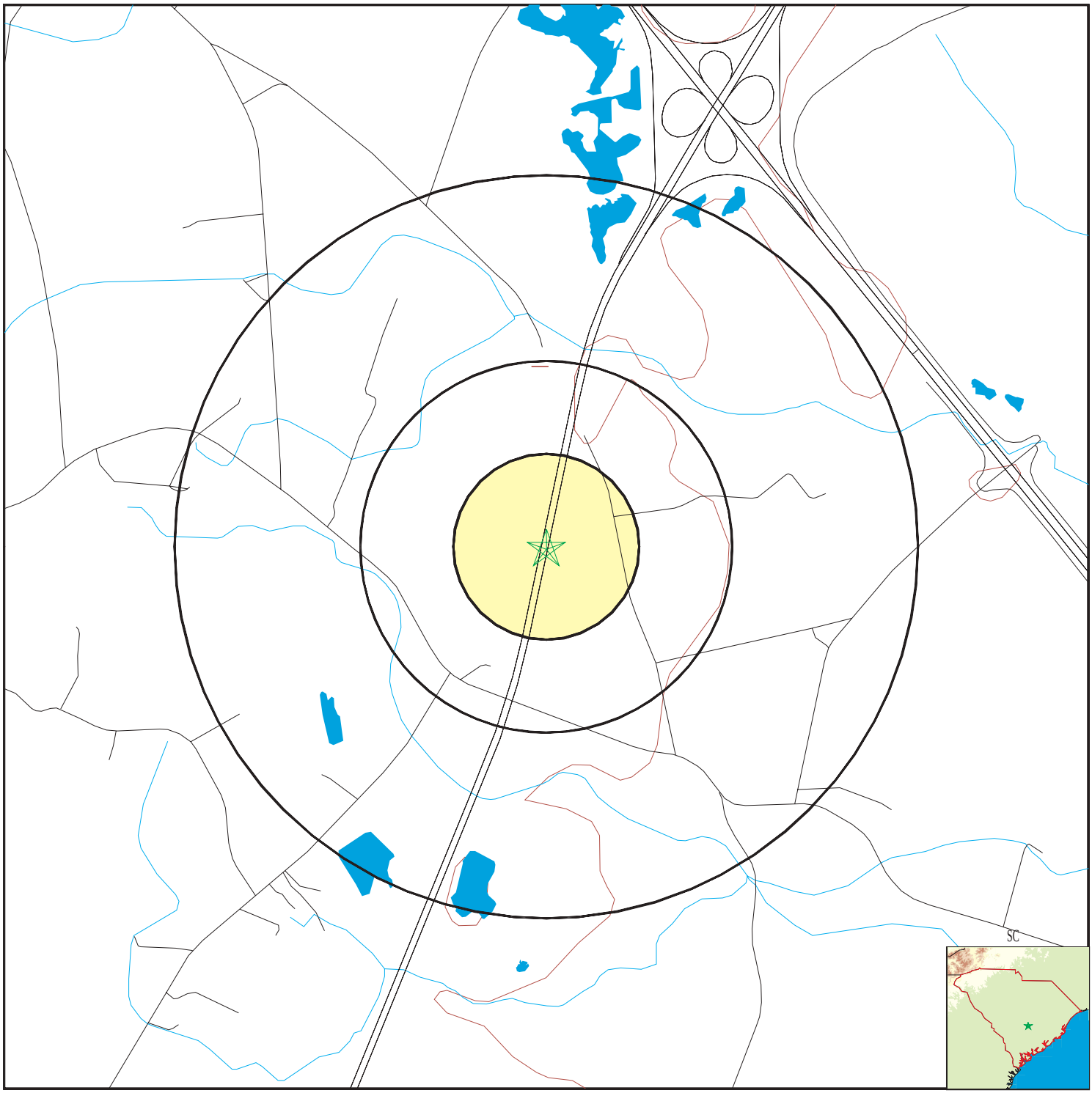
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 7172876.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME:	I-95 Extended Study Area	CLIENT:	ARM Environmental Services
ADDRESS:	I-95 Bowman SC 29018	CONTACT:	Richard Ciccolella
		INQUIRY #:	7172876.2s
LAT/LONG:	33.30132 / 80.555895	DATE:	November 08, 2022 3:48 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: SC Radon

Radon Test Results

Zipcode	Average	Num Tests	Minimum	Maximum	% > 4 pCi/L
29018	0.5	2	0.3	0.7	0.0

Federal EPA Radon Zone for DORCHESTER County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 29018

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.033 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Department of Natural Resources
Telephone: 803-734-9494

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

South Carolina Water Well Database
Source: Department of Natural Resources
Telephone: 803-734-6440
Water wells in the Coastal Plain counties of South Carolina.

Water Well Database
Source: Department of Natural Resources
Telephone: 864-654-1671
A listing of water wells in the Piedmont (upstate) counties.

OTHER STATE DATABASE INFORMATION

RADON

State Database: SC Radon
Source: Department of Health & Environmental Control
Telephone: 864-241-1090
Radon Test Results by Zip Code

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

17.6 Interview Documentation

Date: 9-28-22

Person Spoken To: Greg Casssidy, DHEC

RE: Whetsell Farm Road site

Notes:

I had received DHEC file information for the Whetsell Farm Road site, but there was not a location map in the file.

Called Greg to discuss. He recalled the site and the general details about pesticide and other material removal activities. There was shallow soil contamination that was cleaned up and the waste materials were removed for offsite disposal.

He pulled up a google map while I was looking at google earth. He described to me where the site was. It was closer to Duncan Chapel Road and west of Jacques Hog House Road, fairly well removed from the corridor.

He said the site was remediated.

17.7 Special Contractual Conditions Between User and Environmental Professional

17.8 Qualifications of the Environmental Professional(s)

RICHARD CICCOLELLA
PROJECT MANAGER

Mr. Ciccolella is a Biologist with experience in the environmental field since 1993. He has extensive experience in a variety of environmental areas including wetland delineation, biological assessments, Phase I and Phase II Environmental Site Assessments, NEPA Environmental Assessments, and soil and ground water assessments with respect to leaking underground storage tanks and/or other sources of potential subsurface contamination.

EDUCATION
B.S., Biology - Auburn University (1993)

CERTIFICATIONS
Niton XRF Lead Analyzer Manufacturer's Training Course
Lead Awareness Training Certificate
Wetland Delineation – Richard Chinn Environmental Training, Inc.

SPECIALIZED TRAINING
Environmental Site Assessments, Phase I and Phase II
Wetland Delination
Biology / Ecology
Ecological Modeling
Environmental Assessment

PROFESSIONAL EXPERIENCE
1993 to Present: ARM Environmental Services, Inc. - Columbia, South Carolina

Mr. Ciccolella joined ARM in 1993 as a staff scientist. His responsibilities include Phase I and Phase II Environmental Site Assessments, highway corridor assessments for hazardous materials or waste sites, soil and ground water assessments, preparation of environmental assessment documentation pursuant to the National Environmental Policy Act (NEPA), wetland delineation, and biological assessments.

PROJECT EXPERIENCE

Environmental Site Assessments

Mr. Ciccolella has been the principal investigator for numerous Phase I Environmental Site Assessments (ESAs). Assessments have been conducted on a wide range of sites including vacant property, industrial facilities, potential SCDOT rights-of-way, and retail service station properties. Typical clientele has included highway design firms, lending institutions, law firms, real estate brokers, and individual clients.

Subsurface Assessments

Mr. Ciccolella has been involved with the assessment of numerous sites where the subsurface soils and/or ground water have been impacted from leaking underground storage tanks or other sources. His responsibilities on these projects have included the completion of numerous ground water quality assessments designed to characterize the subsurface contamination, determine the primary direction of ground water flow and aquifer characteristics, identify and evaluate potential exposure pathways, and model the fate and transport of the contaminated ground water plumes. His project experience includes numerous assessments conducted pursuant to South Carolina Department of Health and Environmental Control (DHEC) guidelines for assessment of petroleum underground storage tank (UST) releases. Other subsurface assessment work has included the completion of numerous Phase II Soil and/or Ground Water Quality Assessments for commercial real estate transactions and SCDOT right of way acquisitions.

Highway Corridor Assessments

Mr. Ciccolella has also been involved in numerous Highway Corridor Assessments. These Corridor Assessments have been conducted to evaluate the presence, or likely, presence, of hazardous waste or materials that may pose a threat of contamination to the potential highway corridor. Corridor Assessments typically include a site reconnaissance of the corridor area, a review of available regulatory information for sites that potentially are a source of contamination to the corridor, discussions with regulatory personnel regarding specific sites of concern, and the generation of a report summarizing the findings and providing specific recommendations. Typical clientele has included highway design firms involved in the preparation of environmental impact studies conducted pursuant to NEPA.

Environmental Assessment

Mr. Ciccolella was the principal author of the NEPA Environmental Assessment (EA) conducted for the proposed construction of a Ready Building for the 43rd Weapons of Mass Destruction – Civil Support Team of the South Carolina Army National Guard. The EA included an alternatives analysis of a variety of potential environmental impacts including natural resource impacts, cultural resource impacts and community impacts.

Biological Assessments

Mr. Ciccolella has performed numerous wetland delineations throughout South Carolina and has been the principal field technician on a number of wetland assessments, delineation, and wetland mitigation projects. His duties have included wetland delineation and monitoring of environmental conditions at wetland mitigation sites.

RICHARD J. PITTENGER
SENIOR PROJECT MANAGER / PRINCIPAL

Mr. Pittenger is an environmental engineer, and has worked in the environmental field since 1986. He has supervised and conducted a variety of environmental services for public and private clients located across the Southeast. Mr. Pittenger is also a licensed asbestos consultant, with extensive experience in the performance in building inspections for asbestos, lead based paint and radon. Mr. Pittenger's expertise is in Project Management, primarily in the areas of environmental assessments, site remediation and regulatory compliance.

EDUCATION
B.S., Engineering Technology, Louisiana State University, 1985

CERTIFICATIONS
OSHA Hazardous Waste Operation and Emergency Response
SCDHEC Licensed Asbestos Consultant/Management Planner

SPECIALIZED TRAINING
Environmental Site Assessor, Phase I and Phase II
Asbestos Abatement Supervision, Management Planning, and Building Inspection
Underground Storage Tank Management
Lead Based Paint – Inspection and Abatement Supervision

PROFESSIONAL EXPERIENCE
1991 to Present: ARM Environmental Services, Inc. - Columbia, South Carolina

> Mr. Pittenger joined ARM in 1991 as Vice-President and Director of Environmental Assessment Services. He is responsible for project development, technical oversight and quality control.

1989 to 1991: Professional Service Industries, Inc. - Columbia, South Carolina

> Mr. Pittenger was employed as Division Manager of the Columbia Environmental Services Division of PSI. His responsibilities included marketing, project development and division administration. While at PSI, Mr. Pittenger was also project manager for SCDOT Phase I and Phase II corridor assessment projects.

1986 to 1989: Environmental Technology Engineering, Inc. - Lexington, South Carolina

> Mr. Pittenger served as staff engineer on a variety of projects, ranging from groundwater investigations to hazardous waste disposal facilities.