FEASIBILITY REPORT

I-26 MM 165 (Exit 165) to 187 (Exit 187) Interstate Corridor Improvements
Dorchester, Berkeley, and Orangeburg Counties, South Carolina

Prepared by the South Carolina Department of Transportation
Office of Planning
SCDOT Project I.D. No. P038677 (Planning Phase)

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EXECUTIVE SUMMARY

The mission of the SCDOT is to connect communities and drive our economy through the systematic planning, construction, maintenance and operation of the state highway system and the statewide intermodal transportation and freight system. The Systems Performance Section of the Office of Planning within the SCDOT was tasked with creating a process and developing prioritized ranking for segments of the rural interstate freight network that would benefit freight mobility. The reliable and efficient movement of freight through the roadway system in modern supply chains is a key component in economic development and statewide commerce.

Interstate 26 from mile marker (MM) 165 (Exit 165, SC 210) to mile marker (MM) 187 (Exit 187, Ridgeville Road) was identified as the third ranked segment of rural interstate that fit the relevant criteria. Through the Feasibility Report process the project purpose and need was developed along with associated goals and metrics.

Project Purpose:

The purpose of this project is to improve capacity and freight mobility on the mainline and associated interchanges.

Project Need:

- The future 2045 4 lane segment will be LOS E for most of the segment.
- Truck Travel Time Index (TTTI) is very high (currently at 0.8).
- There are two interchanges.
    - US15 does not have room now to accommodate any additional lanes; therefore, it has constructability issues due to lack of horizontal clearance.
    - SC453 has an LOS of D and E even though the ramps are A. This interchange has capacity issues on the crossing route and lacks horizontal clearance under the bridge.

	Current Year (2015)		Future Year (2045)		Future Year (2045)	
Location	ADT	LOS (4 lanes)	ADT	LOS (4 lanes) No Build	ADT	LOS (6 lanes)
I-26, MM 165-187	37,000	C	49,000	D / E	54,000	C

Table 1. Existing and Projected ADT and LOS for I-26 MM 165-187

The original Feasibility Report (FR) was for MM169 to 187, but in September 2021, due to additional federal funding opportunities, an additional four (4) miles was added from MM165 (Exit 165, SC 210) to 187 (Exit 187, Ridgeville Road). This report was amended to include an addendum to address the risks associated with this additional four (4) miles.

These are the identified alternatives that will be recommended to move forward through the planning and engineering phase.

- Alternative 1 – Six (6) lanes, additional lanes in the inside median
- Alternative 2 – Six (6) lanes, additional lanes to the outside of the travelway

Risks were discussed and documented and further quantitatively analyzed using a probability and impact matrix for cost and schedule. Those risks that rated as having a probable and significant impact were mitigated where practical and adjustments made to project cost and schedule as necessary. Two cost estimates were developed for the six (6) lane widening alternatives, each was based on the risks derived by the Project Development Team (PDT).

Alternative	Alternative Description	PE Cost Estimate, $	RW Cost Estimate, $	Construction Cost Estimate, $	Total Project Cost
Alt 1	Inside lanes	$13 M	$1.3 M	$551 M	$565 M
Alt 2	Outside lanes	$13 M	$1.3 M	$551 M	$565 M

Table 2. Alternative Executive Summary with Cost and Schedule

The costs above include an interchange alteration for US15 and SC210. Due to low counts and issues during construction, both interchanges are proposed to be a diamond. SC453 will remain a diamond. Exit 187 is being redesigned at the penning of this report and was not considered in this cost estimate. The I95 interchange at Exit 169 has been evaluated in a previous FR and is not considered in this cost estimate.

A multi-criteria score for the alternatives are below. The criteria that separated the alternatives the most was that Alt 1 met the typical section of the previous two widenings east toward Charleston. Eight (8) criteria were used with the max score being 1000.

Alternatives and Total Score	
Alt 1	**Alt 2**
810	700

Table 3. Multi-criteria Score for each Alternative

Alternative 1 is being recommended by the PDT for the following reasons:

- There is ample room in the median for additional lanes through most of the project.
- The previous sections of I-26 to the east widened to the median.

1.0 Feasibility Report Introduction

In an effort to manage expectations of project sponsors and the citizens of South Carolina, the Office of Planning developed the Feasibility Report process. Feasibility Reports (FR) develop the purpose and need, project scope, identify potential impacts and risks, and produce estimated cost and schedules prior to project development commencing. The FR process provides a living document that outlines project goals and objectives with measureable metrics that are to be accomplished based on the project purpose and need. In addition, the process increases collaboration and facilitates communication across different disciplines within the department; which provides the opportunity to integrate risk management into the planning process. Gathering and evaluating data in the planning phase provides a path for viable and beneficial projects to progress through to the engineering phase of work, expediting project delivery. The FR document is incorporated into the Planning (PL) phase of work and, for interstates, is reviewed by the South Carolina Department of Transportation Steering Committee before the Preliminary Engineering (PE) phase of work can be initiated.

This report is a summary of the findings for this section of roadway. It is imperative to read the meeting minutes from the PDT meetings to ascertain the breadth of data that was gathered and to learn the rationale behind the decisions that were made. The minutes detail what was discussed, eliminated, and deemed pertinent.

2.0 Strategic Goal Alignment

2.1 Strategic Goal and Objective

The South Carolina Department of Transportation has developed an agency-wide Strategic Plan 2018-2020 that reflects the current priorities and critical goals of the agency. The Strategic Plan identifies five core goals that support SCDOT's vision to rebuild our transportation system over the next decade to provide adequate, safe and efficient transportation services for the movement of people and goods in South Carolina. The plan guides SCDOT's initiatives through the Transportation Asset Management Plan (TAMP) which implements priorities by establishing investment levels and designed targets. Utilizing risk management strategies through initiatives, such as the Feasibility Report process helps us to identify and mitigate potential obstacles to achieving success and alignment with the Strategic Plan. The widening of the I-26 corridor from mile marker (MM) 169 (Exit 169) to MM 187(Exit 187) aligns with several goals and objectives outlined in the Strategic Plan 2018-2020.

Goal 1: Improve safety programs and outcomes in our high-risk areas.

Strategy: Develop and implement a data-driven, rural road safety program

Objective: Reduce fatalities on roads in our rural areas.

Project Alignment: Data driven traffic safety information used to assess the benefits of the alternatives.

Goal 2: Improve SCDOT program delivery to increase the efficiency and reliability of our road and bridge network.

Strategy: Target known congested areas.

Objective: Improve the reliability of the movement of people and goods across the major portions of our road network.

Project Alignment: Freight mobility was addressed in the alternatives.

In the planning phase, no decisions will be made as to the preferred alternative; however, some alternatives may be eliminated due to misalignment with critical goals of project purpose and need. Data gathered is intended to aid and inform the National Environmental Protection Agency (NEPA) process in determining the preferred alternative in the preliminary engineering phase (PE) of project development. The recommended scope presented later in the document is not intended to circumvent NEPA, but rather give project development a path to pursue initially upon starting PE.

2.2 SCDOT Ranking

The Office of Planning was directed to review the approximately 2,239 lane miles of rural interstate routes and rank them on a statewide priority basis for freight mobility improvement. The Systems Performance Section ranking of the rural interstates was based on the relevant criteria listed below in Table 4, and weighted based on a percentage of priority in regard to improvement of freight mobility.

Criteria	Description	Weighted Percentage
Truck Travel Time Reliability Index (TTTR)	Numerical value indicating how reliable truck travel times are for a segment of interstate	25%
Freight Density	Measure in tonnage of freight moved across a segment of freight network, indicating importance	20%
Average Annual Daily Truck Traffic (AADTT)	Average annual daily number of trucks carried by a segment of interstate	20%
Truck Crashes	Number of truck crashes per mile along segment of interstate, representing a safety component	10%
Potential for Economic Development	Ranking provided by South Carolina Department of Commerce on existing and projected development adjacent to an interstate segment and contribution to freight movement	10%
Service to the Ports	Ranking provided by South Carolina Ports Authority indicating importance of movement of freight to and from ports in South Carolina	10%
Connectivity	Criterion used to ensure connectivity of six lane sections of rural interstate segments to existing six lane sections	5%

Table 4. Rural Interstate Freight Network Criteria and Prioritization

The top five ranked sections of rural interstate that were identified to best utilize the funding available statewide are listed in Table 5. The SCDOT Commission in October 2018 approved to assign a Planning Phase of work funded by RIFMP (Rural Interstate Freight Network Mobility Program) to perform this Feasibility Report. This FR covers the entire length of 2018-3. See Figure 1 below for location.

Rank	Freight Corridor Designation	Begin	End	Length (miles)	Area Type
2018-1	I-26 M2, N	Old Sandy Run Road / Exit 125	I-95 / Exit 169	44	Rural
2018-2	I-95 A, B	GA State Line	US-17 (Ridgeland) (North) / Exit 33	33	Rural
2018-3	1-26 O	I-95/Exit 169	Ridgeville Rd / Exit 187	18	Rural
2018-4	I-85 A	GA State Line	US-76 / SC-28 / Exit 19	19	Rural
2018-5	I-77 F	SC-9 / Exit 65	US 21 / Exit 77	12	Rural

Table 5. Top Five Ranked Corridors, Rural Interstate Freight Network Mobility Improvement Program

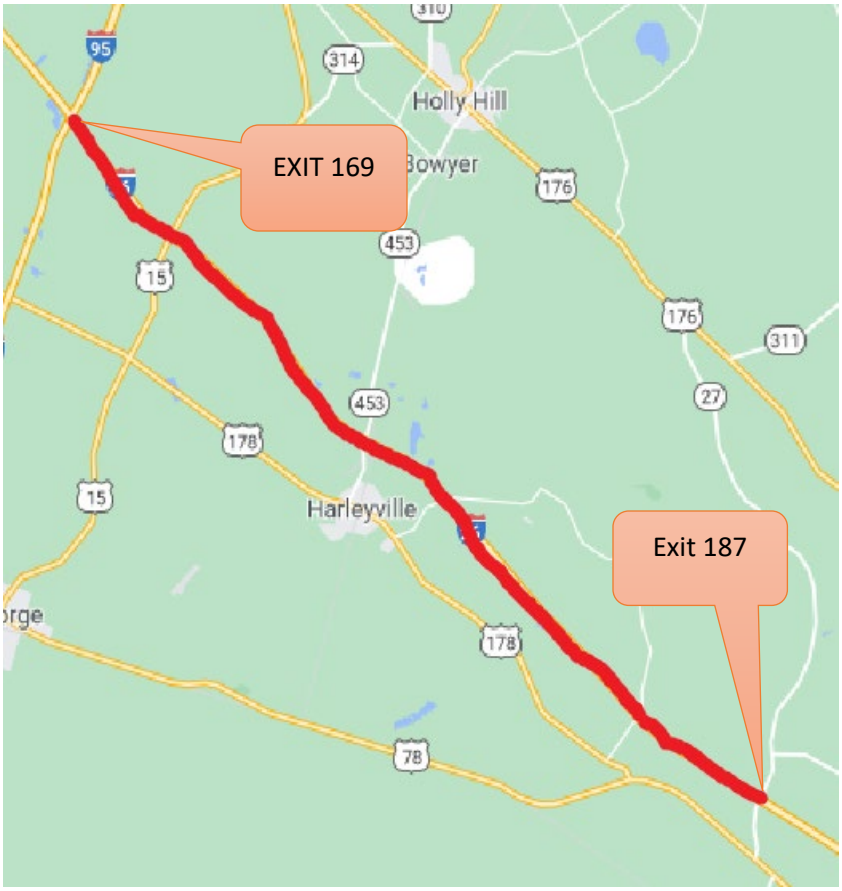


Figure 1. Project Location I-26 MM 169 to 187, Shown in Red

2.3 General Description of Project

The project proposes improvements to an approximately 18-mile long section of the I-26 corridor from MM 169 (Exit 169) to 187 (Exit 187) to increase capacity and freight mobility on the mainline and upgrade interchanges. The interchange at Exit 187 is currently in design. The project will tie into the improvements made at this interchange and subsequent widening to Exit 194. Exit 169 (I-95) was evaluated in a separate

FR. At this time it is anticipated that the improvements to this interchange will be let as a separate project, but this will be reevaluated in the future. At present it is anticipated that the interchange will be set assuming eight (8) lanes and this project will add additional lanes to the inside.

It is imperative to review the meeting minutes from the PDT meetings for this project. They detail what was discussed, eliminated, and deemed pertinent.

3.0 Purpose and Need

The "purpose" is the problem that must be addressed. The "need" is the data that defines the problem and justifies that the problem exists. The purpose and need (P&N) is the foundation for the entire project. Data was gathered by the Project Development Team (PDT) and much discussion was had by the PDT to determine the problem. If there was no supporting data or documentation that a problem existed it was not added to the P&N. The drivers of the project are specifically discussed in the P&N statement.

Purpose

> The purpose of this project is to improve capacity and freight mobility on the mainline and associated interchanges.

Need

- The future 2045 4 lane segment will be LOS E for most of the segment.
- TTTI is very high (currently at 0.8).
- The Steering Committee advised to add the interchanges to the P&N to ensure any changes to them point to the P&N. There are two interchanges.
    - US15 does not have room now to accommodate any additional lanes; therefore, it has constructability issues due to lack of horizontal clearance.
    - SC453 has an LOS of D and E even though the ramps are A. This interchange has capacity issues on the crossing route and lacks horizontal clearance under the bridge.

See Appendix Meeting Minutes for the discussions on the purpose and need.

4.0 Goals and Metrics

There are project specific critical and non-critical goals. The critical goals point to the drivers of the project and directly to the P&N. Non-critical goals are items that are of concern and should be addressed, but are not the driving factors of the project. Goals may or may not be achieved. If critical goals are not achieved by an alternative, then the alternative may not be considered viable.

Historically, when a project does not have a properly defined P&N or defined goals, then the project is reworked several times causing delays to project delivery. Project delivery is expedited by clear metrics. Metrics come from the project goals, and must be measureable, reasonable and achievable. Example: zero (0) crashes is not reasonable or achievable. Qualitative and quantitative metrics are critical in order for the goal to be measurable. The decisions within the FR are based on data driven answers. The metrics being measureable by data allows the PDT to define a viable alternative to move forward into NEPA.

4.1 General Goals for the Department

There are certain goals that the SCDOT will always strive to accomplish: minimize maintenance of traffic issues, minimize environmental and right-of-way impacts, follow design guidelines and policies, construct facilities that are safe and easily maintained; however, there are times when performance based practical design takes precedence. The goals and metrics outlined by the PDT are project specific goals that take into account performance based practical design, context sensitive design, and weighing options for the best approach to the problem at hand. It is not to be assumed that because a goal from the PDT does not address the items listed above that these items are being ignored. The PDT goals are unique to the project.

4.2 Project Specific Goals with Metrics

The PDT developed the following project goals with associated metrics. The metrics need to be measurable in order for the PDT to state whether the goal was met or not. The Truck Travel Time Index cannot be evaluated at the Feasibility Report (FR) level due to its detail oriented nature. The FR uses high level, conceptual plans to evaluate the goals. However, all goals are documented in the FR for consideration in project development. There are two critical/primary goals which are tied to the project's purpose and need and are shaded in blue below.

Number	Goal	Metric
1	Improve Capacity	LOS C or better
2	Improve Truck Travel Time Reliability	Truck Travel Time Reliability Index of 1.45 (from TAMP)
3	Improve Geometrics	Reduce Weaves
4	Improve Safety	Achieve clear zone per design requirements
5	Long Term Solution to Structures	Sufficiency rating of six (6)
		Meets minimum load ratings

Table 6. Project Specific Goals and Metrics, Critical Goals that tie to P&N are Shaded

There was discussion on closing the bridge sized culvert on Tunnel Road, but upon more research, the single lane culverts for Tunnel Road must remain open to allow Giant Cement access to property that was divided during the construction of I-26.

See Appendix Meeting Minutes for the detailed discussions on the goals and metrics.

5.0 Scope

The scope is generated from the P&N, goals, and metrics. The scope of the project describes what needs to be addressed, but not how to address it. Items like the problem, goals, and other high level plan issues are stated to aid in discussing alternatives.

In this section, two scopes are presented. The scope developed as discussed above it presented as the PDT Scope. The recommended scope was developed after the alternatives were completed and examined. Alternatives are the next step in the process and the alternatives brought forth by the PDT will be discussed in section 6.0.

5.1 Existing Facility Characteristics

The existing I-26 mainline corridor is four (4) lanes through this section with a construction project planned east of Exit 187 to Exit 194. The lanes are twelve foot (12') wide with an 85 foot grassed median except at some bridges. Where the median narrows there is cable stay guardrail. Ditches are located on the outside. The outside shoulder is ten foot (10') paved, inside shoulder is ten foot (10') with three foot (3') paved. There are seven (7) overpasses and two (2) interchanges. Few structures have proper vertical and/or horizontal clearance. See Figure 2 for typical existing cross section. This data can be found in Appendices Design Data and Program Manager Data.

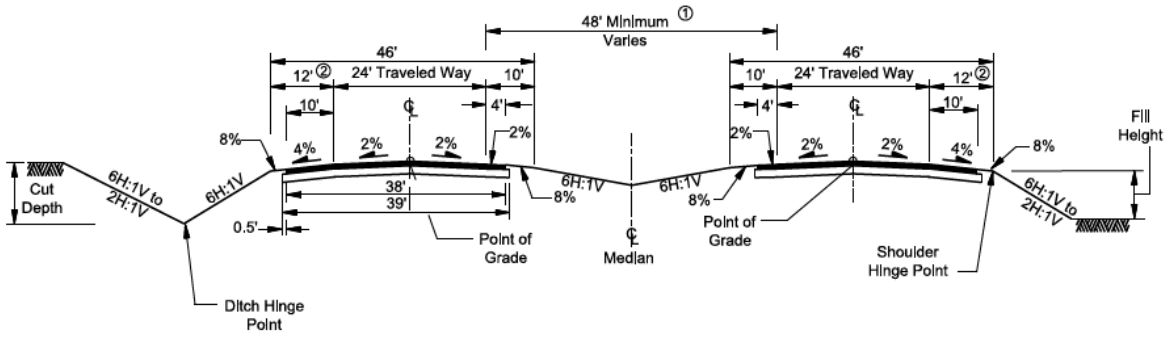


Figure 2. Interstate 26 – Existing Four (4) Lane Cross Section

5.2 Scope Items Evaluated

The PDT, as part of the FR process, developed the scope below. From this scope, known as the PDT scope, the alternatives were developed.

The PDT scope for I-26 MM 169 (Exit 169) to 187 (Exit 187) is as follows:

- Review options for increasing capacity
- Address all design deficiencies along the mainline
- The typical section will have 10' shoulders in the inside. Design exceptions are acceptable for short distances at structures where horizontal clearance in an issue.
- Replace all mainline bridges and bridge sized culverts. Culverts will be replaced with bridges.
    - Account for 8 lanes of horizontal width
- Address overpass structures within the project limits
    - If replaced, account for 8 lanes of horizontal width
    - If a bridge is jacked, perform necessary maintenance and rehab on the bridge in this contract.
- Address all interchange operations and associated safety issues as necessary
- All crosslines and all culverts less than 20' will be inspected and addressed or redesigned as needed based on the inspection.
- All interchange ramps will be improved as necessary and paved based on the May 6, 2010, memo *Resurfacing/Rehabilitation of Interstate Ramps*.
- Improve pavement conditions on existing and new lanes based on Pavement Design from the Lab.
- Follow the MASH transition plan in PCDM-14 concerning the existing guardrail
- Replace fence damaged due to clear zone tree removal.
- All trees will be removed from the full clear zone based on clear zone charts for mainline.
- All trees will be removed inside of loops and ramps. Tree removal outside of the loops and ramps will follow the clear zone charts.
- Clear all trees within the roadway ditches to allow for proper drainage
- Offset the frontage road entrances from the interstate ramps per the ARMS manual for all interchanges.

The District was clear that the proper widths for clear zones need to be met, i.e., not a 30' max. They were also clear that the ditches needed to be cleared even though they should fall outside of the clear zone.

The Steering Committee was consulted on the path forward for the project concerning items in the scope. The purpose is to address policy issues for interstates in order for the SCDOT to be consistent for all interstate projects. They advised the PDT on two points: to assume replacement of all bridges for cost and schedule estimates in the planning phase, to achieve 10' inside shoulders. Retaining bridges will not achieve a 10' nor a 4' shoulder thus necessitating replacement of bridges.

Issues such as the ramps, fence, clear zone, frontage road access, and guardrail are questions that normally arise during design. They are addressed here to provide a clear path for project development to

move forward. The Steering Committee addressed these issues as SCDOT policy decisions. In other words, these scope items are not project specific, but the policy that the SCDOT is following at this time to address these issues on all of our interstates.

See Appendix Meeting Minutes for detailed discussions on the scope.

5.3 Proposed Typical Sections

The typical sections discussed during alternative analysis, and shown in the alternatives provided, are six (6) twelve foot (12') lanes with a ten foot (10') inside paved shoulder. From MM176.5 to 177.5 a barrier wall is necessary due to a smaller median. Cable guardrail will be installed through the majority of the project. Bridges that are replaced over the interstate will account for eight (8) lanes of horizontal clearance and a minimum 17' vertical clearance. All bridges on mainline will accommodate eight (8) lanes as well. See Figure 3 below.

See Appendices Design Data and Meeting Minutes and see the Design Considerations section below for detailed discussions on these alternatives.

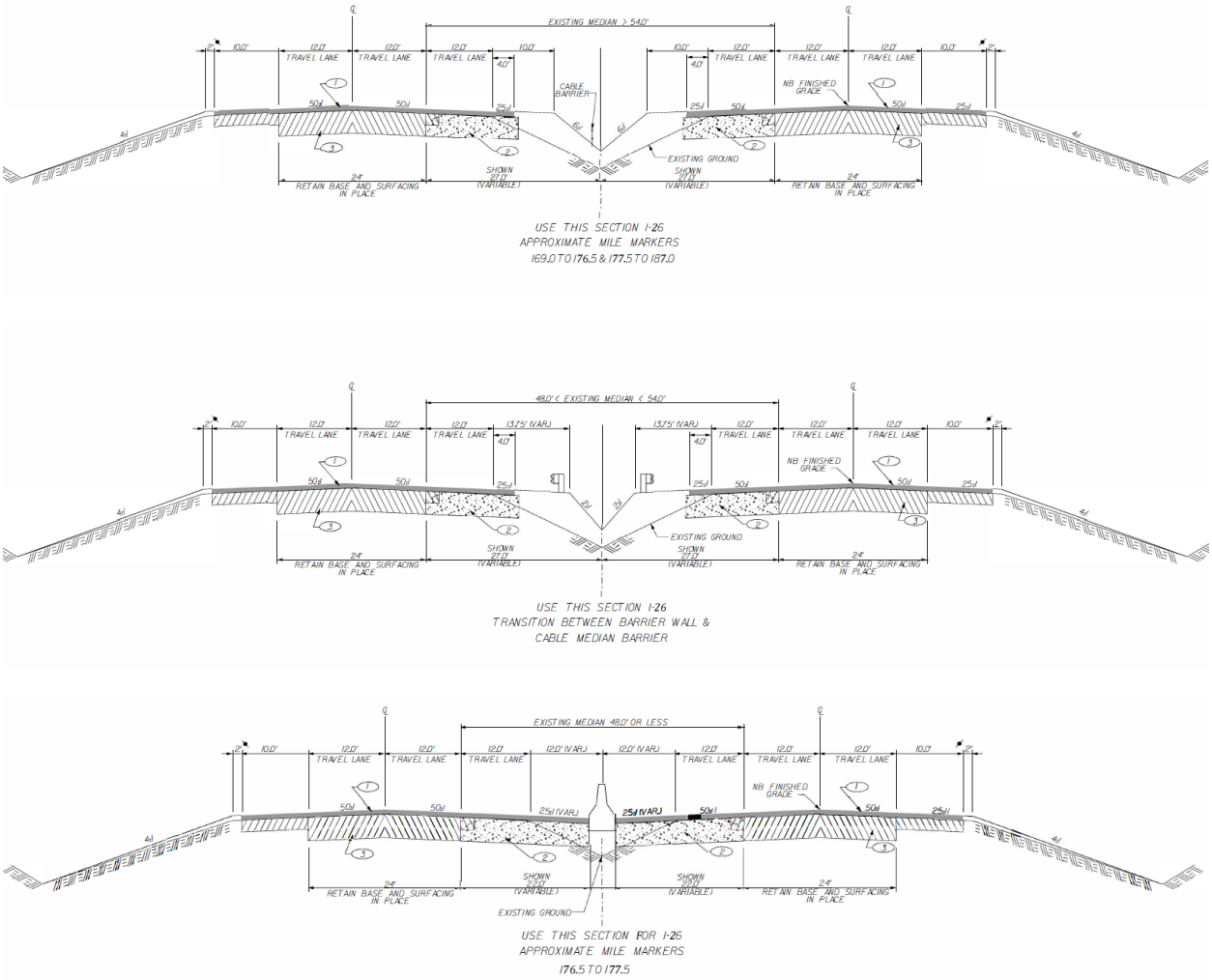


Figure 3. Interstate 26 – Proposed Widening Six (6) Lane Cross Section for Divided and Barrier Median

5.4 Logical Termini

There are some locations where replacing the bridge affects the footprint of the interchange or crossing. Logical termini will be determined by the extent of these improvements for these crossings.

Logical termini for mainline will be from Exit 169 to the improvements associated with Exit 187. Exit 169 was chosen as the termini based on AADT change at the interchange. FHWA reviewed and concurred with the chosen logical termini locations for this study.

5.5 Recommended Scope

After consideration of the alternative analysis, the recommended path forward is to have six (6) lanes of traffic, retain the diamond at SC453, reconfigure the US15 interchange, and replace all bridges.

The recommended scope for I-26 MM 169 (Exit 169) to 187 (Exit 187) is as follows:

- Add an additional lane in each direction for a total of 6 lanes of travel.
- The typical section will have 10' shoulders in the inside. Design exceptions are acceptable for short distances at structures where horizontal clearance in an issue.
- Replace all mainline bridges and bridge sized culverts. Culverts will be replaced with bridges.
    - Account for 8 lanes of horizontal width
- Replace all bridge structures: all mainline and overpass bridges and two (2) interchange bridges
    - All bridges shall account for the proper horizontal width for eight (8) lanes of traffic.
- All crosslines and all culverts less than 20' will be inspected and addressed or redesigned as needed based on the inspection.
- US15 interchange will be replaced as a diamond interchanges
- SC453 will remain a diamond with ramps being altered as needed due to the bridge replacement and mainline improvements
- All interchange ramps will be improved based on their condition and paved based on the May 6, 2010, memo *Resurfacing/Rehabilitation of Interstate Ramps*.
- Improve pavement conditions on existing and new lanes based on Pavement Design from the Lab.
    - Outside shoulder is underdesigned for current and future traffic
    - Mainline pavement is failing between MM172 to 182 and must be reconstructed
- Follow the MASH transition plan in PCDM-14 concerning the existing guardrail.
- Replace fence damaged due to clear zone tree removal.
- All trees will be removed from the full clear zone based on clear zone charts for mainline.
- All trees will be removed inside of loops and ramps. Tree removal outside of the loops and ramps will follow the clear zone charts.
- Clear all trees within the roadway ditches to allow for proper drainage
- Include cable stay guardrail in locations with narrow median and no barrier wall
- Offset the frontage road entrances from the interstate ramps per the ARMS manual for all interchanges.

6.0 Design Considerations

Alternatives are the potential solutions to the problem. The P&N, goals, metrics, and scope aid in developing the alternatives in order for the problem to be addressed.

6.1 Potential Alternatives from the PDT

1. Mainline
    a. Managed Lanes - Eliminated
        i. Lack of continuity with other 6 lane sections of I-26
        ii. SC law prohibits tolling interstates
    b. 8 Lanes – Eliminated
        i. Since the goal was to obtain LOS C or higher on the mainline, 6 lanes meets that criteria with all sections as C. 8 Lanes was LOS B for all sections.
    c. 6 Lanes
        i. The following alternatives need to be plotted for lane location evaluation
            1. Inside lanes on EB and WB
                a. Replace all ML bridges
                b. Replace all ML bridge sized culverts
            2. Outside lanes on EB and WB at bridges and bridge sized culverts
2. Interchanges
    a. Reevaluate interchanges due to replacement of bridge
        i. Replace all bridges due to:
            1. Age of structures, 60 years old, design life of 75 years
            2. MOT/Ease of construction and cost of construction less with replacement instead of working around old structure
            3. Public perception. Since the bridges are near the end of their life they will need replacement in the near future. A separate contract after the contract is let will reflect poorly on the Department.
            4. Some bridges are on low volume side roads that are more easily closed for construction, especially in conjunction with an interstate project.
            5. Bridge lack horizontal clearance to accommodate widening
        ii. Redesign Exit 172, US15, due to horizontal issues
        iii. Redesign Exit 177, SC453 due to capacity issues on crossing route and horizontal clearance issues
3. Overpasses
    a. Replace overpasses due to the same reasons given above for replacing bridges associated with interchanges.

The median has ample room for adding lanes when not near a crossing. When the median narrows and the double piers exist in the median, the bridge will need to be replaced regardless of the location of the additional lanes.

Lane addition to the outside will create more wetland impacts the entire length of project and more right-of-way impacts at crossings. Wetland impacts may necessitate costly top down construction. The outside shoulders are not to standard will require full reconstruction to convert to travelway.

More discussion is needed as to where to widen the railroad bridges on mainline just south of the SC453 interchange. The issue rests on is it best to phase the replacement to the outside or the inside. Both have risks.

Preliminary traffic studies were performed for the interchanges. The volumes for all movements were low. Any configuration would be sufficient to meet LOS requirements. Diamond configurations were chosen since the bridges are being replaced due to limited clearance horizontally and/or vertically. SC453 has a vertical issue, and US15 has both horizontal and vertical issues. If the loops are removed from US15 then the horizontal issue is resolved. Plus, a diamond will be the phased construction option in order to construct loops. Based on this, a diamond is proposed.

Both of the crossings at SC453 and US15 need to be staged construction and not closures. These are the only two routes in this area that carry traffic both south and north of the interstate.

Below Table 8 shows which metrics were met for each alternative. The Truck Travel Time Index (TTTI) metric could not be evaluated based on the limited data obtained at the planning level; therefore, not applicable (N/A) is included in these cells. Y and N are included in the cells that could be evaluated with Y being yes, it met the metric, and N being no, if it did not meet the metric. Red lettered goals and metrics tie directly to the P&N and are considered critical.

Description of Alternatives	
Eliminated	Managed Lanes
Eliminated	8 Lanes
Alt 1	6 Lanes. Full inside Lane on EB and WB.
Alt 2	6 Lanes. Full Outside Lane on WB and EB.
No Build ML	No Build
NB US15	US15, Exit 172 No Build
US15-1	US15, Exit 172 Parclo
US15-2	US15, Exit 172 Diamond
NB SC453	S22, Exit 139 No Build Diamond

Table 7. Alternative Descriptions, NB: No Build

	Goals						Other	
Alternatives	Improve Capacity	Improve Truck Travel Time Reliability	Improve Geometrics	Improve Safety	Long term solution to Structures		NEPA Impacts	Anticipated Permit
	Metrics	Metrics	Metrics	Metrics	Metrics			
	LOS C or better	Truck Travel Rate of 1.45	Reduce Weaves	Achieve clear zone per design requirements	Achieve condition rating of 6	Meets minimum load ratings		
Alt 1	Y	N/A	N/A	Y	Y	Y	NPCE	IP
Alt 2	Y	N/A	N/A	Y	Y	Y	NPCE	IP
No Build ML	N	N/A	N	N	N	N	N/A	N/A
NB US15	Y	N/A	N	N	N	N	N/A	N/A
US15-1	Y	N/A	Y	Y	Y	Y	N/A	N/A
US15-2	Y	N/A	Y	Y	Y	Y	N/A	N/A
NB SC453	Y	N/A	N	Y	Y	Y	N/A	N/A

Table 8. Alternatives Project Goals and Metrics Matrix, Shaded Indicates Critical Goals

After the SC453 evaluation, it was deemed that altering this interchange did not increase LOS. The issues are on the crossing which is not addressed in this project. Weaves were also not a safety issue at this interchange.

See Appendices Design Data and Meeting Minutes for detailed discussion on the alternatives.

6.2 Design Variances / Exceptions

No variances or exceptions were brought forth from the PDT.

6.3 Constructability Review

Four issues were discussed. One was the railroad bridges just south of the SC453 interchange. The roadway widening leading up to this section from Charleston have been widened to the center with barrier wall. This median is narrow and would require a barrier wall as well. The bridges on mainline over the railroad may be more easily constructed to the center or to the outside. More discussion is required.

Another is at the Cypress Creek bridges on mainline. Widening to the middle may have some construction issues if one structure is constructed. More discussion is required.

Another issue is whether the contractor should construct the overpasses first. It is recommended to utilize the AGC to ascertain what is an acceptable clearance for them to perform their work on mainline. The lack of vertical clearance could be an issue.

The final issue is at the US15 interchange. The loops are not standard and must be replaced if the cloverleaf or partial cloverleaf is pursued. A diamond would be temporarily constructed in order to stage traffic. Counts support the diamond, therefore, the diamond is a better alternative to reconstructing the loops.

7.0 Compilation of Data

7.1 Risks and Mitigation

Identifying and anticipating risks for the project is critical to the Feasibility Report success. At the planning stage little is known about the details of the site; therefore, definitive answers cannot be formed concerning the project design, footprint, public opinion, or impacts. Desktop decisions will be made to define the path forward. Each of these decisions are made with assumptions due to uncertainties and variabilities which can be defined as risks.

According to the Project Management Institute, risk is an uncertain event or condition that, if it occurs, can have a positive or negative effect on a project's objectives. In addition to what are commonly considered risks, things like uncertainties, constraints, and assumptions are all additional forms of risk.

Likelihood of Occurrence Table	
Level	Likelihood, %
Almost Certain	81-100
Probable	61-80
Possible	41-60 (Maybe/IDK)
Rare	21-40
Exceptionally Rare	0-20

Table 9. Likelihood of Risk

Consequence to Cost Table	
Level	Likelihood, %
Severe	80-100
High	60-79
Moderate	40-59 (Maybe/IDK)
Low	20-39
Very Low	0-19

Table 10. Consequence to Cost

Consequence (Duration) to Schedule Table	
Level	Range
Significant	31 MONTHS+
Very High	21-30 MONTHS
High	15-20 (Maybe/IDK)
Moderate	11-14 MONTHS
Low	6-10 MONTHS
Very Low	0-5 MONTHS

Table 11. Consequence to Schedule

Risks were determined in the Final PDT meeting. Each alternative was assessed and the risks are summarized in Tables 14, 15, 16 and 17. Each risk was given a value that defines the likelihood of its occurrence and the consequence of its occurrence. Some risks affect the cost more than the schedule and vice versa, but some risks affect both cost and schedule. Each risk was assessed for its effect on both cost and schedule.

For the risk, the PDT assigned a likelihood of its occurrence, expressed in a percentage on how likely they felt that risk was to take place. See Tables 14 through 17. See Table 9 for the ranges that are from 1 to 5 or Exceptionally Rare to Almost Certain.

For cost, the PDT assigned a percent increase in cost over what would normally be expected for the activity/issue being discussed. These can be seen below in Tables 14 through 17 with the percentage range displayed in Table 10. The range is from 0% to 100% of an increase or Very Low to Severe.

For schedule, the PDT assigned the additional number of months that it would take to complete the activity being discussed. These can be seen below in Table 14 through 17 with the range of months displayed in Table 11. The range is from 0 Months to 31+ Months or Very Low to Significant.

Table 12 is the risk matrix for cost and Table 13 is the risk matrix for schedule. The colors for Tables 14 through 17 correspond to the colors in Tables 12 and 13, respectively.

Risk Matrix for Cost							
		Values	Risk Scores				
Likelihood	Almost Certain	5	5	100	200	300	400
	Probable	4	4	80	160	240	320
	Possible	3	3	60	120	180	240
	Rare	2	2	40	80	120	160
	Exceptionally Rare	1	1	20	40	60	80
			Values				
			1	20	40	60	80
			Very Low	Low	Moderate	High	Severe
			CONSEQUENCE				

Table 12. Risk Matrix for Cost

Risk Matrix for Schedule								
		Values	Risk Scores					
Likelihood	Almost Certain	5	5	40	65	85	115	180
	Probable	4	4	32	52	68	92	144
	Possible	3	3	24	39	51	69	108
	Rare	2	2	16	26	34	46	72
	Exceptionally Rare	1	1	8	13	17	23	36
			Values					
			1	8	13	17	23	36
			Very Low	Low	Moderate	High	Very High	Significant
			CONSEQUENCE					

Table 13. Risk Matrix for Schedule

Mitigation was discussed for risks that are red in Tables 14 through 17. These have the greatest consequence to the cost and/or schedule. For this project, there were five risks that were red. See Table 18 for details. Four of the risks were for mainline: railroad alignment, pavement condition, construction staging, mucking. One was for the US15 interchange: bridge configuration. This risk was accepted, but mitigation strategies were compiled for the ones on mainline and shown in Table 18.

Mitigation was not discussed for the yellow or green risks. A multiplier will be added to the cost or schedule to account for these risks occurring.

The risks and mitigation strategies are documented for use during project development and for use to determine the cost and schedule calculated in the next section.

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	Constructability risk with one structure in median with Cypress Swamp (safety)	T	Probable	65	Low	20	20	80						#VALUE!
R 002	RR Mainline alignment coordination with SC453	T	Almost Certain	100	Moderate	50	40	200	Almost Certain	100	High	20	17	85
R 003	Pavement in worse condition than anticipated	T	Possible	50	High	70	60	180	Possible	50	High	20	17	51
R 004	Dictate contractor to construct overpasses first(due to lack of shoulder width)	T	Probable	70	Low	20	20	80	Probable	70	High	20	17	68
R 005	Upgrade pavements on Detour routes	T	Possible	60	Low	20	20	60						#VALUE!
R 006	Hurricane reversal/crossovers coordination/communication during construction	T	Possible	40	Low	20	20	60						#VALUE!
R 007	Labor shortage	T	Possible	50	Moderate	50	40	120	Possible	50	Moderate	12	13	39
R 008	Close culvert at Tunnel Road	O	Possible	50	Moderate	50	40	120	Possible	50	High	15	17	51

Table 14. Alt 1 Risk Register

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	RW Impacts	T	Almost Certain	95	Low	25	20	100						#VALUE!
R 002	Environmental Impacts	T	Almost Certain					######						#VALUE!
R 003	Two structures for RR and at Four Hole Swamp	T	Almost Certain	100	Low	20	20	100	Almost Certain	100	Low	6	8	40
R 004	Earthwork increase, more mucking	T	Almost Certain	100	Moderate	50	40	200	Possible	50	Moderate	14	13	39
R 005	RR Mainline alignment coordination with SC453	T	Almost Certain	100	Moderate	50	40	200	Almost Certain	100	High	20	17	85
R 006	Pavement in worse condition than anticipated	T	Possible	50	High	70	60	180	Possible	50	High	20	17	51
R 007	Construction constraints at overpasses (lack of width for entire shoulder)	T	Probable	70	Low	20	20	80	Probable	70	High	20	17	68
R 008	Upgrade pavements on Detour routes	T	Possible	60	Low	20	20	60						#VALUE!
R 009	Hurricane reversal/crossovers coordination/communication during construction	T	Possible	40	Low	20	20	60						#VALUE!
R 010	Labor shortage	T	Possible	50	Moderate	50	40	120	Possible	50	Moderate	12	13	39
R 011	Close culvert at Tunnel Road	O	Possible	50	Moderate	50	40	120	Possible	50	High	15	17	51

Table 15. Alt 2 Risk Register

Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
Reconstruct loops because do not meet minimum standards	T	Possible	50	Low	30	20	60	Probable	65	Very Low	4	1	4
Additional RW on crossing route (US15) due to "T"ing in ramps	T	Probable	70	Low	20	20	80	Possible	60	High	20	17	51
Increase in bridge length and elevation could render existing loops unusable	T	Almost Certain	95	High	75	60	300	Probable	65	Very Low	5	1	4

Table 16. US15-1 Risk Register

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	Increase in bridge length and grade impact the MOT	T	Probable	70	Low	30	20	80	Possible	50	Low	6	8	24
R 002	Minimizes RW on crossing route (US15)	O	Probable	80	Low	20	20	80						#VALUE!
R 003	Increase conflict points of ramps at US15	T	Almost Certain	100	Very Low	10	1	5						#VALUE!
R 004	Decrease conflict points on I26	O	Almost Certain	100	Very Low	10	1	5						#VALUE!
R 005	Three lane bridge would be sufficient	O	Probable	80	Moderate	55	40	160	Possible	50	Low	8	8	24

Table 17. US15-2 Risk Register

Risk		Risk Mitigation Options
Alt 1, R 002 Alt 2, R 005	RR Mainline alignment coordination with SC453	Coordination with RR prior to PE aproval Perform a constructility review early in PE that addresses MOT issues and obtains contractor approaches to bridge construction, ie, both at some time, RR first, or overpass first.
Alt 1, R 003 Alt 2, R 006	Pavement in worse condition than anticipated	Prior to PE do cores to aid in determining pavement condition
Alt 1, R 004 Alt 2, R 007	Dictate contractor to construct overpasses first(due to lack of shoulder width)	Define the existing horizontal clearance for each crossing. Utilize AGC to ascertain what is an acceptable clearance for them to perform their work.
Alt 2, R 004	Earthwork increase, more mucking	Obtain borings every 200' in defined wetland areas in order to better define mucking and give guidance to the contractor on how the SCDOT intends for them to define mucking.
US15-1	Increase in bridge length and elevation could render existing loops unusable (US15, Parclo)	Accept. Abandon the Parclo alternative.

Table 18. Mitigation Strategies for Risk Denoted as High

7.2 Costs and Schedule

Each viable alternative has a cost and schedule shown below. Both the cost and schedule take into account the risks and mitigation strategies discussed above. This information is used for input into the STIP. These are planning level estimates and time frames so they will be refined as the project moves through development.

The costs include altering the US15 interchange but no major alteration will be done to SC453. The major difference between the two is adding lanes to the inside or outside.

Note that the schedule is expressed as a time frame. Once the project moves forward, project development will determine the starting month and fiscal year for the Preliminary Engineering (PE). Then based on the PE time frames, the Right-of-Way (RW) and the Construction (C) dates will be calculated. The schedules were the same regardless of the alternative. If there is a lag between this report and the initiation of PE, then the parties involved in determining the cost and schedule will reassess the values.

A summary of the alternatives and their costs and schedule is below in Table 19. The costs are for the current year (2021). See Table 20 for a comparison of current year and a future year. This is to aid the sponsor in budgeting their money. The yearly increase rate is 7% for this project, this rate was projected by the Office of Planning.

Detailed information concerning the costs and schedules can be found in Appendix Cost and Schedule Data.

Alternative	Alternative Description	PE Cost Estimate, $	RW Cost Estimate, $	Construction Cost Estimate, $	Months to RW	Months to Letting
Alt 1	Additional lane Inside, Alter US15	10M	1.3M	422M	32	50
Alt 2	Additional Lane Outside, Alter US15	10M	1.3M	422M	32	50

Table 19. Alternative Summary with Cost and Schedule

COSTS IN 2021				
Alternative	PE Cost Estimate ($)	RW Cost Estimate ($)	Construction Cost Estimate ($)	Total Project Cost 2021
Alt 1	$10,000,000	$1,300,000	$422,000,000	$433,000,000
Alt 2	$10,000,000	$1,300,000	$422,000,000	$433,000,000
COSTS IN 2025				
Alternative	PE Cost Estimate ($)	RW Cost Estimate ($)	Construction Cost Estimate ($)	Total Project Cost 2025
Alt 1	$10,447,313	$1,358,151	$440,876,625	$452,682,089
Alt 2	$10,447,313	$1,358,151	$440,876,625	$452,682,089

Table 20. Existing and Future Project Costs

7.3 Multi-Criteria Alternative Scoring

Each viable alternative has benefits. In order to compare the benefits between the alternatives a multi-criteria scoring system was developed by the SCDOT. For this project, there is criteria for interstate mainline and for interchanges. See the criteria below. Note that the criteria is specific to the type of alternative.

The maximum that an alternative can receive is 1000. Each criteria has a percentage weight in determining the score. The greater the score then the more advantageous the alternative. However, when in NEPA, it may be that certain criteria are found to be a determining factor in choosing the preferred alignment. In this case, the individual criteria scoring is more important than the overall score.

More detail can be found on the scoring parameters in Appendix Multi-Criteria Alternative Scoring Data. The scoring is subjective and based on data collected during the FR process.

Criteria	Definition
Impacts	Residential Relocations; Mitigation Bank Creation; Impacts to Driveways, Access management/ARMS; 4(f), Title VI
Utilities, Utility Easements, Railroad	Based on 811 data or other provided data, encroachment or conflict is if the RW width overlays the location of these items on the plots or within 100' of RR.
Stream and Wetland Impacts	Impacts that create issues with permitting, time to obtain the permit, types and number of permits
Document Type	Cultural, social, or environmental impacts that could affect the level of documention
Critical Goals	Critical Goals determined by the PDT
Non-critical Goals	Non-critical Goals determined by the PDT
Impacts	Impacts to bridges that are Good, Fair, or Poor; Address issues with structurally deficient, load restricted, or poor bridges. Bridge clearances will not be addressed here, but in goals criteria.
Crash Rates	From Traffic Safety, predicted overall crash rates for total crashes, fatal injury crashes, and property damage only crashes.
LOS	Impacts to LOS based on the travel demand macro model output
Impacts	Impacts to school bus routes, emergency services, truck routes, transit services, and TTTI during a detour; Impacts to shoulders, pavement, structually deficient bridges on detours. Impacts to piers and crossings.
Unique Criteria	Context sensitive design, matching existing condition. This is not tied to the critical or non-critical goals.

Table 21. Interstate Mainline Multi-Criteria Description

Criteria	Definition
Impacts	Residential Relocations; Mitigation Bank Creation; Impacts to Driveways/sideroads, 4(f), Title VI
Utilities	Based on 811 data or other provided data, encroachment or conflict is if the RW width overlays the location of these items on the plots.
Utility Easements	County or specific utility easements adjacent or perpendicular to roadway
Railroad	RR within 100' of RW plots.
Interchange Modifications	Higher scores go to efficently operating interchanges or impacted side roads whether in its No Build state or modified in an alternative. Does not consider bridge clearances or ratings.
Critical Goals	Critical Goals determined by the PDT
Non-critical Goals	Non-critical Goals determined by the PDT
Impacts	Impacts to bridges that are Good, Fair, or Poor; Address issues with structurally deficient, load restricted, or poor bridges. Bridge clearances will not be addressed here, but in goals criteria.
Crash Rates	From Traffic Safety, predicted overall crash rates for total crashes, fatal injury crashes, and property damage only crashes.
Non-Motorized Access	Safe access for bikes and walkers (not scooters) retained or provided.
LOS	Impacts to LOS based on the travel demand macro model and/or the micro model output.
Impacts	Impacts to school bus routes, emergency services, truck routes, transit services, TTTI during a detour; Impacts to shoulders, pavement, and structually deficient bridges of detours or crossing routes
Unique Criteria	Context sensitive design, matching existing condition. This is not tied to the critical or non-critical goals.

Table 22. Interchange Multi-Criteria Description

For this project, there are two alternatives for mainline and two alternatives for the interchange at US15. N/A denotes a criteria that is not applicable to this project.

The No Build alternative was not scored. Several of the criteria to differentiate between alternatives do not apply to the No Build. For example, stream impacts. There will not be any stream impacts on a No Build unlike alternatives with larger footprints. However, the larger footprint alternative could relieve congestion where the No Build will not. Scoring them together would not be an accurate comparison of benefits.

	Criteria	Weighting	Alt 1 Score	Alt 2 Score
RW	Impacts	10%	75	75
	Utilities, Utility Easements, Railroad	5%	0	0
Environmental	Stream and Wetland Impacts	5%	10	0
	Document Type	5%	50	25
Project Goals	Critical Goals	10%	100	100
	Non-critical Goals	5%	50	50
Bridges	Impacts	15%	150	150
Safety	Predicted Total Crash Rate	5%	50	50
	Predicted Fatal Injury Crash Rate	10%	100	100
	Predicted Property Damage Only Crash Rate	5%	50	50
Capacity/Operational	LOS	10%	50	50
Construction	Impacts	10%	75	50
Miscellaneous	Unique Criteria	5%	50	0
			810	**700**

Table 23. Mainline Alternative Scores (See Table 7 for Alternative Descriptions)

Alt 1, additional lanes to the inside, scored highest mainly due to this alignment fitting the previous two widening projects on I-26 going toward Charleston. This is reflected in the unique criteria. Alt 2 had greater wetland impacts and the document could be an EA instead of a CE.

	Criteria	Weighting	US15-1 Score	US15-2 Score
RW	Impacts	10%	70	90
	Utilities	10%	N/A	N/A
	Utility Easements	2.5%	N/A	N/A
	Railroad	2.5%	N/A	N/A
Project Goals	Critical Goals	5%	50	50
	Non-critical Goals	5%	50	50
Bridges	Impacts	10%	100	100
Safety	Predicted Total Crash Rate	5%	25	25
	Predicted Fatal Injury Crash Rate	10%	N/A	N/A
	Predicted Property Damage Only Crash Rate	5%	N/A	N/A
	Non-Motorized Access	5%	N/A	N/A
Capacity/Operational	LOS	15%	140	125
Construction	Impacts	10%	N/A	N/A
Miscellaneous	Unique Criteria	5%	0	50
			435	**490**

Table 24. Mainline Alternative Scores (See Table 7 for Alternative Descriptions)

US15-2, diamond, scored highest even though US15-1, parclo, had a higher LOS. Fewer right-of-way impacts and fewer construction phases (unique criteria) benefits for US15-2 out weight the LOS benefit of US15-1.

Below in Table 25 is a synopsis of the data for the No Build and the two alternatives. Operations and maintenance (O&M) will be the same on a daily basis regardless of the number of lanes, but will deviate based on pavement type. Stone matrix asphalt (SMA), the assumed pavement type, is replaced every 20 years. Using a 20 year analysis period and assuming three years to construct, the O&M costs for that 20 year period is zero (0) for the build but a significant amount every ten (10) years for the No Build.

Alternative	Total Project Costs (2021)	O&M ()	Score
No Build	0	26,000,000	N/A
Alt 1	$433,000,000	0	810
Alt 2	$433,000,000	0	700

Table 25. Mainline Alternative Data Synopsis

Detailed information concerning the multi-criteria scoring system and O&M costs can be found in Appendix Multi-Criteria Alternative Scoring Data.

8.0 Conclusion

In order to address projects goals, constraints and risks, it is recommended that an additional lane be provided in each direction of the mainline interstate from MM 169 (Exit 169) to 187 (Exit 187). Overpass bridges over I-26 will be replaced due to inadequate vertical and horizontal clearances for a 6-lane interstate facility, age, and to simplify construction of the interstate under the bridges. All mainline, overpass and interchange bridges must provide accommodation for an 8-lane interstate facility. US15 interchange will be improved to address design inadequacies and ease of construction and to meet the ARMS manual. SC453 will be retained as a diamond. Maintenance of traffic plans should account for maintaining Truck Travel Time Reliability (TTTR) during construction and designed to improve TTTR after construction.

Two alternatives were evaluated to determine the best location for the additional lanes. The alternatives are listed in Table 7. The ultimate goal of the FR is to develop costs and schedules for viable alternatives. Part of this process is to eliminate alternatives that do not meet the metrics or do not seem viable. There can be an unlimited number of alternatives to evaluate, and it is the job of the PDT to determine which ones have merit and are worth spending effort to develop a cost and schedule.

After review and consideration of the project goals, existing conditions, cost and benefits, the Project Development Team identified that the alternatives listed in Table 7 were deemed viable alternatives that should be investigated further in project development during the PE phase. The data gathered thus far is intended to inform NEPA in order to determine the preferred alternative.

One cost and schedule was prepared by Preconstruction for both alternatives: additional lanes to the inside or additional lanes to the outside.

To conclude, the Feasibility Report is the initial step in the planning process which describes the project purpose and need, costs, schedule and identifies risks that require consideration in the future planning and design phases. The alternatives that were brought forward through the Feasibility Report process are listed in Table 25 along with their multi-criteria scores and total cost. All data to support the findings in this report that have brought the PDT to the alternatives and corresponding costs and schedules can be found in the appendices for those desiring more detail.

Addendum for MM165 (Exit 165, SC 210) to 169 (Exit 169, I 95)

This project was extended in September 2021 due to some federal funding opportunities. It was decided that the FR would not start over, but rather be amended to include the additional four (4) miles from MM165 to 169.

The PDT did not meet but rather was asked to send problems and risks concerning this four mile section. There was three areas of concern: interchange bridge replacement at SC210 (Exit 165), mainline Cow Castle Creek bridges, and the Whetsell Road overpass.

The original P&N defined by the PDT is valid. No additional goals, metrics or scope changes are proposed.

Risk associated with the three issues above are noted below.

SC210 Interchange Bridge, Exit 165

- The bridge horizontal width could be retained with a design exception at the columns.
- If retained, there will not be room for 8 lanes.
- If it is replaced, MOT is an issue
    - The ramps are on fill and will complicate MOT regardless if the bridge is constructed on or off alignment
    - Off alignment is preferred for bridge MOT, but the ramps may have to be reconstructed due to an increase in bridge grade. The adjacent gas stations will be affected.
    - On alignment is feasible if the road is closed. It is a low volume road with a 2 mile local detour and a 10 mile truck detour.

Cow Castle Creek Dual Mainline Bridges

- Must be widened or replaced
- MOT is difficult either way
- Single structure will decrease the footprint and reduce construction stages

S-1032, Whetsell Pond Road

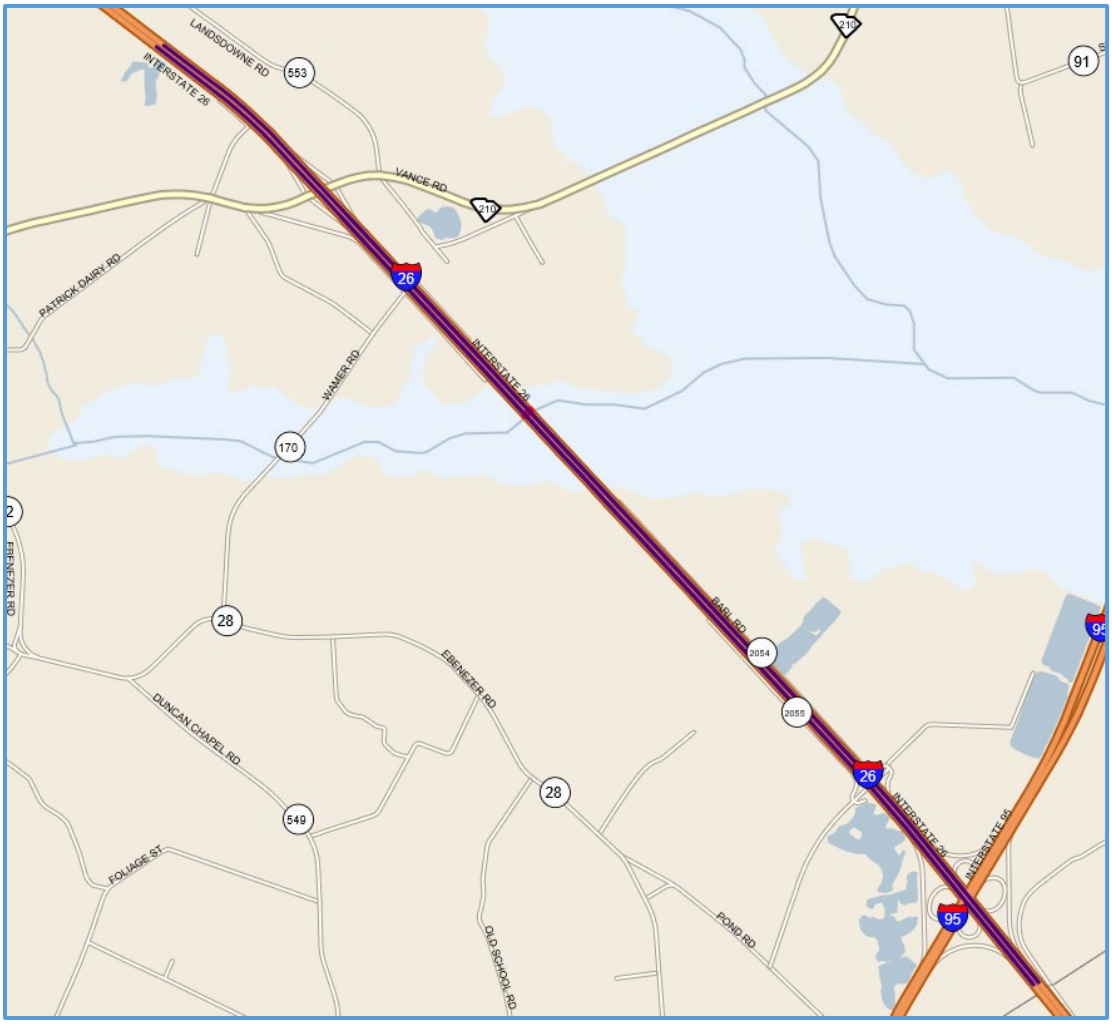
- Closure and providing access to property owners via another route could be attempted again since this is a capacity project. It was not feasible with the pavement project that is nearing letting. This bridge is solely to provide landowner access.
- If replaced, consider a single lane, stop condition bridge due to the extremely low volume. (One resident with little anticipation of growth in the area at this time).

This project is now is PE and there is discussion of making it 8 lanes. If this is the case, then the SC210 bridge will be replaced. A 16’ wide full depth outside shoulder for hurricane evacuations is being considered as well.

DESIGN BUILD COSTS IN 2021			
PE Cost Estimate ($)	RW Cost Estimate ($)	Construction Cost Estimate ($)	Total Project Cost 2021
$3,400,000	0	$129,000,000	$133,000,000

Costs for I 26 MM165 (Exit 165, SC210) to MM 169 (Exit 169, I 95)

See the meeting minutes in the Addendum Data appendix below for additional input not presented above.



Map of I 26 from MM 165 (Exit 165, SC210) to MM 169 (Exit 169, I 95)

Appendices

Multi-Criteria Alternative Scoring Data

	Criteria	Weighting	Alt 1 Score	Alt 2 Score	
RW	Impacts	10%	75	75	Potential impacts at SC453 with the RR and Interchange, Tunnel Road culvert
	Utilities, Utility Easements, Railroad	5%	0	0	RR bridges on mainline conflict
Environmental	Stream and Wetland Impacts	5%	10	0	lesser quality wetlands
	Document Type	5%	50	25	
Project Goals	Critical Goals	10%	100	100	all met that apply to ML
	Non-critical Goals	5%	50	50	all met
Bridges	Impacts	15%	150	150	none are poor at this time, but some are fair.
Safety	Predicted Total Crash Rate	5%	50	50	lowered by 1
	Predicted Fatal Injury Crash Rate	10%	100	100	lowered by 0.02
	Predicted Property Damage Only Crash Rate	5%	50	50	lowered by 1
Capacity/Operational	LOS	10%	50	50	lowered to C from D and E. NB lowers LOS
Construction	Impacts	10%	75	50	bridges first, detours, 2 is mucking,
Miscellaneous	Unique Criteria	5%	50	0	1 is matching proposed section toward chas, 2 is not
			810	**700**	

	Criteria	Weighting	Parameters	
			Minimum Score	Maximum Score
RW	Impacts	10%	Signficant/Undesirable Impacts	No Impacts
			0	100
	Utilities, Utility Easements, Railroad	5%	Encroachment or conflict	Avoidance/No Encroachment
			0	50
Environmental	Stream and Wetland Impacts	5%	IP	GP
			0	50
	Document Type	5%	EIS	CE
			0	50
Project Goals	Critical Goals	10%	None Met	All Met
			0	100
	Non-critical Goals	5%	None Met	All Met
			0	50
Bridges	Impacts	15%	Retain all Poor Bridges	Replace all Poor Bridges
			0	150
Safety	Predicted Total Crash Rate	5%	Crash Rate Increase	Crash Rate Decrease
			0	50
	Predicted Fatal Injury Crash Rate	10%	Crash Rate Increase	Crash Rate Decrease
			0	100
	Predicted Property Damage Only Crash Rate	5%	Crash Rate Increase	Crash Rate Decrease
			0	50
Capacity/Operational	LOS	10%	LOS Degrades	LOS Increases to A
			0	100
Construction	Impacts	10%	Signficant/Undesirable Impacts	No Impacts
			0	100
Miscellaneous	Unique Criteria	5%	Undesireable	Desireable
			0	50
				1000 Max Total

	Criteria	Weighting	US15-1 Score	US15-2 Score	
RW	Impacts	10%			
			70	90	1 may have more impacts at T to US15. 2 may have min impacts
	Utilities	10%	N/A	N/A	
	Utility Easements	2.5%	N/A	N/A	
	Railroad	2.5%	N/A	N/A	
					No RR here
Project Goals	Critical Goals	5%			
			50	50	met all. NB has Ds in future.
	Non-critical Goals	5%			
			50	50	met all
Bridges	Impacts	10%			
			100	100	No bridges are poor at this time, but some are fair.
Safety	Predicted Total Crash Rate	5%			No issues for existing, so not reevaluated for proposed as the alts do not introduce issues with crashes.
			25	25	
	Predicted Fatal Injury Crash Rate	10%	N/A	N/A	
	Predicted Property Damage Only Crash Rate	5%	N/A	N/A	
	Non-Motorized Access	5%	N/A	N/A	
Capacity/Operational	LOS	15%			
			140	125	more B with 2. NB drops LOS
Construction	Impacts	10%	N/A	N/A	
					no detours
Miscellaneous	Unique Criteria	5%			
			0	50	few phases. Have to construct diamond to reconfigure proper loops
			435	**490**	

Interchange Improvement Criteria

Interstates, US, SC, S routes grade separated

	Criteria	Weighting	Parameters	
			Minimum Score	Maximum Score
RW	Impacts	10%	Signficant/Undesirable Impacts	No Impacts
			0	100
	Utilities	10%	Encroachment or Conflict	Avoidance/No Encroachment
			0	100
	Utility Easements	2.5%	Conflict	Avoidance
			0	25
	Railroad	2.5%	RR Involvement	No RR Involvement
			0	25
Project Goals	Critical Goals	5%	None Met	All Met
			0	50
	Non-critical Goals	5%	None Met	All Met
			0	50
Bridges	Impacts	10%	Retain all Poor Bridges	Replace all Poor Bridges
			0	100
Safety	Predicted Total Crash Rate	5%	Crash Rate Increase	Crash Rate Decrease
			0	50
	Predicted Fatal Injury Crash Rate	10%	Crash Rate Increase	Crash Rate Decrease
			0	100
	Predicted Property Damage Only Crash Rate	5%	Crash Rate Increase	Crash Rate Decrease
			0	50
	Non-Motorized Access	5%	Access Eliminated/Not Provided	Access Retained/Provided
			0	50
Capacity/Operational	LOS	15%	LOS Degrades	LOS Increases to A
			0	150
Construction	Impacts	10%	Signficant/Undesirable Impacts	No Impacts
			0	100
Miscellaneous	Unique Criteria	5%	Undesireable	Desireable
			0	50
				1000

Cost and Schedule Data

FINAL TOTAL CONSTRUCTION COST ESTIMATE

PROJECT NAME - I-26 MM 169 to MM 187

PROJECT ID:

PREPARED BY: Mike Fulmer

DATE PREPARED: 10/15/19 (REV 4/12/21)

PRECONSTRUCTION (PE)	
INTERNAL PE COST	$168,945.36
EXTERNAL PE COST	$8,447,268.00
ENVIRONMENTAL MITIGATION	$300,000.00
OTHER (UTILITIES AND RAILROAD)	$700,000.00
TOTAL PE COST ESTIMATE	**$9,616,213.36**

RIGHT-OF-WAY (R)	
RIGHT-OF-WAY	$1,300,000.00
RIGHT-OF -WAY COST ESTIMATE	**$1,300,000.00**

CONSTRUCTION (C)	
CONSTRUCTION COST	$351,969,500.00
DESIGN COST (8% OF CONSTRUCTION COST)	
RAILROAD	
ITS	
RIGHT-OF-WAY	
ENVIRONMENTAL MITIGATION	
DESIGN-BUILD CONTRACT COST (FINAL ENGINEER'S ESTIMATE)	**$351,969,500.00**
UTILITIES	
ENVIRONMENTAL MITIGATION	
CE&I (15% OF DB CONTRACT COST)	$52,795,425.00
CONTINGENCY (5% of DB CONTRACT COST)	$17,598,475.00
FINAL TOTAL CONSTRUCTION COST ESTIMATE	**$422,363,400.00**

TOTAL PROJECT COST ESTIMATE	**$433,279,613.36**

FINAL TOTAL CONSTRUCTION COST ESTIMATE

PROJECT NAME - I-26 MM 169 to MM 187

PROJECT ID:

PREPARED BY: Mike Fulmer

DATE PREPARED: 10/15/19

PRECONSTRUCTION (PE)	
INTERNAL PE COST	$147,089.36
EXTERNAL PE COST	$7,354,468.00
STIPENDS	
OTHER (UTILITIES AND RAILROAD)	$200,000.00
TOTAL PE COST ESTIMATE	**$7,701,557.36**

RIGHT-OF-WAY (R)	
RIGHT-OF-WAY	$50,000.00
RIGHT-OF -WAY COST ESTIMATE	**$50,000.00**

CONSTRUCTION (C)	
CONSTRUCTION COST	$304,469,500.00
DESIGN COST (8% OF CONSTRUCTION COST)	
RAILROAD	
ITS	
RIGHT-OF-WAY	$1,250,000.00
ENVIRONMENTAL MITIGATION	$300,000.00
DESIGN-BUILD CONTRACT COST (FINAL ENGINEER'S ESTIMATE)	**$306,019,500.00**
UTILITIES	$500,000.00
ENVIRONMENTAL MITIGATION	
CE&I (15% OF DB CONTRACT COST)	$45,902,925.00
CONTINGENCY (5% of DB CONTRACT COST)	$15,300,975.00
FINAL TOTAL CONSTRUCTION COST ESTIMATE	**$367,723,400.00**

TOTAL PROJECT COST ESTIMATE	**$375,474,957.36**

I-26 MM 169-187 Widening
March 11, 2021

Notice-to-Proceed	NTP
Field Surveys (Initial Geotechnical, Wetland Delineations, Survey)	+4 months
Submit BDR	+8 months
Submit Preliminary IMR	+8 months
Submit Conceptual Bridge Plans	+14 months
Public Information Meeting	+14 months
Submit Preliminary 30% Roadway Plans	+18 months
Design Field Review	+20 months
Submit Final IMR	+20 months
Submit EA	+24 months
Anticipate IMR Approval	+24 months
Signed EA	+27 months
Public Hearing	+28 months
Submit FONSI	+29 months
Submit Preliminary Right of Way Plans	+30 months
Submit Preliminary Bridge Plans, Geotechnical	+30 months
Submit Final Right of Way Plans	+32 months
Right of Way Phase Begins	**+32 months**
Submit Permit Package	+34 months
Submit 95% Roadway Plans and Final Utility and Drainage Report	+42 months
Submit 95% Bridge Plans	+42 months
Submit Final Roadway and Bridge Construction Plans	+46 months
Anticipate Permit Issuance	+46 months
Anticipate Construction Obligation	**+48 months**
Anticipate Let	+50 months

From:	Fulmer, Michael J
To:	McCall, Betsy D
Cc:	Porter, Erin P.; Harmon, Jeremiah
Subject:	I-26 MM 169-187 Revised Estimate for Feasibility Study Report
Date:	Monday, April 12, 2021 2:02:24 PM
Attachments:	Copy of Project Cost Estimate_I26Widening_I95toMP187(PARTIAL RECONSTRUCTION OPTION).pdf image001.jpg

Betsy,
Attached is our revised estimate for the MM 169-187 project. In this revision, we decided to include full reconstruction for the existing portion between MM 172-182, and mill and fill one the other sections (169-172, 182-187).

This estimate is based on our current information and cost/mile planning spreadsheet and feel that our risks are covered in this estimate. If you feel that this needs to be increased to reflect "future" costs, please feel free to add anything that Planning feels is appropriate.

Let me know if you have any questions.

Mike

Michael J. Fulmer, PE
Program Manager
Lowcountry Regional Production Group
South Carolina Department of Transportation
803-737-1834 O| 803-206-2344 C
FulmerMJ@scdot.org

955 Park Street, Room 404
Columbia, South Carolina 29202-0191

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

From: Giddens, Robert V.
To: McCall, Betsy D
Cc: Riley, Jason T
Subject: RE: RW estimates for FR projects
Date: Monday, November 4, 2019 11:06:29 AM
Attachments: image001.jpg

See below:

Robert V. Giddens, CG 4835
Chief Appraiser, SCDOT
PO Box 191
Columbia, SC 29202
Cell: 803-904-5563
Office: 803-737-1537

From: McCall, Betsy D <McCallBD@scdot.org>
Sent: Friday, November 1, 2019 2:01 PM
To: Giddens, Robert V. <GiddensRV@scdot.org>
Subject: RW estimates for FR projects

Robbie,

I have three other projects in the pipeline that need some RW cost estimates done. I thought I would send them to you together, but I don't need them all at the same time. I have added due dates below, but let me know if we need to alter them. I know you have other stuff going on.

The projects are listed in order of priority. Let me know if you have any questions. The data for the Jasper project is not in the link yet, but should by 11/12.

Precon - Design Lead Orangeburg, I95/I26 Interchange, due 12/2

RW Costs:

Alt.1 - $100,000

Alt. 2- $350,000 to $500,000

Alt. 3- $90,000

Thanks,
Betsy

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

Meeting Minutes

Project Development Team Members

10/14/2019

I-26 MM169-187 P038677

PDT Group	Group Contact	Attendee(s)
Preconstruction	Jen Necker	Mike Fulmer, Jeremy Harmon
Traffic Engineering – Design	Brent Dillon	Ron Hinson
Traffic Engineering - Safety	Emily Thomas	Gene Taylor
Environmental - NEPA	Henry Phillips	David Kelly
Environmental - Permits	Sean Connolly	
District	Kevin Gantt	Daniel Burton (D6)
Right-of-Way	Hugh Hadsock	Jason Riley
Maintenance	Chris Kelly	Chris Kelly
Construction	Kevin Harrington	Josh Quattlebaum
Intermodal and Freight	Doug Frate, Diane Lackey, Johnny Mmanu-ike	Diane Lackey
Statewide Planning	Kenny Larimore	
Materials and Research	Jay Thompson	Dahae Kim
FHWA	Michelle Herrell, Jessica Hekter	
Project Sponsor	Betsy McCall	Betsy McCall
Feasibility Report	Betsy McCall	Betsy McCall

Other Attendees: Jen Necker

I26 MM169-187 FR Scoping Meeting Minutes

10/14/19

Attendee List is separate.

Problem

- Third on the rural interstate ranking list
- Economic Development pulls this ranking up high on the ranking list
- Safety is not a huge concern. No one type of crash is prevalent. This stretch of interstate is on par with other rural stretches in the state.
- TTTI is high.
- Truck ADT is high.
- It has a high port authority score due to the amount of trucks coming to and from the port.
- The main issue is truck mobility and truck volume. This section of interstate fails in 2045 due to the lack of capacity for all traffic.

Discussion

There was talk of this section being driven by freight mobility much more than safety. The tonnage is not as high today as some other sections of rural interstate, but with Volvo that is expected to increase just over 100% in the near future. A large percentage of this segment would be E with 4 lanes in 2045.

Purpose and Need

Initial P&N from Planning

> The purpose of this project is to improve operations and reliability.

Proposed P&N from PDT

> Purpose: The purpose of this project is to improve capacity and freight mobility on the mainline and associated interchanges.

Need:

- The future 2045 4 lane segment will be LOS E for most of the segment.
- TTTI is very high (currently at 0.8).
- There are two interchanges.
    - US15 does not have room now to accommodate any additional lanes; therefore, it has constructability issues due to lack of horizontal clearance.
    - SC453 has an LOS of D and E even though the ramps are A. This interchange has capacity issues on the crossing route and lacks horizontal clearance under the bridge.

Discussion

Five issues were brainstormed:

- Improve mobility and capacity
- Improve Safety
- Freight Mobility
- Interchanges
- Truck Parking

Mobility and capacity go hand in hand. One improves the other. It was decided that freight mobility was an issue and overall (all traffic) capacity was an issue. Both were used in the P&N but mobility was tied to the freight since the TTTI was high.

There was no obvious safety issue so there was no strong supportive data for safety. Safety would be addressed as a goal since it is not a driving factor for this project.

The Steering Committee asked that we specify interchanges so that any impacts that may occur due to the interchange reconfigurations point to the purpose and need. After discussion, both interchanges had issues and would need some work; therefore, interchanges were included.

Both interchanges had bridges that were too narrow to accommodate an additional lane (horizontal clearance). US15 may fail in the future due to growth and additional Volvo traffic. No future ADT for the interchange was provided. SC453 had capacity issues at present where the ramps connected to the crossing. Constructability issues?

Truck parking was noted in the freight survey as lacking in this area. Many more trucks should be using this strip since Volvo just opened. It is anticipated that many new gas stations will move onto this stretch due to the growth coming from Summerville, Charleston, and local industry such as Volvo. It is anticipated that private industry will provide the truck parking and none will be needed on the interstate. Weigh stations do exist and it is possible in the future they could be used as freight parking, but currently trucks are not allowed to use the weigh stations for long term stops.

Goals and Associated Metrics

1. Improve Capacity
    a. LOS C or better
2. Improve Truck Travel Time Reliability
    a. Truck Travel Rate of 1.45 (from TAMP)
3. Improve Geometrics
    a. Reduce Weaves
4. Improve Safety
    a. Achieve clear zone per design requirements
5. Long term Solution to Structures
    a. Condition rating of 6
    b. Meets minimum load ratings

Discussion

Improve capacity points to the P&N and LOS of C or better is from the RDM.

Improving the truck reliability was a major concern and ties to the P&N. The rate is from the TAMP.

No geometric deficiencies were found on mainline. The loops and weaves were something that could be a safety issue with increased traffic.

There was great concern about the trees in the median and to the outside. Removing these trees would make this section safer. This is something that is normally done, but it was emphasized here since this was the most striking safety contributor on this section.

The condition rates have not been determined for these bridges at present. That is an ongoing project that Maintenance is overseeing. For planning purposes, it was decided to replace bridges that we had justification to replace for cost and schedule estimates. During PE the bridges will be investigated more closely to see if they meet the ratings.

Two culverts are over 20' making them bridge sized culverts. They will be replaced with bridges for planning purposes.

Scope

- Review options for increasing capacity
- Address all design deficiencies along the mainline
- The typical section will have 10' shoulders in the inside. Design exceptions are acceptable for short distances at structures where horizontal clearance in an issue.
- Replace all mainline bridges and bridge sized culverts. Culverts will be replaced with bridges.
    - Account for 8 lanes of horizontal width
- Address overpass structures within the project limits
    - If replaced, account for 8 lanes of horizontal width
    - If a bridge is jacked, perform necessary maintenance and rehab on the bridge in this contract.
- Address all interchange operations and associated safety issues as necessary
- All crosslines and all culverts less than 20' will be inspected and addressed or redesigned as needed based on the inspection.
- All interchange ramps will be improved as necessary and paved based on the May 6, 2010, memo *Resurfacing/Rehabilitation of Interstate Ramps*.
- Improve pavement conditions on existing and new lanes based on Pavement Design from the Lab.
- Follow the MASH transition plan in PCDM-14 concerning the existing guardrail
- Replace fence damaged due to clear zone tree removal.
- All trees will be removed from the full clear zone based on clear zone charts for mainline.
- All trees will be removed inside of loops and ramps. Tree removal outside of the loops and ramps will follow the clear zone charts.
- Clear all trees within the roadway ditches to allow for proper drainage

- Offset the frontage road entrances from the interstate ramps per the ARMS manual for all interchanges.

Discussion

No geometric design deficiencies were identified at this point, but there are known seismic deficiencies for all bridges along the corridor.

The Steering Committee wanted 10' inside shoulders. On this project there seems to be ample room in the median for this outside of the bridges. If in PE some bridges are deemed to be retained, then a design exception may be sought. Based on the calculations thus far there is not enough room to have a 4' inside shoulder. This is not acceptable and a design exception will not be pursued.

There are two culverts that allow roads crossing under the interstate. For planning purposes, we are assuming replacing them with bridges. This will raise the grade and should be accounted for in the alternative plots. All bridges on mainline per the Steering Committee will be 8 lanes.

Almost all of the overpass structures have two sets of piers in the median making it very narrow under the bridge. Due to their age it is recommended to replace them. More discussion can be found in the alternatives section below. Per the Steering Committee, 8 lanes of clearance and only perform maintenance if the bridge is jacked.

The interchanges have horizontal clearance issues. SC453 also has a capacity issue. No safety issues exist. Due to these issues, they are being reconfigured for planning purposes.

The Steering Committee gave guidance on clearing limits; however, this guidance did not take into account drainage issues on the project. The trees that have grown in the ditches have created drainage concerns. Maintenance does not have the funding to address this concern. It was proposed to remove the trees to restore the drainage on the outside of the interstate. This clearing will be outside of the clear zone.

US15 did not have issues with the ramps and frontage roads being too close per the ARMS manual. SC453 did have issues.

Potential Alternatives with Path Forward (Pursue or Eliminate (reasons given))

1. Mainline
    a. Managed Lanes - Eliminated
        i. Lack of continuity with other 6 lane sections of I26
        ii. SC law prohibits tolling interstates
    b. 8 Lanes – Eliminated
        i. Since the goal was to obtain LOS C or higher on the mainline, 6 lanes meets that criteria with all sections as C. 8 Lanes was LOS B for all sections.
    c. 6 Lanes
        i. The following alternatives need to be plotted for lane location evaluation

1. Inside lanes on EB and WB
    a. Replace all ML bridges
    b. Replace all ML bridge sized culverts
2. Outside lanes on EB and WB at bridges and bridge sized culverts

2. Interchanges
    a. Reevaluate interchanges due to replacement of bridge
        i. Replace all bridges due to:
            1. Age of structures, 60 years old, design life of 75 years
            2. MOT/Ease of construction and cost of construction less with replacement instead of working around old structure
            3. Public perception. Since the bridges are near the end of their life they will need replacement in the near future. A separate contract after the contract is let will reflect poorly on the Department.
            4. Some bridges are on low volume side roads that are more easily closed for construction, especially in conjunction with an interstate project.
            5. Bridge lack horizontal clearance to accommodate widening
        ii. Redesign Exit 172, US15, due to horizontal issues
        iii. Redesign Exit 177, SC453 due to capacity issues on crossing route and horizontal clearance issues
3. Overpasses
    a. Replace overpasses due to the same reasons given above for replacing bridges associated with interchanges.

Discussion

Managed lanes and 8 lanes were eliminated as noted above.

Even though there is room in the median, the mainline bridges may need to be replaced to the outside. If so, there would be more wetland impacts due to the long transitions up to and beyond the bridge required for the interstate. If the mainline bridges are constructed in the middle first, then top down construction will be required. Even though it is more expensive to do the top down construction, it reduced the wetland impacts. Construction to the outside will be easier and cheaper but more wetland impacts.

For planning purposes, all bridges are being replaced. US15 and SC453 will be evaluated but, based on current data, they will be reconfigured. See issues with these interchanges above.

Replacement of overpasses and interchanges will affect RW. Jackings will affect RW.

Action Items

Item	Date Assigned	Responsible Party	Resources Needed

Interchange Assessment		Ron	Planning
Alternatives		Traffic, RPG	Traffic, Planning, Work Zone
Pavement Cores		Dahae	
Prelim Pavement Design and Analysis		Dahae	

November 9, 2020
Scoping Meeting Minutes – I-26 MM 169 to MM 187 (P038677)

Review of process and changes for FR
Review of Scoping Meeting Minutes

Discussion of Alternatives

Mainline Bridges & Crossing Structures Discussion, Review of Alternatives below

1. Mainline
    a. Managed Lanes - Eliminated
        i. Lack of continuity with other 6 lane sections of I26
        ii. SC law prohibits tolling interstates
    b. 8 Lanes – Eliminated
        i. Since the goal was to obtain LOS C or higher on the mainline, 6 lanes meets that criteria with all sections as C. 8 Lanes was LOS B for all sections.
    c. 6 Lanes
        i. The following alternatives need to be plotted for lane location evaluation
            1. Inside lanes on EB and WB
                a. Replace all ML bridges
                b. Replace all ML bridge sized culverts
            2. Outside lanes on EB and WB at bridges and bridge sized culverts
2. Interchanges
    a. Reevaluate interchanges due to replacement of bridge
        i. Replace all bridges due to:
            1. Age of structures, 60 years old, design life of 75 years
            2. MOT/Ease of construction and cost of construction less with replacement instead of working around old structure
            3. Public perception. Since the bridges are near the end of their life they will need replacement in the near future. A separate contract after the contract is let will reflect poorly on the Department.
            4. Some bridges are on low volume side roads that are more easily closed for construction, especially in conjunction with an interstate project.
            5. Bridge lack horizontal clearance to accommodate widening
        ii. Redesign Exit 172, US15, due to horizontal issues
        iii. Redesign Exit 177, SC453 due to capacity issues on crossing route and horizontal clearance issues
3. Overpasses
    a. Replace overpasses due to the same reasons given above for replacing bridges associated with interchanges.

Discussion on Interchanges and Overpasses

- The general consensus was to replace interchange bridges based on horizontal and vertical clearance and age. Plans are dated in late 50's. Each overpass was built between 1960 and 1962 according to ITMS. By the time this project is funded, the bridges will be 10 years older.
- US 15 overpass can achieve adequate horizontal clearance if the loops are removed from this interchange per the recommendation provided in the Traffic Engineering Design Review Memo. The US 15 overpass will still require jacking to meet the minimum vertical clearance.
    - How old is the structure? If it's nearing end of its design life, take into consideration the timeline of construction. How many more years will be added to the age of the structure currently?
    - With the clearance it has now and nearing end of design life, we should put money into replacement instead of jacking.
- Replace all mainline bridges and all crossing structures (interchange or non-interchange)
- Consensus from the group was to replace them all

	Goals						Other	
Alternatives	Improve Capacity	Improve Truck Travel Time Reliability	Improve Geometrics	Improve Safety	Long term solution to Structures		NEPA Impacts	Anticipated Permit
	Metrics	Metrics	Metrics	Metrics	Metrics			
	LOS C or better	Truck Travel Rate of 1.45	Reduce Weaves	Achieve clear zone per design requirements	Achieve condition rating of 6	Meets minimum load ratings		
Alt 1	Y	N/A	N/A	Y	Y	Y	NPCE	IP
Alt 2	Y	N/A	N/A	Y	Y	Y	NPCE	IP
No Build ML	N	N/A	N	N	N	N	N/A	N/A
NB US15	Y	N/A	N	N	N	N	N/A	N/A
US15-1	Y	N/A	Y	Y	Y	Y	N/A	N/A
US15-2	Y	N/A	Y	Y	Y	Y	N/A	N/A
NB SC453	Y	N/A	N	Y	Y	Y	N/A	N/A

Table 1. Goals Assessment

For environmental impacts see notes from meetings on Page 6, awaiting confirmation from FHWA on expected document type

There are no design exceptions that we know of at this stage.

We do not need to reconfigure SC 453 Interchange.

Projects adjacent to the area have been widened to the inside assuming there is enough median. We do get tight around 453 interchange (need barrier wall and drainage feature here). The two projects south have gone with the same inside widening configuration. The alignment with the RR bridges south of SC 453 needs to be discussed, there may be some alignment issues regardless of whether it goes to the inside or outside. Environmental may be deciding factor here.

MM 176.5 to 177.5 (where we would need barrier wall based on the narrowing of the median)

MOT – ideally we would close and detour the lower volume overpasses and detour to higher volume. Best to not to close SC 453 and US 15, only access points to north side of I-26.

Overpasses - Weathers Farm (16'), US15 (16'), S-28 (crosses twice), 7 Mile Road, SC453, 2nd Bend Road, S-139

Figure 1. SC 453 Interchange

Alternative 2 Discussion – full outside lanes to WB & EB

- Will be more impacts to wetlands
- More impacts to right-of-way
- Existing shoulders on concrete section are not adequate to carry truck traffic. If we widen to outside we need to reconstruct.

Risk Assessment:

Alternative 1 – Both lanes to the inside

1. Constructability risk with one structure in median with Cypress Swamp
2. RR Mainline alignment coordination with SC 453
3. Pavement in worse condition than anticipated
4. Construction constraints at overpasses (lack of width for entire shoulder)
5. Detour improvement, upgrade pavements on detour routes
6. Hurricane reversal/crossovers coordination/communication during construction
7. Labor shortage
8. Close culvert at Tunnel Road (opportunity)

Alternative 2 – Both lanes to the outside

1. RW Impacts
2. Environmental Impacts
3. Two structures for RR and at Four Hole Swamp
4. Earthwork increase, more mucking
5. RR Mainline alignment coordination with SC 453
6. Pavement in worse condition than anticipated
7. Construction constraints at overpasses (lack of width for entire shoulder)
8. Upgrade pavements on Detour routes
9. Hurricane reversal / crossovers coordination / communication during construction
10. Labor shortage
11. Close culvert at Tunnel Road

Alternative US 15 – Parclo (partial cloverleaf)

1. Reconstruct loops because do not meet minimum standards
2. Additional RW on crossing route (US 15) due to “T”ing in ramps
3. Increase in bridge length and elevation could render existing loops unusable

Alternative US 15 – Diamond

1. Reconstruct loops because do not meet minimum standards
2. Additional RW on crossing route (US 15) due to “T”ing in ramps
3. Increase in bridge length and elevation could render existing loops unusable
4. Decrease conflict points on I-26
5. Three lane bridge would be sufficient

Figure 2. US 15 Interchange

Discussion on which alternative is recommended

Consensus is to widening to the inside for the following reasons:

- We have room to widen to the inside
- Will mirror what is being constructed adjacent to the area
- Decrease in environmental impacts
- Hurricane reversal will be easier with the construction to the inside

SC-453 will be retained as a diamond.

US-15 will be reconstructed to a diamond. See minutes of meeting with Traffic Engineering on November 10 below. The PDT did not have any risks for US15, but Traffic Design had to step away and was not included in the discussion on November 9.

Risk Assessment Charts are below: Tables 2, 3, 4 & 5

Due to time, risks that were red were not discussed in the meeting; however, a risk mitigation chart was sent to the PDT for review and input on mitigating the red risks. This chart is below as well.

FRM will take the outcome of this meeting to the steering committee. FRM will assess multicriteria and discussion with design build.

Subcommittee – LaToya Grate and Mike Fulmer - no problems with widening to the inside.

Project Development Team in Attendance

- Gennie Rickele - FHWA
- Jessica Hekter - FHWA
- LaToya Grate – Office of Planning
- David Gray – Freight
- Jeremiah Harmon – RPG1 - Lowcountry
- Ron Hinson – Traffic Engineering
- Chris Kelly – Maintenance
- Michael Fulmer – RPG 1 - Lowcountry
- Josh Quattlebaum - Construction
- Jason Riley – ROW
- Eugene Taylor – Traffic Safety
- Kim Dahae – Materials & Research
- Betsy McCall – Feasibility Reports
- Erin Porter – Feasibility Reports

Follow up Meeting on November 10, 2020 w/Traffic Engineering included: Betsy McCall, Erin Porter, Eugene Taylor and Ron Hinson

Discussion of risks for the interchanges
***Documented in risk register in Tables 4 & 5**

US-15 Interchange Discussion Points

- Leaving the parclo may extend r/w and affect the gas station if not to current standards. Need to know what design speed and if current clover leafs are up to design standards, may need to be redesigned/reconstructed.
- Bridge extension/elevation increase may overlap with ramp entrance/exits on cloverleaf necessitating redesign of loops.
- Minimize row going to a diamond on US 15. The ramps will be closer to the bridge without the loops.
- To stage reconstruct loops you'll be constructing a diamond anyway
- The risks are greater with retaining the two loops. Could affect cost and schedule later. More advantageous to reconstruct as a diamond.

Follow Up Meeting on November 16, 2020 with Environmental

NEPA – Erin Porter, Betsy McCall, David Kelly

- Section from 187-194 was an EA, but it was close to being a NPCE (Non-programmatic categorical exclusion document). This section could be either. If it is an EA, it is not a big risk to the project.
- The IMR for US15 will more than likely make it an EA. (Confirmed with FHWA after this meeting that IMR does not automatically trigger an EA)
- Going to check with FHWA on widening to the middle to see what they think about the chance of it being a NPCE. FHWA thought NPCE since this area is rural.
- Originally thought outside will be an EA since potential for RW but FHWA said since this area is rural, it will probably be a NPCE.

Permitting – Betsy McCall and Chris Beckham

- There are wetlands in the median and to the outside, so both alts will be IPs.
- The wetlands in the median generally are not as high a quality as the wetlands to the outside; therefore, the median will be easier to permit.
- There was a new CORPS ruling this year that may change how the CORPS looks at the wetlands in the median. There is a high likelihood that the wetlands in the median will be considered isolated potentially making this a GP.
- Based on this, lanes to the median are more advantageous from a permitting standpoint.

Alt 1	Risk Register	Date:	11/9/2020
	I26 MM 169-187	P038677	

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	Constructability risk with one structure in median with Cypress Swamp (saf	T	Probable	65	Low	20	20	80						#VALUE!
R 002	RR Mainline alignment coordination with SC453	T	Almost Certain	100	Moderate	50	40	200	Almost Certain	100	High	20	17	85
R 003	Pavement in worse condition than anticipated	T	Possible	50	High	70	60	180	Possible	50	High	20	17	51
R 004	Dictate contractor to construct overpasses first(due to lack of shoulder wid	T	Probable	70	Low	20	20	80	Probable	70	High	20	17	68
R 005	Upgrade pavements on Detour routes	T	Possible	60	Low	20	20	60						#VALUE!
R 006	Hurricane reversal/crossovers coordination/communication during constr	T	Possible	40	Low	20	20	60						#VALUE!
R 007	Labor shortage	T	Possible	50	Moderate	50	40	120	Possible	50	Moderate	12	13	39
R 008	Close culvert at Tunnel Road	O	Possible	50	Moderate	50	40	120	Possible	50	High	15	17	51

Alt 2	Risk Register	Date:	11/9/2020
	I26 MM 169-187	P038677	

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	RW Impacts	T	Almost Certain	95	Low	25	20	100						#VALUE!
R 002	Environmental Impacts	T	Almost Certain					######						#VALUE!
R 003	Two structures for RR and at Four Hole Swamp	T	Almost Certain	100	Low	20	20	100	Almost Certain	100	Low	6	8	40
R 004	Earthwork increase, more mucking	T	Almost Certain	100	Moderate	50	40	200	Possible	50	Moderate	14	13	39
R 005	RR Mainline alignment coordination with SC453	T	Almost Certain	100	Moderate	50	40	200	Almost Certain	100	High	20	17	85
R 006	Pavement in worse condition than anticipated	T	Possible	50	High	70	60	180	Possible	50	High	20	17	51
R 007	Construction constraints at overpasses (lack of width for entire shoulder)	T	Probable	70	Low	20	20	80	Probable	70	High	20	17	68
R 008	Upgrade pavements on Detour routes	T	Possible	60	Low	20	20	60						#VALUE!
R 009	Hurricane reversal/crossovers coordination/communication during constr	T	Possible	40	Low	20	20	60						#VALUE!
R 010	Labor shortage	T	Possible	50	Moderate	50	40	120	Possible	50	Moderate	12	13	39
R 011	Close culvert at Tunnel Road	O	Possible	50	Moderate	50	40	120	Possible	50	High	15	17	51

US15-1	Risk Register	Date:	11/9/2020
	I26 MM 169-187	P038677	

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	Reconstruct loops because do not meet minimum standards	T	Possible	50	Low	30	20	60	Probable	65	Very Low	4	1	4
R 002	Additional RW on crossing route (US15) due to "T"ing in ramps	T	Probable	70	Low	20	20	80	Possible	60	High	20	17	51
R 003	Increase in bridge length and elevation could render existing loops unusable	T	Almost Certain	95	High	75	60	300	Probable	65	Very Low	5	1	4

US15-2	Risk Register	Date:	11/9/2020
	I26 MM 169-187	P038677	

Risk ID	Risk	Opportunity or Threat	Likelihood of Occurrence Value, %		Consequence Value, %		Consequence Risk Value	Cost Risk Value	Likelihood of Occurrence Value, %		Consequence Value, Months		Consequence Risk Value	Schedule Risk Value
R 001	Increase in bridge length and grade impact the MOT	T	Probable	70	Low	30	20	80	Possible	50	Low	6	8	24
R 002	Minimizes RW on crossing route (US15)	O	Probable	80	Low	20	20	80						#VALUE!
R 003	Increase conflict points of ramps at US15	T	Almost Certain	100	Very Low	10	1	5						#VALUE!
R 004	Decrease conflict points on I26	O	Almost Certain	100	Very Low	10	1	5						#VALUE!
R 005	Three lane bridge would be sufficient	O	Probable	80	Moderate	55	40	160	Possible	50	Low	8	8	24

Risk	Risk Mitigation Options
RR Mainline alignment coordination with SC453	Coordination with RR prior to PE aproval
	Perform a constructility review early in PE that addresses MOT issues and obtains constractor approaches to bidge construction, ie, both at some time, RR first, or overpass first.
Pavement in worse condition than anticipated	Prior to PE do cores to aid in determining pavement condition
Dictate contractor to construct overpasses first(due to lack of shoulder width)	Define the existing horizontal clearance for each crossing. Utilize AGC to ascertain what is an acceptable clearance for them to perform their work.
Earthwork increase, more mucking	Obtain borings every 200' in defined wetland areas in order to better define mucking and give guidance to the contractor on how the SCDOT intends for them to define mucking.
Increase in bridge length and elevation could render existing loops unusable (US15, Parclo)	Accept. Abandon the Parclo alternative.

Table 6. Risk Mitigation Options

From: Harmon, Jeremiah
To: McCall, Betsy D
Cc: Power, Robert W.
Subject: FW: I26 MM169-187 FR Steering Committee Review
Date: Thursday, January 21, 2021 1:29:33 PM
Attachments: image001.jpg
image002.jpg

Betsy,

Based on several conversations over the past few weeks, lengthening the on/off ramps for the weigh stations should be considered in the Feasibility Study, and evaluated during design.

Thanks and let me know if you need additional info.

Jeremy

Jeremiah R. Harmon, P.E.
RPG 1 Design Manager
SCDOT – Lowcountry RPG
955 Park Street, Room 401
Columbia, South Carolina 29202
Phone: (803) 737-3761

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From: Hinson, Ron E <HinsonRE@scdot.org>
Sent: Tuesday, January 19, 2021 1:52 PM
To: Harmon, Jeremiah <HarmonJR@scdot.org>
Subject: RE: I26 MM169-187 FR Steering Committee Review

Jeremy,
There is a section the RDM that covers acceleration lengths needed for trucks at weight stations (Section 10.4.2.3). It says consider providing lengths shown in Figure 10.4-L. I think for the purposes of the Feasibility Study it should be included in the potential cost.

As for deceleration I would recommend verifying the length needed in the RDM for passenger cars is at least provided in the existing condition and retaining that length if no crash history is present.

Let me know if we need to discuss further.

Thanks,
Ron

From: Harmon, Jeremiah <HarmonJR@scdot.org>
Sent: Tuesday, January 19, 2021 11:42 AM
To: Hinson, Ron E <HinsonRE@scdot.org>
Subject: FW: I26 MM169-187 FR Steering Committee Review

Hey Ron,

See the email chain below. Can you provided any guidance on whether the existing weigh station ramps need to be lengthened? This was brought up by David Cook during Betsy's steering committee meeting.

Thanks,
Jeremy

Jeremiah R. Harmon, P.E.
RPG 1 Design Manager
SCDOT – Lowcountry RPG
955 Park Street, Room 401
Columbia, South Carolina 29202
Phone: (803) 737-3761

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From: Power, Robert W. <PowerRW@scdot.org>
Sent: Tuesday, January 12, 2021 3:27 PM
To: Harmon, Jeremiah <HarmonJR@scdot.org>
Subject: FW: I26 MM169-187 FR Steering Committee Review

I haven't heard any more from Sam or Trey. In light of that and the lack of guidance I've been able to find online specific to weigh stations, I resorted to looking on Google Maps at other weigh stations in the southeast region coastal plain areas (i.e., relatively flat terrain) and measuring their ramps, paying particular attention to those that I think were on sections of interstate upgraded / widened in the last couple of decades. All four of these ramps are comparable and are of adequate length, in my opinion. I would recommend that no lengthening is necessary, but if you think that's going to get some push-back, I would suggest the following response (or similar) for the FR, and whoever designs the widening project can do a more technical analysis:

It is recommended that consideration be given to lengthening the ramps of the eastbound and westbound weigh stations in the vicinity of MM 174. Widening in this area is likely to be entirely within the existing median, so these ramps should see no significant impact; however, the eastbound on-ramp, at approximately 1200 LF, is 300 feet shorter than the westbound ramp, at approximately 1500 LF. Lengthening this on-ramp would enable trucks to attain a speed closer to that of mainline traffic before merging. Lengthening the off-ramps at either station does not appear necessary, but doing so would allow more queue room (if desired) for trucks during periods with heavy truck volume, while still providing the distance needed to brake adequately upon exiting the freeway mainline.

From: Power, Robert W.
Sent: Thursday, January 7, 2021 4:32 PM
To: Harmon, Jeremiah <HarmonJR@scdot.org>
Subject: FW: I26 MM169-187 FR Steering Committee Review

FYI……

From: Pridgen, Sam <PridgenSM@scdot.org>
Sent: Thursday, January 7, 2021 4:28 PM
To: Power, Robert W. <PowerRW@scdot.org>
Subject: RE: I26 MM169-187 FR Steering Committee Review

Hi Robert

There is no specific guidance in the RDM that I'm familiar with regarding ramp lengths for weigh station. I would recommend they be designed as normal interchange ramps as per chapter 10 of the RDM. SCDOT would need to determine the appropriate design speed for the ramp to determine the lengths of the speed change lanes (accel & decel)

I'll give Trey a call to discuss the technicalities.

Thanks

Sam

From: Power, Robert W. <PowerRW@scdot.org>
Sent: Thursday, January 7, 2021 3:20 PM
To: Pridgen, Sam <PridgenSM@scdot.org>
Subject: FW: I26 MM169-187 FR Steering Committee Review

Sam,
Good afternoon. Please see the Nov. 30 email below from David Cook to Betsy McCall and the subsequent email Betsy sent to Jeremy Harmon. I've looked at the Roadway Design Manual and spoken with Trey in our group, but I'm having some difficulty finding specific guidance about what these weigh station ramp lengths ideally should be. Could you point me in the right direction or offer an opinion on this?
Thanks,
Robert

Robert Power
Assistant Design Manager
SCDOT Lowcountry RPG

From: Harmon, Jeremiah <HarmonJR@scdot.org>
Sent: Tuesday, December 8, 2020 1:28 PM
To: Power, Robert W. <PowerRW@scdot.org>
Cc: Snelling, Trey <SnellingAH@scdot.org>
Subject: FW: I26 MM169-187 FR Steering Committee Review

Robert,

Can you head up getting the below information to Betsy? You may need to get with Trey to discuss. I would not think this is a big ticket item and if we aren't sure, then I just recommend to add it, but see what you can find out.

Thanks,
Jeremy

Jeremiah R. Harmon, P.E.
RPG 1 Design Manager
SCDOT – Lowcountry RPG
955 Park Street, Room 401
Columbia, South Carolina 29202
Phone: (803) 737-3761

Safety 1st – Live By It!
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From: McCall, Betsy D <McCallBD@scdot.org>

Sent: Monday, December 7, 2020 3:38 PM
To: Harmon, Jeremiah <HarmonJR@scdot.org>
Subject: FW: I26 MM169-187 FR Steering Committee Review

Jeremy,

The Steering Committee, specifically Maintenance, has asked about the ramps on the weigh station. See below. Could your guys please give a brief look to see if the ramps are long enough or will need lengthening? I don't need a sketch or an specific length. John told me he just wanted to know if there was a need to address the ramps in design. Can you have that by mid January?

Thanks,
Betsy

From: Cook, David B <CookDB@scdot.org>
Sent: Monday, November 30, 2020 2:34 PM
To: McCall, Betsy D <McCallBD@scdot.org>; Peterson, Machael M <PetersonMM@scdot.org>; Young, Randall L. <YoungRL@scdot.org>; Perry, Robert E. <PerryRE@scdot.org>; Isgett III, Robert E <IsgettRE@scdot.org>; Boylston, John D. <BoylstonJD@scdot.org>; Long, Chad C. <LongCC@scdot.org>
Cc: Porter, Erin P. <PorterEP@scdot.org>; Rewis, Brent L <RewisBL@scdot.org>
Subject: RE: I26 MM169-187 FR Steering Committee Review

Betsy,

I have reviewed the document and scope and am in general concurrence. I do have a few comments for consideration.

1. Do we need to add a statement about the installation of cable rail in areas where the median trees are removed and the width warrants it?
2. Do we need to add a statement about the weigh station in this area? Do the on-ramp and off-ramps need to be lengthened? I recommend adding that the pavement at the weigh station needs to be resurfaced.
3. Do we need to add a statement about retaining the (or some of the) emergency crossovers that are in place for emergency vehicles? If so, there would need to be a break in the cable rail if it is installed at those locations.

Thanks,

David B. Cook, P.E.
Director of Maintenance
SC Department of Transportation
955 Park Street
Columbia, South Carolina 29202

803-737-1290 O| 803-315-8568 C | 803-737-2850 F
CookDB@scdot.org

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From: McCall, Betsy D <McCallBD@scdot.org>
Sent: Thursday, November 12, 2020 2:33 PM
To: Peterson, Machael M <PetersonMM@scdot.org>; Young, Randall L. <YoungRL@scdot.org>; Perry, Robert E. <PerryRE@scdot.org>; Isgett III, Robert E <IsgettRE@scdot.org>; Boylston, John D. <BoylstonJD@scdot.org>; Cook, David B <CookDB@scdot.org>; Long, Chad C. <LongCC@scdot.org>
Cc: Porter, Erin P. <PorterEP@scdot.org>; Rewis, Brent L <RewisBL@scdot.org>
Subject: I26 MM169-187 FR Steering Committee Review

All,

Previously we had a meeting to discuss the Feasibility Report (FR) information for I26 MM125-139, I95/I26 Interchange, and I95 MM 0-18. I used our discussion before to mold the submittal for your review and concurrence on the referenced project. No need to rehash old discussions since they were not very long ago. However, do not hesitate to alter a decision listed in the scope. Things change.

Before the scope was generic, but based on a request from Preconstruction to have more detail, a recommended scope is listed. This is based on findings from evaluating the alternates listed, but it not intended to circumvent NEPA.

Please send me comments and/or concurrence on the P&N, goals and metrics, scope, and alternatives by 12/4. Let me know if you prefer a Teams meeting to discuss.

Thanks,
Betsy

From:	McCall, Betsy D
To:	Perry, Robert E.; Isgett III, Robert E
Cc:	Porter, Erin P.; Rewis, Brent L; Cook, David B; Peterson, Machael M; Young, Randall L.; Boylston, John D.; Long, Chad C.
Subject:	RE: I26 MM169-187 FR Steering Committee Review
Date:	Monday, December 7, 2020 4:16:00 PM
Attachments:	image001.png image002.jpg image003.jpg Steering Committee I26_MM169_187 Rural Interstates_revisions.docx

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Thank you to those who sent in comments. I have looked into the comments and made changes as appropriate. The changes are tracked in the attached document. Let me know if you have any concerns.

Thanks,
Betsy

From: Perry, Robert E. <PerryRE@scdot.org>
Sent: Thursday, December 3, 2020 4:05 PM
To: Isgett III, Robert E <IsgettRE@scdot.org>; McCall, Betsy D <McCallBD@scdot.org>
Cc: Porter, Erin P. <PorterEP@scdot.org>; Rewis, Brent L <RewisBL@scdot.org>; Cook, David B <CookDB@scdot.org>; Peterson, Machael M <PetersonMM@scdot.org>; Young, Randall L. <YoungRL@scdot.org>; Boylston, John D. <BoylstonJD@scdot.org>; Long, Chad C. <LongCC@scdot.org>
Subject: RE: I26 MM169-187 FR Steering Committee Review

Betsy,

I agree with Robbie's and David's comment below. Here's mine:

- The typical section will have 10' shoulders in the inside. Design exceptions are acceptable for short distances at structures where horizontal clearance in an issue.

Comment: Should this be modified to: Design exceptions are acceptable for short distances at structures where either horizontal clearance is an issue, when widening a structure is not practicable, or where a structure is in good enough condition not to justify replacement in conjunction with this project in order to achieve 10' shoulder widths at spot locations.

This may not be necessary since one of the next bullets deals with replacing all mainline bridges.

- All trees will be removed inside of loops and ramps. Tree removal outside of the loops and ramps will follow the clear zone charts.

Comment: Should this be modified to: Trees shall be removed inside of loops and ramps with the exception being any interchanges where landscaping enhancements have been made by SCDOT or a local government. Tree removal outside of the loops and ramps will follow clear zone charts.

I ask because we've run into this on other projects, and don't want to remove landscaping we've already previously approve with enhancement funds or via encroachment permit.

I'd also recommend adding one more bullet:

- The project shall also include replacement of intelligent transportation devices such as optic fiber, dynamic message boards, cameras, and continuous count stations.

Thanks,
Rob

Rob Perry, P.E.
Director of Traffic Engineering
South Carolina Department of Transportation

Office: (803) 737-1958

From: Isgett III, Robert E <IsgettRE@scdot.org>
Sent: Thursday, December 3, 2020 1:07 PM
To: McCall, Betsy D <McCallBD@scdot.org>
Cc: Porter, Erin P. <PorterEP@scdot.org>; Rewis, Brent L <RewisBL@scdot.org>; Cook, David B <CookDB@scdot.org>; Peterson, Machael M <PetersonMM@scdot.org>; Young, Randall L. <YoungRL@scdot.org>; Perry, Robert E. <PerryRE@scdot.org>; Boylston, John D. <BoylstonJD@scdot.org>; Long, Chad C. <LongCC@scdot.org>
Subject: RE: I26 MM169-187 FR Steering Committee Review

Betsy,

My only comment is in regards to removal of trees.

- All trees will be removed from the full clear zone based on clear zone charts for mainline.

We have had at least 1 recent interstate widening contract on I-26 that included "Safety Clearing" and went beyond the clear zone as indicated below.

2.8.1 Safety Clearing
After achieving the clear zone width requirements, provide safety clearing to 55' from the edge of the through traveled way along I-26 WB and EB. Clear and grind all trees and shrubs down and ground to a depth of 6" (0.5 feet) below grade or remove including stumps. Remove all debris (trash, limbs, dead logs, etc.). Once clearing and grinding operations are

complete, the area shall be properly graded and seeded in accordance with Section 810 of SCDOT Standard Specifications (2007)
and any applicable Supplemental Specifications.

I am not sure of our exact clearing policy but wanted to mention it for consideration/discussion. I was under the impression we preferred to have this additional safety clearing performed behind guardrail as well.

Thanks.

Robbie Isgett, P.E.
Director of Construction
SC Department of Transportation
803-737-1308
isgettre@scdot.org

Safety 1st – Live By It!
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From: Cook, David B <CookDB@scdot.org>
Sent: Monday, November 30, 2020 2:34 PM
To: McCall, Betsy D <McCallBD@scdot.org>; Peterson, Machael M <PetersonMM@scdot.org>; Young, Randall L. <YoungRL@scdot.org>; Perry, Robert E. <PerryRE@scdot.org>; Isgett III, Robert E <IsgettRE@scdot.org>; Boylston, John D. <BoylstonJD@scdot.org>; Long, Chad C. <LongCC@scdot.org>
Cc: Porter, Erin P. <PorterEP@scdot.org>; Rewis, Brent L <RewisBL@scdot.org>
Subject: RE: I26 MM169-187 FR Steering Committee Review

Betsy,

I have reviewed the document and scope and am in general concurrence. I do have a few comments for consideration.

1. Do we need to add a statement about the installation of cable rail in areas where the median trees are removed and the width warrants it?
2. Do we need to add a statement about the weigh station in this area? Do the on-ramp and off-ramps need to be lengthened? I recommend adding that the pavement at the weigh station needs to be resurfaced.
3. Do we need to add a statement about retaining the (or some of the) emergency crossovers that are in place for emergency vehicles? If so, there would need to be a break in the cable

rail if it is installed at those locations.

Thanks,

David B. Cook, P.E.
Director of Maintenance
SC Department of Transportation
955 Park Street
Columbia, South Carolina 29202

803-737-1290 O| 803-315-8568 C | 803-737-2850 F
CookDB@scdot.org

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From: McCall, Betsy D <McCallBD@scdot.org>
Sent: Thursday, November 12, 2020 2:33 PM
To: Peterson, Machael M <PetersonMM@scdot.org>; Young, Randall L. <YoungRL@scdot.org>; Perry, Robert E. <PerryRE@scdot.org>; Isgett III, Robert E <IsgettRE@scdot.org>; Boylston, John D. <BoylstonJD@scdot.org>; Cook, David B <CookDB@scdot.org>; Long, Chad C. <LongCC@scdot.org>
Cc: Porter, Erin P. <PorterEP@scdot.org>; Rewis, Brent L <RewisBL@scdot.org>
Subject: I26 MM169-187 FR Steering Committee Review

All,

Previously we had a meeting to discuss the Feasibility Report (FR) information for I26 MM125-139, I95/I26 Interchange, and I95 MM 0-18. I used our discussion before to mold the submittal for your review and concurrence on the referenced project. No need to rehash old discussions since they were not very long ago. However, do not hesitate to alter a decision listed in the scope. Things change.

Before the scope was generic, but based on a request from Preconstruction to have more detail, a recommended scope is listed. This is based on findings from evaluating the alternates listed, but it not intended to circumvent NEPA.

Please send me comments and/or concurrence on the P&N, goals and metrics, scope, and alternatives by 12/4. Let me know if you prefer a Teams meeting to discuss.

Thanks,

Betsy

PDT Concurrence Request for Steering Committee

I26 MM169-187, Rural Interstates

Purpose and Need

The purpose of this project is to improve capacity and freight mobility on the mainline and associated interchanges.

Goals and Associated Metrics

1. Improve Capacity
    a. LOS C or better
2. Improve Truck Travel Time Reliability
    a. Truck Travel Rate of 1.45 (from TAMP)
3. Improve Geometrics
    a. Reduce Weaves
4. Improve Safety
    a. Achieve clear zone per design requirements
5. Long term Solution to Structures
    a. Condition rating of 6
    b. Meets minimum load ratings

Recommended Scope

- Widen one lane in each direction for a total of 6 lanes ~~with the additional lanes being in the median~~
- Address all design deficiencies along the mainline.
- The typical section will have 10' shoulders in the inside. Design exceptions are acceptable for short distances at crossing structures where either horizontal clearance is an issue, when widening a structure is not practicable, or where a structure is in good enough condition not to justify replacement in conjunction with this project in order to achieve 10' shoulder widths at spot locations.~~Design exceptions are acceptable for short distances at structures where horizontal clearance in an issue.~~
- Replace all I-26 mainline bridges. The Tunnel Road culverts will be replaced with bridges.
    - Account for 8 lanes of horizontal width
- Replace all overpass structures within the project limits
    - Account for 8 lanes of horizontal width
- Interchanges
    - US15: Replace ~~with a~~ Diamond
    - SC453: Retain as a Diamond
- Assess the need to lengthen weigh station on and off ramps.
- Resurface the weigh station and associated ramps.

Commented [BJD1]: The only place I see a weaving problem is at the US 15 interchange. This seems like a very specific metric for this to be an overall project goal. Consider adding additional metrics.

Commented [MBD2R1]: It is only tied to US15. The PDT discussed that with increased traffic that the weaves would be more of a concern. No other geometric issues were noted. This goal is not a critical goal, but a non-critical or "like to have" goal. Geometrics were not a driver for the P&N, but deemed something that should be considered moving forward in project development.

Commented [MBD3]: Per Perry. I added the word "crossing" to distinguish this from the mainline bridges below.

Commented [BJD4]: Consider just saying "replace" instead of dictating the type of interchange. As long as it is known whether or not the interchange is being replaced, that should suffice.

Commented [MBD5R4]: Agreed.

Commented [MBD6]: Per Cook. I am sending the RPG a request to review prior to finalizing this report. This will be updated if there is a need to lengthen them.

Commented [MBD7]: Per Cook.

- Define detours and assess viability of detours for all overpasses except at US15 and SC453. These two must be staged construction. The assessment will define stage or close and detour for all other overpasses.
- All crosslines and all culverts less than 20' will be inspected and addressed or redesigned as needed based on the inspection.
- All interchange ramps will be improved as necessary and paved based on the May 6, 2010, memo *Resurfacing/Rehabilitation of Interstate Ramps*.
- Improve pavement conditions on existing and new lanes based on Pavement Design from the Lab.
- Follow the MASH transition plan in PCDM-14 concerning the existing guardrail
- Replace fence damaged due to clear zone tree removal.
- All trees will be removed ~~from~~ to account for a 55' ~~the~~ ~~full~~ clear zone due to the high number of fixed object crashes~~based on clear zone charts for mainline~~.
- Review length of need of the guardrail to determine whether trees should be removed behind the guardrail or guardrail should be extended. Confer with Maintenance to determine if there is a need to remove all trees behind the guardrail.
- Trees shall be removed inside of loops and ramps with the exception being any interchanges where landscaping enhancements have been made by SCDOT or a local government. Tree removal outside of the loops and ramps to 55'.~~All trees will be removed inside of loops and ramps. Tree removal outside of the loops and ramps will follow the clear zone charts.~~
- Clear all trees within the roadway ditches to allow for proper drainage
- Investigate the need for cable rail in the median where trees are removed.
- Coordinate with District on which emergency crossovers, if any, should be retained. Account for break in cable rail where crossovers are retained.
- Offset the frontage road entrances from the interstate ramps per the ARMS manual for all interchanges.
- The project shall also include replacement of intelligent transportation devices such as optic fiber, dynamic message boards, cameras, and continuous count stations.

Commented [MBD8]: This addresses Isgett comment. I talked to safety and 55' is greater than the clear zone charts. The district recommended more clearing in this area, and the safety data supported that with their being a high degree of fixed object crashes.

Commented [MBD9]: Addresses Isgett comment. Safety gave guidance on situations where they have cleared behind guardrail.

Commented [MBD10]: Per Perry

Commented [MBD11]: Per Cook

Commented [MBD12]: Per Cook.

Commented [MBD13]: Per Perry

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Potential Alternatives with Path Forward (Pursue or Eliminate (reasons given))

1. Mainline
    a. Managed Lanes - Eliminated
        i. Lack of continuity with other 6 lane sections of I26
        ii. SC law prohibits tolling interstates
    b. 8 Lanes – Eliminated
        i. Since the goal was to obtain LOS C or higher on the mainline, 6 lanes meets that criteria with all sections as C. 8 Lanes was LOS B for all sections.
    c. 6 Lanes
        i. The following alternatives need to be plotted for lane location evaluation
            1. Inside lanes on EB and WB
                a. Replace all ML bridges
                b. Replace all ML bridge sized culverts
            2. Outside lanes on EB and WB at bridges and bridge sized culverts

2. Interchanges
    a. Reevaluate interchanges due to replacement of bridge
        i. Replace all bridges due to:
            1. Age of structures, 60 years old, design life of 75 years
            2. MOT/Ease of construction and cost of construction less with replacement instead of working around old structure
            3. Public perception. Since the bridges are near the end of their life they will need replacement in the near future. A separate contract after the contract is let will reflect poorly on the Department.
            4. Some bridges are on low volume side roads that are more easily closed for construction, especially in conjunction with an interstate project.
            5. Bridge lack horizontal clearance to accommodate widening
        ii. Redesign Exit 172, US15, due to horizontal issues
        iii. Redesign Exit 177, SC453 due to capacity issues on crossing route and horizontal clearance issues
3. Overpasses
    a. Replace overpasses due to the same reasons given above for replacing bridges associated with interchanges.

Commented [BJD14]: Or because of operational issues?

Commented [MBD15R14]: Several angles were looked at for the interchanges: geometrics, safety, bridge clearances. The most immediate issue was the bridges. This section talks about issues at the interchanges due to the bridges.

Commented [BJD16]: Also weaving?

Commented [MBD17R16]: Since this section focuses on bridges, I'd like to keep the weaving out. In the end addressing the bridge will most likely address the weaving due to the interchange being reconfigured.

Freight and Rail Data

Freight / Rail Feasibility Report Input

PROJECT: I26 @ I-95 Interchange (P038677)
System: *I26 MP 162 to MP 172*

1 *Is project on Statewide Freight Network?* yes

2 *Truck AADT:*

	Station #	Class 4 & 5	Class 6 & Above	Class 8 & Above	Location Note
2018 Truck AADT	2169	2115	15775	*15255*	*S-36 to SC-210*

Projected — *Note: awaiting data from Systems Performance*

3 *Predominant Truck Type in Project Area*

	Station #	% Class 4 & 5	Class 6 & Above	Class 8 & Above	Location Note
Indicate average volume of class of truck	2169	6%	48%	*46%*	*S-36 to SC-210*

4 *Tonnage of Freight*

SCDOT/Transearch Segment ID: **45005454 / 45015540 / 45015539 / 45000773**

	AVERAGE ESTIMATED ANNUAL TONS	AVERAGE ESTIMATED ANNUAL VALUE
2016	25,014,402	$72,098,338,747
2025	32,717,220	$99,691,934,293
2040	50,463,442	$177,309,348,365

5 *At-grade RR Crossings?*

List crossings or state 'none'

6 *Truck-Based Safety Data in Area of Proposed Project*

List truck-involved accidents/crashes

Location	Year(s)	Total Crashes	Truck-Involved Crashes	% Truck-Involved Crashes	Average % Truck-Involved Crashes / Year
	2012 - 2016	545	244	45%	11%
	2016 - 2018	121	45	37%	12%

7 OSOW Restrictions / Impact on the Statewide Freight Network

Approved OSOW Interstate

8 Addiditional Considerations for Efficient Truck Movements

None

Maintenance Data

Route	MilePoint	Bridge Asset ID	Culvert?	X Route	Clearance	Year Built	Functionally Obsolete	Structurally Decient	Substandard	Sufficiency Rating	
DORCHESTER I- 95	80.185	6085	NO	Indian Field Swamp	N/A	1972	No	No	No	78	
DORCHESTER I- 95	82.214	6478	NO	US 178	16' 0"	1974	No	No	No	90	
DORCHESTER I- 95	80.163	6086	NO	Indian Field Swamp	N/A	1972	No	No	No	78	
DORCHESTER I- 95	82.193	6481	NO	US 178	16' 0"	1974	No	No	No	91	
ORANGEBURG I- 95	85.719	6174	NO	I-26	16' 11"	1972	No	No	No	94	
ORANGEBURG I- 95	87.292	6347	NO	Four Hole Swamp	N/A	1973	No	No	No	94.8	Replacing
ORANGEBURG I- 95	87.748	6348	NO	Four Hole Swamp	N/A	1973	No	No	No	94.8	Replacing
ORANGEBURG I- 95	85.711	6175	NO	I-26	16' 11"	1972	No	No	No	94	
ORANGEBURG I- 95	87.269	6352	NO	Four Hole Swamp	N/A	1973	No	No	No	94.8	
ORANGEBURG I- 95	87.723	6353	NO	Four Hole Swamp	N/A	1973	No	No	No	94.8	
DORCHESTER I- 26	171.331	3855	YES	Stream	N/A	1962	No	No	No	96	
DORCHESTER I- 26	171.322	3856	YES	Stream	N/A	1962	No	No	No	96	
ORANGEBURG I- 26	166.071	3722	NO	Cow Castle Creek	N/A	1961	No	No	No	94	
ORANGEBURG I- 26	166.055	3723	NO	Cow Castle Creek	N/A	1961	No	No	No	94	
Orangeburg S-1302	0.853	3732	NO	I-26	15' 9"	1961	Yes	No	Yes	60.6	
Dorchester L-337	1.147	3640	NO	I-26	15' 10"	1961	Yes	No	Yes	74.6	
Dorchester S-11	0.635	6482	NO	I-95	18' 0"	1974	No	No	No	93.6	

Environmental Data

FEASIBILITY REPORT -Environmental Screening Form

TRANSMITTAL TO FEASIBILITY REPORT MANAGER

GENERAL INFORMATION

Date: Nov 4, 2019 Project: I-26 Widening MM 169 -- MM 187--I-26/I-95 Interchange Evaluation**Comments in this fc

Project ID: PIN #P038677 Region: RPG 4 County: Orangeburg

Project Type:

- ☐ New Alignment Facility
- ☒ Widening of Existing Facility
- ☐ Bridge Replacement
- ☐ Intersection Improvement

Right of Way:

Is a new Right of Way required? ☒ Yes ☐ No

Project Purpose and Need:

Comments in this form are specific to the 3 alternatives presented for the I-26 & I-95 Interchange.

Proposed project is needed to increase capacity and improve operations along a section of I-26.

NEPA

What is the required level of NEPA documentation?

NEPA Documentation: EA

Section 106, Historic or Cultural Impacts:

Are there historic properties (i.e., NR-eligible or listed) in the project area?	☐ Yes	☒ No
Will they be impacted?	☐ Yes	☒ No

Section 4(f):

Are there Section 4(f) properties in the project area?	☐ Yes	☒ No

FEMA:

Will the project impact a regulatory floodway?	☐ Yes	☒ No
Is a Risk Assessment Form required?	☐ Yes	☒ No
Is a Floodplain Checklist required?	☐ Yes	☒ No

Noise:

Is a noise analysis required?	☒ Yes	☐ No
Is noise abatement required?	☐ Yes	☒ No

Threatened and Endangered Species:

Is a threatened and endangered species survey needed? ☒ Yes ☐ No

Are there federally listed species present within 1/2 mile of the project area on GIS? ☐ Yes ☒ No

Federally listed species for the county include Red cockaded-woodpecker, Atlantic sturgeon, Shortnose sturgeon, American wood stork, and Canby's dropwort.

*See Survey Window spreadsheet in env\EMO Go2\NEPA\T&E,EFH and Marine Mammals\T&E|Federal Species.

Essential Fish Habitat:

Are there any tidal wetland impacts in the project area? ☐ Yes ☒ No

Underground Storage Tanks/Hazardous Materials:

Are there any known hazardous materials sites with the potential to impact the project area? ☐ Yes ☒ No

Will a Phase I be required? ☐ Yes ☒ No

Will a Phase II be required? ☐ Yes ☒ No

Air Quality:

Is an air quality analysis required? ☐ Yes ☒ No

Farmland:

Is a farmland assessment required? ☒ Yes ☐ No

Land Use:

Land is undeveloped. Some areas may be in agricultural or silvicultural use.

Environmental Justice:

Is there potential for EJ issues? ☐ Yes ☒ No

Enter applicable demographic/census info from EJ View or other sources

PERMITTING

Will a permit will be required for impacts? ☒ **Yes** ☐ **No**

(Check all that apply)

USACE	☐ GP	☒ IP	☐ NWP	☐ Section 10
SCDHEC	☒ 401	☐ CAP	☒ CZC	☐ Nav
USCG	☐ Bridge Permit			

Wetlands and Streams:

Are there jurisdictional features located within the project area? ☒ Yes ☐ No

If yes, list and describe streams or wetlands:

There are perennial streams and forested jurisdictional wetlands in the project study area.

Are there navigable waters within the project area? ☐ Yes ☒ No

What is the stream classification? **(**Print and attach SCDHEC Water Quality Report.)**

Stream Classification: FW

Are there known shellfish beds within 1,000 ft of the project area?	☐ Yes	☒ No
Are there downstream (or upstream in coastal area) sites that are 303(d) listed?	☐ Yes	☒ No
Is the project area within a TMDL?	☐ Yes	☒ No
Is there a Federal Wild and Scenic River within the project area?	☐ Yes	☒ No
Is there a SC Designated Scenic River within the project area?	☐ Yes	☒ No

COMPENSATORY MITIGATION

Will the project likely require mitigation of unavoidable impacts to the Waters of the U.S.? ☒ Yes ☐ No

Do the project impacts occur within an existing Mitigation Bank Service Area? ☒ Yes ☐ No

*See RIBITS data on Mitigation Bank locations and service areas in env\GIS\RIBITS

ALTERNATIVES

NEPA:

Alternative 3 appears to have the lowest amount of (or probability for) environmental impacts

PERMITTING:

Due to the location of the wetlands each alternative will likely require an individual Corps permit. Alternative 3 appears to have the least amount of impact to waters of the US.

COMMENTS

SCDOT NEPA Comments:

Alternative 3 appears to have the lowest amount of (or probability for) environmental impacts.

Comments in this form are specific to the 3 alternatives presented for the I-26 & I-95 Interchange.

SCDOT Permitting Comments:

SCDOT Permitting staff comments only in this field (initials, date, comment)

SCDOT General Comments:

Comments in this form are specific to the 3 alternatives presented for the I-26 & I-95 Interchange.

Agency Comments:

Agency comments in this field (agency, date, comment)

Reset Form Print Form

From: Kelly, David P.
To: Porter, Erin P.; McCall, Betsy D
Subject: RE: I-26 MM 169 to MM 187 Final PDT Meeting Minutes P038677
Date: Monday, November 16, 2020 2:43:23 PM

Spoke with Shane this morning after our call. There is no automatic trigger than mandates an EA when an IMR is involved. So could still be a Non Programmatic Categorical Exclusion (NPCE) document. And possible NPCE even for Alternative…just depends on the amount of impacts…but since this is such a rural area Shane thought the NPCE might work in either approach.

From: Porter, Erin P. <PorterEP@scdot.org>
Sent: Monday, November 16, 2020 2:05 PM
To: Gennie, Rickele - FHWA <rickele.gennie@dot.gov>; Hekter, Jessica - FHWA <Jessica.Hekter@dot.gov>; Grate, LaToya E. <GrateLE@scdot.org>; Gray Jr, David L. <GrayDL@scdot.org>; Harmon, Jeremiah <HarmonJR@scdot.org>; Hinson, Ron E <HinsonRE@scdot.org>; Kelly, Christopher S. <KellyCS@scdot.org>; Fulmer, Michael J <FulmerMJ@scdot.org>; Quattlebaum, Josh B. <QuattlebB@scdot.org>; Riley, Jason T <RileyJT@scdot.org>; Taylor, Eugene A. <TaylorEA@scdot.org>; Kim, Dahae <KimD@scdot.org>; Kelly, David P. <KellyDP@scdot.org>; Beckham, Chris <BeckhamJC@scdot.org>
Cc: McCall, Betsy D <McCallBD@scdot.org>
Subject: I-26 MM 169 to MM 187 Final PDT Meeting Minutes P038677

Good afternoon all –

See attached meeting minutes for I-26 MM 169 to MM 187 from our final PDT meeting that was held on November 9, 2020. Please have any comments or changes back to us by Wednesday November 25. Document is attached for those not able to access link:
Final PDT Meeting Minutes I26 MM169 to MM 187.docx

Thank you,
Erin P. Porter, PE, PMP
Assistant Feasibility Report Manager
SCDOT - Office of Planning
955 Park Street
Columbia, SC 29201
(803) 737-1530
PorterEP@scdot.org

Program Manager Data

From:	Fulmer, Michael J
To:	Harmon, Jeremiah; McCall, Betsy D
Subject:	FW: Question concerning possible road closure - Dorchester Co - Tunnel Road
Date:	Tuesday, November 24, 2020 9:00:46 AM
Attachments:	File 18.312 I-26 Giant Cement ROW Easement.pdf

FYI concerning question about possibility of closing Tunnel Road and removing culverts.

From: Henderson, Timothy R <HendersoTR@scdot.org>
Sent: Tuesday, November 24, 2020 7:18 AM
To: Fulmer, Michael J <FulmerMJ@scdot.org>
Cc: Stroble, Lance R. <StrobleLR@scdot.org>; Michalski, Stephen C. <MichalskSC@scdot.org>; Turner, Michael K. <TurnerMK@scdot.org>; Black, J Michael <BlackJM@scdot.org>; Molinaroli, Raymond L. <MolinaroliRL@scdot.org>; Burton, Daniel <BurtonD@scdot.org>
Subject: FW: Question concerning possible road closure - Dorchester Co - Tunnel Road

Mike
RME Stroble found the attached r/w document that explains why this tunnel was built. Looks like Giant Cement worked out this during the I26 construction. I agree it would be good to close it and detour around which doesn't seem too far out of the way but I assume we would need their blessings before eliminating this tunnel. Let us know if you have any questions or additional thoughts.
Thanks
Tim

From: Stroble, Lance R. <StrobleLR@scdot.org>
Sent: Monday, November 23, 2020 10:43 PM
To: Henderson, Timothy R <HendersoTR@scdot.org>; Michalski, Stephen C. <MichalskSC@scdot.org>; Black, J Michael <BlackJM@scdot.org>
Cc: Turner, Michael K. <TurnerMK@scdot.org>; Burton, Daniel <BurtonD@scdot.org>
Subject: RE: Question concerning possible road closure - Dorchester Co - Tunnel Road

I don't think we will be able to close it without some legal issues…I did some digging and found the right of way easement where we acquired the ROW in this area to build I-26 from Giant Cement. There is a condition in the special provisions that we would build the tunnel for Giant to have access to their property on the other side, and according to the GIS they still own the adjacent property.

Please see attached.

Lance

From: Henderson, Timothy R <HendersoTR@scdot.org>
Sent: Monday, November 23, 2020 5:03 PM
To: Stroble, Lance R. <StrobleLR@scdot.org>; Michalski, Stephen C. <MichalskSC@scdot.org>; Black, J Michael <BlackJM@scdot.org>

Cc: Turner, Michael K. <TurnerMK@scdot.org>; Burton, Daniel <BurtonD@scdot.org>
Subject: Fwd: Question concerning possible road closure - Dorchester Co - Tunnel Road

Do y'all have any ideas on this request on whether it would be objected to on closing the tunnel?

Thanks,
Tim Henderson PE,PLS
SCDOT
District 6 Engineering Administrator
6355 Fain Blvd
North Charleston SC 29406
hendersotr@scdot.org
Sent from my iPhone

Begin forwarded message:

> **From:** "Fulmer, Michael J" <FulmerMJ@scdot.org>
> **Date:** November 23, 2020 at 3:49:14 PM EST
> **To:** "Henderson, Timothy R" <HendersoTR@scdot.org>
> **Cc:** "Turner, Michael K." <TurnerMK@scdot.org>, "Burton, Daniel" <BurtonD@scdot.org>
> **Subject: Question concerning possible road closure - Dorchester Co - Tunnel Road**
>
> Good afternoon guys,
> We had a final feasibility report meeting concerning I-26 from MM 169 - MM 187, and a question was raised.
> For planning purposes, it was decided that all mainline bridges would be replaced. A question was raised: how to handle the culverts located on Tunnel Road? Tunnel Road passes through these culverts as a single lane road.
> Options that were discussed include: extending the culverts, removing culverts and replacing with bridges, or closing Tunnel Road and filling in. Of course, each of these options present their own issues.
>
> I was asked to reach out and get your feeling concerning the closure option. Looking at the .kmz (attached), it looks like Tunnel Road was the original alignment, but 7 Mile Road provides the same access with limited additional mileage. Do you think that this option would be opposed?
>
> Of course this project is just in the planning stage, and years from beginning design. Just wanted to get your thoughts/concerns.
>
> Thanks,
> Mike
>
> Michael J. Fulmer, PE

Program Manager
Lowcountry Regional Production Group
South Carolina Department of Transportation
803-737-1834 O| 803-206-2344 C
FulmerMJ@scdot.org

955 Park Street, Room 404
Columbia, South Carolina 29202-0191

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

TRACT NUMBER 21

Form 801 (Rev. 3-21-56)

Giant Portland Cement Company
Architects Building
117 South Seventeenth Street
Philadelphia 3, Pennsylvania

The State of South Carolina

COUNTY OF Dorchester

Right of Way Easement

Route No. I-26 Docket No. 18.312

Approx. survey station, from 3587+77 to 3635+93 Left & Right

KNOW ALL MEN BY THESE PRESENTS, That I (or we) GIANT PORTLAND CEMENT COMPANY BY: PRESIDEN

PAYMENT RECORDED 7-30-59

Eleven thousand three hundred ninety three and 50/100 dollars ($11,393.50) in consideration of the sum of ~~One Dollar~~ to me (or us) in hand paid, and other valuable consideration at and before sealing and delivering thereof, by the South Carolina Highway Department, receipt of which is hereby acknowledged, have granted, bargained, sold, and released, and by these presents do grant, bargain, sell, and release, unto the said South Carolina Highway Department, its successors and assigns, a right-of-way for the

construction of a section of the State Highway from Orangeburg County Line (Name of Place.)

to Road 55 (Name of Place.) on Route No. I-26 State and County aforesaid, as shown by plans prepared by the State Highway Department, on and over all lands which I (or we) may own in whole or in part, for the purpose of locating, constructing, improving, and maintaining the above described highway with the bridges and causeways thereon, and the right to construct and maintain controlled access facilities to said highway.

Bounded by lands of (Mrs.) Carrie M. Collier, Life-Estate, et al, on the north-west and (Mrs.) Ruby T. Hussey and S. E. Hussey on the south-east and others. (Show only the Land Owners along the Highway.)

Said right-of-way to have a width of 350 feet, that is 175 feet on each side of the center line of the Highway except where a greater width is necessary for short distances on account of large cuts or fills and drainage structures.

"Special Provisions:" The right of way on the right of the centerline between approximate station 3587+77 and present Road 17 is 140 feet. - Also, conveyed herein are additional rights of way as follows: (1) 370', that is 185' on each side of the centerline, from present Road 17 to station 3612+00; then decreasing to 175' on each side of the centerline at station 3630+38.8, (2) On the left and also on the right, (OVER)

Together with, all and singular, the rights, members, hereditaments and appurtenances thereunto belonging, or in any wise incident or appertaining. It is agreed that buildings, fences, signs or other obstructions will not be erected by me (or us), my heirs, assigns or administrators within the limits of the right-of-way herein conveyed and that such buildings and fences as are now within the limits of the right-of-way herein conveyed will be moved from the right-of-way and restored in as good condition as before moving at the expense of the State Highway Department of the State of South Carolina.

TO HAVE AND TO HOLD, all and singular, the said right-of-way and the rights hereinbefore granted, unto the said South Carolina State Highway Department, its successors and assigns forever.

IN WITNESS WHEREOF, I (or we) have hereunto set my (or our) hand and seal this 27th day of May in the year of our Lord, One Thousand Nine Hundred and Fifty-Nine.

Signed, sealed and delivered in the presence of:

Julia A. Beck Witness

John H. Craemer Witness

GIANT PORTLAND CEMENT COMPANY

By: John D. Wilson (L. S.)
President
(John D. Wilson)

Attest: Robert S. Crawford
Secretary

Corporate Seal)

NOTE: All Right-of-Way Agreements must be in writing and are subject to rejection by the South Carolina State Highway Department.

~~The State of South Carolina~~
COMMONWEALTH OF PENNSYLVANIA
COUNTY OF Philadelphia

Personally appeared Julia A. Beck

and made oath that she saw the within named corporate seal of Giant Portland Cement Company affixed to the foregoing instrument and that she also saw John D. Wilson, President, and Robert S. Crawford, Secretary of said company sign and attest the same (Print or Typewrite Name.)

~~sign, seal and, as~~ and ~~act and deed~~ deliver the within written easement; and that she with John H. Craemer and witnessed the execution ~~thereof~~.

and delivery thereof as the act and deed of said Giant Portland Cement Company.

Sworn to before me this 27th day of May A. D., 1959

Margaret M. Murray (L. S.)
Notary Public for S. C.
Notary Public, Philadelphia, Philadelphia Co.
My Commission Expires February 2, 1961

Julia A. Beck
Witness sign here.

Recorded 6-5-59

The State of South Carolina

COUNTY OF ______________________

I, ______________________________ Notary Public for S. C.

do hereby certify unto whom it may concern, that Mrs. ______________________________

the wife of the within named ______________________________, did this day appear before me, and upon being privately and separately examined by me, did declare that she does, freely, voluntarily, and without any compulsion, dread or fear of any person or persons whomsoever, renounce, release, and forever relinquish unto the within named South Carolina State Highway Department, its successors and assigns, all her interest and estate, and also her right and claim of dower of, in and to, all and singular, the premises within mentioned and released.

Given under my hand and seal, this ____________ day of ______________________

Anno Domini, 19____.

____
Signature of Wife.

Sworn to before me this ____________ day of ______________________ A. D., 19____.

______________________________ (L. S.)
Notary Public for S. C.

The State of South Carolina

COUNTY OF ______________________

MORTGAGE RELEASE

KNOW ALL MEN BY THESE PRESENTS, That I (or we) ______________________________ do for certain valuable consideration release from the lien and operation of my (or our) mortgage the right-of-way conveyed by the within easement so that the said right-of-way shall be free and unaffected by said mortgage.

Witness our hand and seal this ____________ day of ______________________, 19____.

In the presence of:

____

______________________________ ______________________________

"SPECIAL PROVISIONS" - Continued:
being variable in widths, to construct an underpass and connections as shown on plan sheet 148, and (3) 25' in width, and extending outward 350', to construct and maintain an outfall ditch on the left of approximate station 3604+00. - Of the above consideration, $11,226.00 is for land and $167.50 is for special damages. - The right of way herein conveyed contains approximately 43.2 acres, and is the right of way more particularly shown on plan sheets number 36, 37, 38, 39, 148, and 225 of plans for Docket 18.312.

It is understood and agreed that the owners will not cut, or allow to be cut, the trees within 25' of each side of centerline. Other trees within the right of way may be cleared by the owners; but the Highway Department reserves the right, to avoid delay to the contractor, to clear construction area, cutting trees into merchantable lengths and stack them adjacent to the right of way for use of owners. This easement is executed upon condition that an underpass consisting of two concrete structures with openings 14'x14' and having lengths of approximately 50 feet each is to be constructed under Route I-26 to provide access to property of owner severed from the tract on which the plant of owner is located.

RESOLUTION

WHEREAS, This easement contains certain special provisions which are subject to rejection by the State Highway Department, and

WHEREAS, It is recommended to this Board that the special provisions be investigated and approved, therefore

BE IT RESOLVED by this Board of Condemnation that after its investigation it is satisfied that the easement with the special provisions should be accepted by the State Highway Department and the easement is approved for acceptance by the State Highway Department this 2nd day of June, 19 59.

____

____

____
Members of Board of Condemnation.

Design Data

South Carolina
Department of Transportation

FEASIBILITY REPORT: I-26 WIDENING FROM MM 169-187
NOTES AND RECOMMENDATIONS FOR ROADWAY ALTERNATIVES ANALYSIS

August 2020

Four mainline widening alternatives were initially considered for this project and are listed below.

- Alternative 1 - Widening eastbound and westbound lanes to the south of existing lanes
- Alternative 2 - Widening eastbound and westbound lanes to the north of existing lanes
- Alternative 3 - Widening both directions to the outside
- Alternative 4 - Widening both directions to the inside (into the median).

These alternatives were reviewed based on the information currently available to determine the most reasonable one. The factors below were considered during this review to determine the most reasonable alternative.

- ROW/Environmental Impacts – Portions of this alignment transverse wetlands, including Four Hole Swamp. Environmental permitting could be problematic. Alternative 3 would have the greatest environmental and ROW impact, and Alternatives 1 and 2 would also have significant but lesser impacts. Alternative 4 would have the least impact.

- Proposed Mainline Structures – The following criteria was used during this analysis to determine that all mainline bridges (4 total) should be replaced with new structures instead of widening the existing structures.

    - Age and design life of existing structures.
    - The inability for these structures to meet current design standards after being widened.
    - Existing bridges have already been widened once.

  The two existing culverts were also considered during this analysis and it was determined that theses structures could be extended. This decision was based on the current culvert condition score, and the understanding that other culverts along I-26 on adjacent projects are being extended.

  Two sets of dual mainline bridges will be replaced with new wider structures, located between the existing bridges, using stage construction. Two current projects were chosen as examples for this analysis to show how these bridges could be replaced by this method. The I-26 dual bridges over Cypress Swamp are currently being designed to be

replaced with a single wider bridge. This bridge replacement is located just to the east of the boundaries of this feasibility study and is an example of how the dual bridges over Four Hole Swamp could be replaced. The next example is a bridge replacement project currently in construction on I-20 over the railroad near the intersection of US 378 in Lexington County. This project is an example of how the dual bridges over Southern Railroad could be replaced with a single wider structure in the median using stage construction.

Considering the bridge replacement procedures and examples outlined above, Alternative 4 is most suited for replacing the mainline bridges. Alternatives 1 through 3 would likely require two new separate bridges at both locations.

All four alternatives will equally require culvert extensions.

- Existing Median Width – The existing median is wide enough to accommodate Alternative 4, but would require cable barrier on the majority of the project, and about 0.8 miles of barrier wall and closed drainage, in the vicinity of the SC 453 interchange (Exit 177) and the adjacent mainline bridges over Southern Railroad (approx. MP 177.2). Barrier wall and closed drainage would also be required for Alternatives 1 and 2, primarily expanding upon each end of what's needed for Alternative 4 until the median widens sufficiently to continue with cable barrier. Alternative 3 would require the least amount of cable barrier, barrier wall, and closed drainage.

- Existing Overpasses – The following criteria was used during this analysis to determine that the majority of all the overpasses will need to be replaced or jacked.

    - Replace Overpass if the deck, super, or sub condition rating is 4 or less.
    - Replace Overpass if minimum horizontal clearance between columns is less than 52 feet. (52 feet is required between the exiting columns to accommodate an additional lane in each direction. This clearance is from barrier to barrier and consists of three 12-foot lanes, 12-foot outside shoulder, and 4-foot inside shoulder.)
    - Jack existing bridge if minimum vertical clearance is less than 16 ft. 8 in.

  The overall condition ratings of the overpasses were satisfactory, based upon recent inspection data. However, only 1 of the 8 overpasses met the minimum horizontal clearance requirement of 52 feet. The US 15 overpass does have enough horizontal clearance for an additional lane in each direct. However, this is only achieved after the loops have been removed from this interchange per the recommendation provided in the

Traffic Engineering Design Review Memo. The US 15 Overpass will still require jacking to meet the minimum horizontal clearance of 16 ft. 8 in.

The S-28 (Beidler Forest Road) Overpass was the only overpass that met the minimum vertical clearance of 16 ft. 8 in. The remaining 7 overpasses would require jacking if not replaced.

All four alternatives could be accommodated with the replacement of the overpass bridges. However, alternative 4 would be most suited for minimizing the lengths of the overpass bridges.

It should be noted that the majority of these overpasses were very close to meeting the minimum requirements for both horizontal and vertical clearance. A more detailed evaluation should be conducted during design to confirm the replacement of these overpasses.

Summary and Conclusion

Based on the factors described above, alternative 4 is the most reasonable alternative. This alternative will minimize environmental impacts and greatly reduce ROW requirements, while also supporting the mainline bridges being replaced with a single wider bridge in the median. Alternative 4 would also be the preferred alternative for efficiently replacing the overpass bridges. The amount of cable barrier, barrier wall and closed drainage that alternative 4 will require, is minimal when compared to the reduction in Environmental and ROW impacts.

South Carolina
Department of Transportation

MEMORANDUM

TO: Betsy McCall, Feasibility Report Manager

FROM: Jeremiah R. Harmon, Design Manager, RPG 1 – Lowcountry

DATE: October 8, 2020

RE: Feasibility Study - I-26 Widening, MM 169-187
Mainline Alternatives Analysis

Region Production Group (RPG) 1 was tasked with completing an alternatives analysis for planning purposes, for the I-26 Widening Project from mile marker 169 to 187. Initially several mainline alternatives were considered, but after a planning level review, it was determined that only one valid alternative exists. RPG-1's recommendation to the Project Development Team, is that the only valid alternative for this project is to widening both east bound and west bound lanes to the inside. The factors below contributed to this planning level conclusion.

Environmental Impacts – Portions of this alignment transverse wetlands, including Four Hole Swamp. Environmental permitting could be problematic in these areas. Widening both lanes to the inside is the most effective way to reduce environmental impacts.

Median Width – The existing median is wide enough to accommodate widening both directions to the inside. This will require cable barrier on the majority of the project and approximately one mile of barrier wall and closed drainage, in the vicinity of the SC 453 interchange (Exit 177) and adjacent mainline bridges over Southern Railroad (approx. MP 177.2). This is the only location along the project corridor where the median width decreases from 90 feet to 36 feet. Attached following this memo are typical cross-sections for cable barrier, barrier wall, and transitioning between the two.

Current Projects – Currently there are two widening projects on I-26 near this proposed widening. These projects are the Jedburg Interchange Improvements which includes the widening of I-26 from MM 193 to MM 197, and the SC 27 Interchange Improvements which includes the widening of I-26 from MM 187 to MM 193. The Jedburg Interchange Improvements Project is currently being constructed and includes widening I-26 to the inside using the median. The SC 27 Interchange Improvements Project is entering into the final design phase and currently has the widening of I-26 taking place in the median as well. The proposed I-26 Widening from MM 169 to MM 187 will tie into the widening being completed during the SC 27 Interchange Improvements Project.

Replacement of Overpasses – Currently all of the overpasses within this proposed widening will need to be replaced due to insufficient vertical and/or horizontal clearance. Horizontal clearance is generally limited underneath these overpasses by the interior bent locations along the shoulder and median, which

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Columbia, South Carolina 29202-0191

Phone: (803) 737-2314
TTY: (803) 737-3870

do not allow enough room for an additional lane and shoulder. Vertical clearance is inadequate due to additional pavement overlays over the years, and/or revisions in vertical clearance requirements for interstate overpasses. The replacement of these overpasses will include raising the bridges to maintain adequate vertical clearance, and repositioning the interior bent locations so that there is enough horizontal clearance to support the additional lane in each direction.

The US 15 overpass can achieve adequate horizontal clearance if the loops are removed from this interchange per the recommendation provided in the Traffic Engineering Design Review Memo. The US 15 overpass will still require jacking to meet the minimum vertical clearance.

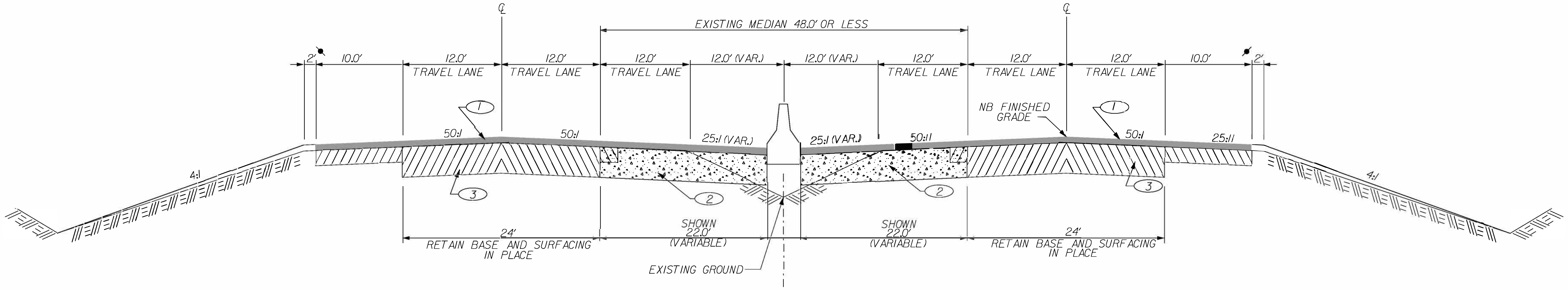
There is less horizontal clearance beneath the SC 453 overpass compared to the other overpasses within the boundaries of this project. Additional risk may be associated with the replacement of this overpass due to additional changes in bridge layout, geometry, and abutment type to increase horizontal clearance. In addition, this overpass and interstate alignment beneath, will likely be effected by the mainline bridge replacements over Southern Railroad, which are located less than 1,000 feet way.

Attached following this report are plan and profile sheets from the existing plans for the S 28 Bridge over I-26 and the SC 453 Bridge over I-26. The S 28 plan and profile represents the majority of the overpasses within the boundaries of this project. The SC 453 plan and profile is included to provide a visual of the limits of the horizontal clearance as described above. Alternatives for additional lanes and shoulders are illustrated on both.

It should be noted that many of these overpasses were very close to meeting the minimum requirements for both horizontal and vertical clearance. A more detailed evaluation should be conducted during design to confirm the replacement of these overpasses. Bridge jacking may be an alternative to replacement for overpasses only lacking vertical clearance. For this analysis minimum vertical clearance was set at 16 ft. 8 in., and minimum horizontal clearance was set at 52 ft. (three 12-foot lanes, one 12-foot outside shoulder, and one 4-foot inside shoulder).

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	DORCHESTER		I-26	

TYPICAL SECTION OF IMPROVEMENT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.



USE THIS SECTION FOR I-26
APPROXIMATE MILE MARKERS
176.5 TO 177.5

ADD 3.75' WHERE GUARDRAIL IS TO BE UTILIZED

⊗ *NOTE:*
THIS SLOPE MAY BE VARIED WHEN A DEEPER DITCH IS NECESSARY FOR DRAINAGE PURPOSES,USING A MINIMUM SLOPE OF 12:1 AND A MAXIMUM SLOPE OF 4:1. WHERE A DEEPER DITCH THAN PROVIDED BY A 4:1 IS NECESSARY,THE DITCH SHALL BE PLACED FARTHER FROM THE ℄ CONTINUING THE 4:1 SLOPE TO PROVIDE FOR THE NECESSARY DEPTH. SEE PROFILE FOR THE SPECIAL DITCH GRADES.

LEGEND

1. *NEW PAVEMENT (BUILD-UP/OVERLAY)*
2. *NEW PAVEMENT (FULL DEPTH)*
3. *RETAIN EXISTING PAVEMENT IN PLACE*

RTE.	DESIGN SPEED	
MPH	FROM STA.	TO STA.
70		
EXCEPTIONS TO DESIGN SPEED		

PAVEMENT DESIGN

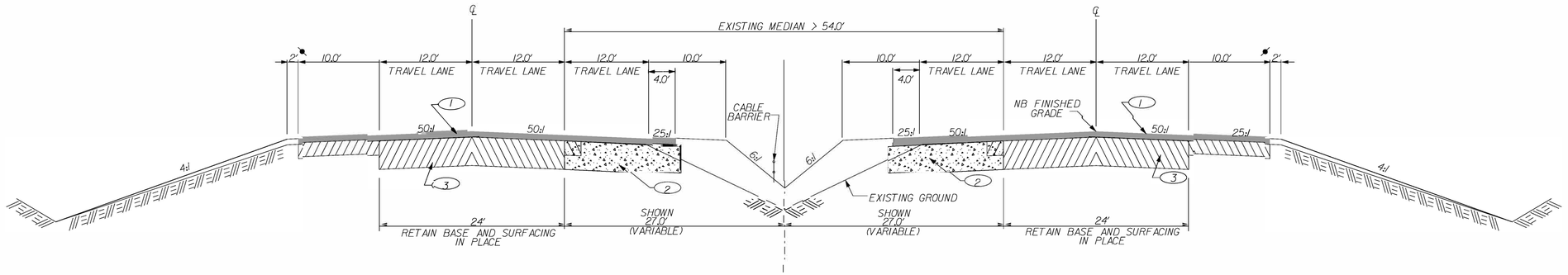
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROAD DESIGN COLUMBIA, S.C.

TYPICAL SECTION

SCALE 1"V= NTS SCALE 1"H= NTS RTE./RD. I-95

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO	SHEET NO
3	S.C.	DORCHESTER		I-26	

TYPICAL SECTION OF IMPROVEMENT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.



USE THIS SECTION I-26
APPROXIMATE MILE MARKERS
169.0 TO 176.5 & 177.5 TO 187.0

*ADD 3.75' WHERE GUARDRAIL IS TO BE UTILIZED

⊗
NOTE:
THIS SLOPE MAY BE VARIED WHEN A DEEPER DITCH IS NECESSARY FOR DRAINAGE PURPOSES.USING A MINIMUM SLOPE OF 12:1 AND A MAXIMUM SLOPE OF 4:1. WHERE A DEEPER DITCH THAN PROVIDED BY A 4:1 IS NECESSARY.THE DITCH SHALL BE PLACED FARTHER FROM THE ℄ CONTINUING THE 4:1 SLOPE TO PROVIDE FOR THE NECESSARY DEPTH. SEE PROFILE FOR THE SPECIAL DITCH GRADES.

$$user$$
$$$$$path$$$$$$$filename$$$$$$$$
$$date$$$$

LEGEND

①	●	NEW PAVEMENT (BUILD-UP/OVERLAY)
②	▩	NEW PAVEMENT (FULL DEPTH)
③	▨	RETAIN EXISTING PAVEMENT IN PLACE

RTE.	DESIGN SPEED	
MPH	FROM STA.	TO STA.
70		
EXCEPTIONS TO DESIGN SPEED		

PAVEMENT DESIGN

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROAD DESIGN COLUMBIA, S.C.

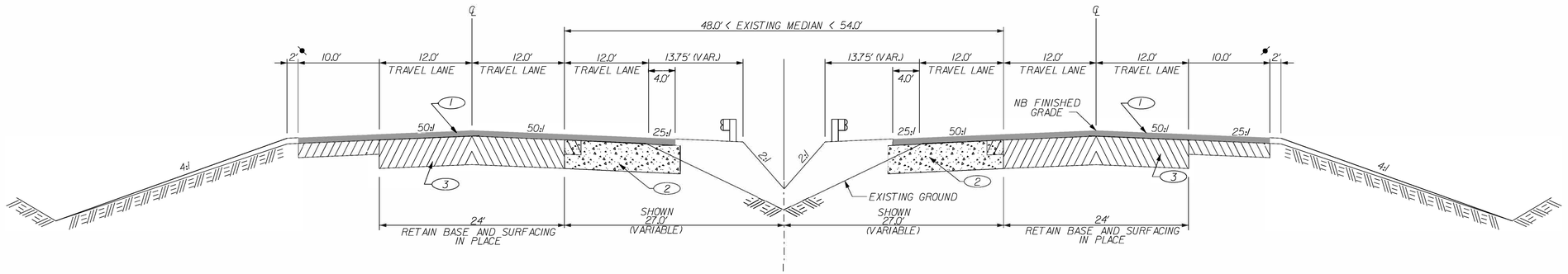
TYPICAL SECTION

SCALE 1"V= NTS SCALE 1"H= NTS RTE./RD. I-95

sctypl.dgn

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	S.C.	DORCHESTER		I-26	

TYPICAL SECTION OF IMPROVEMENT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
COLUMBIA, S.C.



LEGEND

1 — NEW PAVEMENT (BUILD-UP/OVERLAY)

2 — NEW PAVEMENT (FULL DEPTH)

3 — RETAIN EXISTING PAVEMENT IN PLACE

✓ ADD 3.75' WHERE GUARDRAIL IS TO BE UTILIZED

⊗ NOTE:
THIS SLOPE MAY BE VARIED WHEN A DEEPER DITCH IS NECESSARY FOR DRAINAGE PURPOSES, USING A MINIMUM SLOPE OF 12:1 AND A MAXIMUM SLOPE OF 4:1. WHERE A DEEPER DITCH THAN PROVIDED BY A 4:1 IS NECESSARY, THE DITCH SHALL BE PLACED FARTHER FROM THE ℄ CONTINUING THE 4:1 SLOPE TO PROVIDE FOR THE NECESSARY DEPTH. SEE PROFILE FOR THE SPECIAL DITCH GRADES.

RTE.	DESIGN SPEED	
MPH	FROM STA.	TO STA.
70		
EXCEPTIONS TO DESIGN SPEED		

PAVEMENT DESIGN

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN COLUMBIA, S.C.

TYPICAL SECTION

SCALE 1"V= NTS SCALE 1"H= NTS RTE./RD. I-95

$$user$$ $$$$paths$$$$$$filename$$$$$$
$$$$$$date$$$$

sctypl.dgn

S-18-28 (Beidler Forest Rd) (formerly identified as Road 51) over I-26

Asset ID 3260

Fed. Road Div. No.	State	County	Docket No.	Route No.	Sheet No.	Total Sheets
3	So Car	Dorchester	18315.4	I-26	10 11	15 22

57'-0"
12'-0" 24'-0" Roadway 10'-0" 12'-0" 23'-0"
23'-0" 12'-0" 10'-0" 24'-0" Roadway 12'-0"
Tangent to Curve
1½" 26'-0" Roadway 1'-6" Safety Curb
4'-3"
8°41'
81°19'
Drain Spacing
Tie Equality
Sta 283+44.0, Road 51
Sta 4049+23.1, Interstate Route 26
To Road 2.8
℄ Roadway Road 51
Exp. Joints
S 38° 15' W
To Route 178
111.0' Min. Clear.
16.3' Min. Clearance
To Columbia ℄ Northbound Lane
℄ Survey Interstate Route 26 Skewing
To Charleston ℄ Southbound Lane
24" R.C. Pipe x 144'-0"
24" R.C. Pipe x 136'-0"
Median C/L
C/L
B.M. #2 - Nail in base 6" Pine 175' Rt. Sta. 284+86 (Road 51) = Elev. 99.32
B.M. #355 - Nail in Base 6" Pine 155' Rt. Sta. 4048+05 (I-26) Elev. = 99.32

50'-0" c. to c. Bents
45°-3½"
8½"
55'-0"
205'-0" c. to c.
35'-0"
Widen to the outside
Widen to the inside
12' shoulder
12' lane
Existing 12' lane
Existing 12' lane
12' lane
10' shoulder
+3.50%
-5.00%
P.I. Sta. 283+50
Elev. 128.85
500' V. Curve
Finished Grade
Existing Ground
Creo. Timber Piles
2:1 Slope Stem
24" R.C. Pipe
Note: Widening to the outside was not considered a valid alternative.
NOTES
ROAD CONTRACTOR TO EXCAVATE TO THESE LINES BEFORE BRIDGE WORK IS BEGUN.
Note: The finish Grade Elevation raised 0.30 ft. 1 foot, to increase vertical clearance under bridge. See letter from State Highway Engineering Permit Engineer District No. 6 dated February 8, 1960)
SECTION ON ℄
282+00 282+50 283+00 283+50 284+00 284+50 285+00
130 120 110 100 90

NOTE
CONSTRUCT CONCRETE SLOPE PAVE DRAINS AND FLARED CURB AND GUTTER ON BOTH SIDES OF ROADWAY AT EACH END OF BRIDGE.
ALL EXCAVATION SHALL BE CLASSIFIED AS WET AND DRY REGARDLESS OF ELEVATION OF WATER.
THE RIGHT IS RESERVED TO ADD TREATED TIMBER FOUNDATION PILES TO THE INTERIOR BENTS 2-5 IF DEEMED ADVISABLE BY THE ENGINEER.
THE COST OF CLEARING AND GROUBING IN UNIMPROVED SECTIONS OF MEDIAN WITHIN 75' OF ℄ OF BRIDGE ROWAY, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CLASS "A" CONCRETE

S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.

PLAN & PROFILE
FOR UNDERPASS UNDER
ROAD 51

DOCKET NO.	COUNTY	ROUTE NO.	DATE
18.315.4	DORCHESTER	I-26	2 59

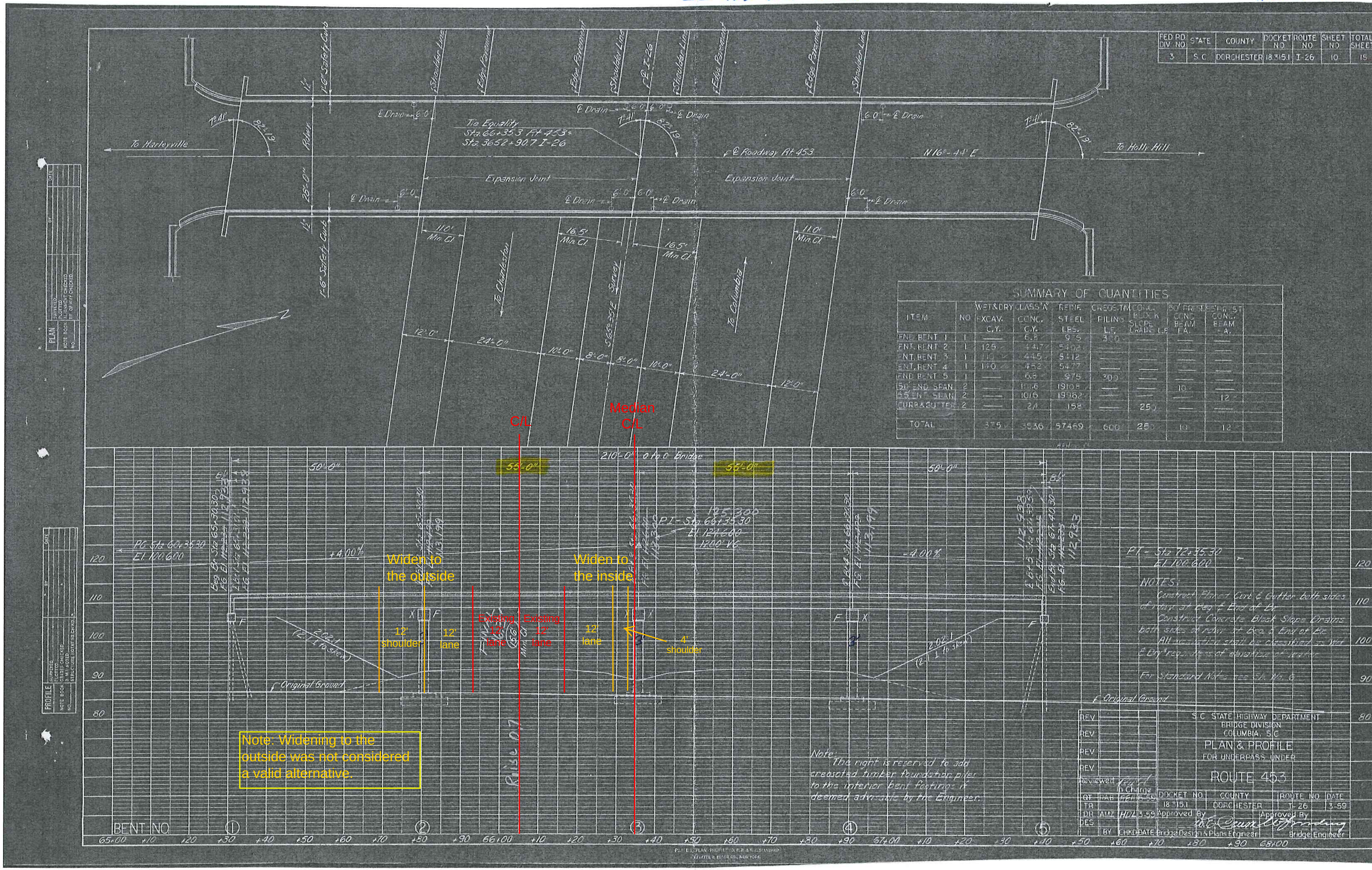
APPROVED BY
BRIDGE DESIGN & PLANS ENGR
APPROVED BY
BRIDGE ENGINEER

REVIEWED
IN CHARGE
GUAN
TR.
DR. WAE 11.2.59
DES.
BY CK'D DATE

PLATE 1 PLAN-PROFILE G.P.R. & P.E. STANDARD
KRIPPEL & DESICH CO. NEW YORK

SC 453 over I-26

Asset ID 3257



FED. RD. DIV. NO. 3 | STATE S.C. | COUNTY DORCHESTER | DOCKET NO. 18.3151 | ROUTE NO. I-26 | SHEET NO. 10 | TOTAL SHEETS 15
To Harleyville
To Holly Hill
To Charleston
To Columbia
Tie Equality
Sta. 66+35.3 Rt 453 = Sta. 3652+90.7 I-26
℄ Roadway Rt 453
N 16°-44' E
Expansion Joint
℄ Drain
Shoulder Line
Edge Pavement
℄ I-26
1'-6" Safety Curb
28'-0" Rdwy.
11.0' Min. Cl.
16.5' Min. Cl.
12'-0"
24'-0"
10'-0"
8'-0"
℄ Survey
210'-0" C. to C. Bridge
50'-0"
55'-0"
C/L
Median C/L
Widen to the outside
Widen to the inside
12' shoulder
12' lane
Existing 12' lane
4' shoulder
PC Sta. 60+35.30 El. 100.600
PI - Sta. 66+35.30 El. 124.600 1200' VC
PT - Sta. 72+35.30 El. 100.600
+4.00%
-4.00%
(2:1 to Skew)
Original Ground
Note: Widening to the outside was not considered a valid alternative.
BENT NO. 1 2 3 4 5
NOTES:
Construct Flared Curb & Gutter both sides of r/way at Beg. & End of Br.
Construct Concrete Block Slope Drains both sides of r/way at Beg. & End of Br.
All excavation shall be classified as Wet & Dry regardless of elevation of water.
For Standard Notes see Sh. No. 6
Note:
The right is reserved to add creosoted timber foundation piles to the interior bent footings if deemed advisable by the Engineer.
S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.
PLAN & PROFILE
FOR UNDERPASS UNDER
ROUTE 453
DOCKET NO. 18.3151
COUNTY DORCHESTER
ROUTE NO. I-26
DATE 3-59
Approved By
Bridge Design & Plans Engineer
Bridge Engineer

SUMMARY OF QUANTITIES

ITEM	NO	WET & DRY EXCAV. C.Y.	CLASS "A" CONC. C.Y.	REINF. STEEL LBS.	CREOS. TIM. PILING L.F.	CONC. BLOCK SLOPE DRAIN L.F.	50' PREST. CONC. BEAM EA.	55' PR. ST. CONC. BEAM EA.
END BENT 1	1	—	6.8	975	300	—	—	—
INT. BENT 2	1	125	44.72	5402	—	—	—	—
INT. BENT 3	1	110	44.5	5412	—	—	—	—
INT. BENT 4	1	140	45.2	5477	—	—	—	—
END BENT 5	1	—	6.8	975	300	—	—	—
50' END SPAN	2	—	[illegible]	19108	—	—	10	—
55' INT. SPAN	2	—	1016	19962	—	—	—	12
CURB & GUTTER	2	—	2.4	158	—	250	—	—
TOTAL		375	3536	57469	600	250	10	12

General List of Utilities I-26 MM 169-187

1. Home Telephone
2. Centurylink (formerly Embarq)
3. AT&T
4. Edisto Electric Cooperative, Inc.
5. Town of Harleyville
6. Dorchester County Water & Sewer
7. Lake Marion Regional Water System
8. Time Warner – Murrells Inlet (Spectrum)
9. Dominion Carolina Gas Transmission
10. SCDOT Traffic

GEOCALL V3

Tasks

New

Search

Mapping

Links

m-rwp

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

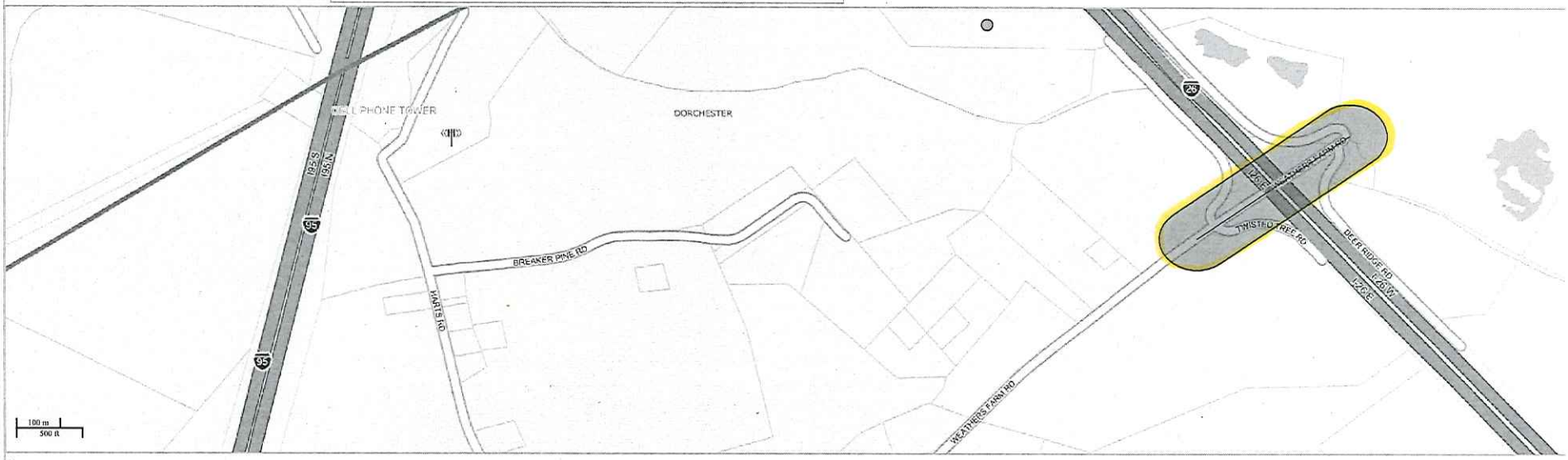
Member

AT&T/D - BSZT29
BSZT29
(843) 536-7203
Phone

Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

South Carolina DOT - SCTD01
SCTD01
(803) 609-9528
Traffic

Refresh | Draw Line



Layers

Lat: 33.30797 Long: -80.54063 part: 0.000 in

Work Area Notice: 72 Compliant Elapsed: 204:48

Weathers Farm Rd. over I-26
Local Road 337
MP 169.86

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

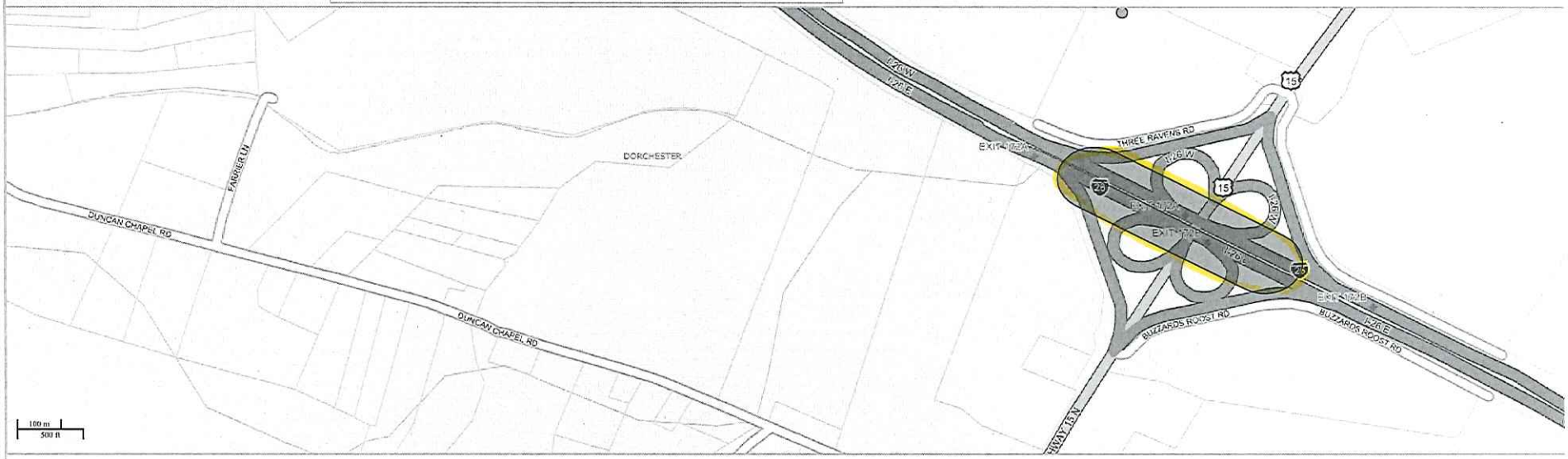
Member

AT&T/D - BSZT29
BSZT29
(843) 536-7203
Phone

Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

South Carolina DOT - SCTD01
SCTD01
(803) 609-9528
Traffic

Refresh | Draw Line



Layers

Lat: 33.29159 Long: -80.51499 part: 0.000 in

m-rwp

Work Area Notice: 72 Compliant Elapsed: 205:53

US 15 interchange

MP 171.51

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

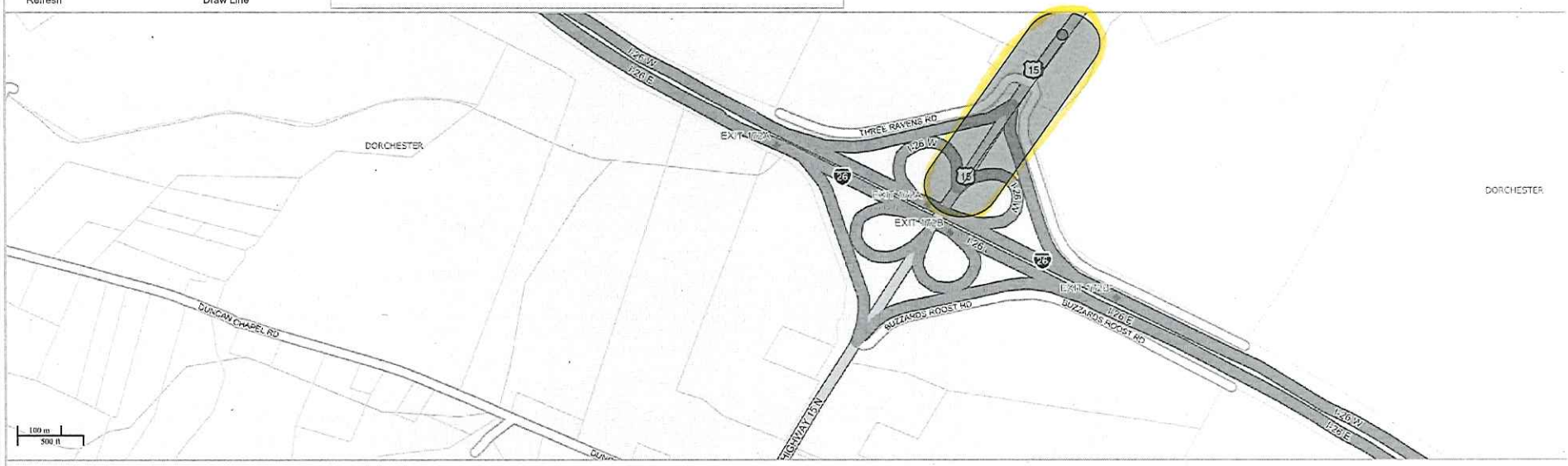
Member

AT&T/D - BSZT29
BSZT29
(843) 536-7203
Phone

Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

South Carolina DOT - SCTD01
SCTD01
(803) 609-9528
Traffic

Refresh | Draw Line



Layers

Lat: 33.29085 Long: -80.51071 part: 0.000 in

m-rwp

Work Area Notice: 72 Compliant Elapsed: 74:29

US 15 north of I-26

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC	DORCHESTER — Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

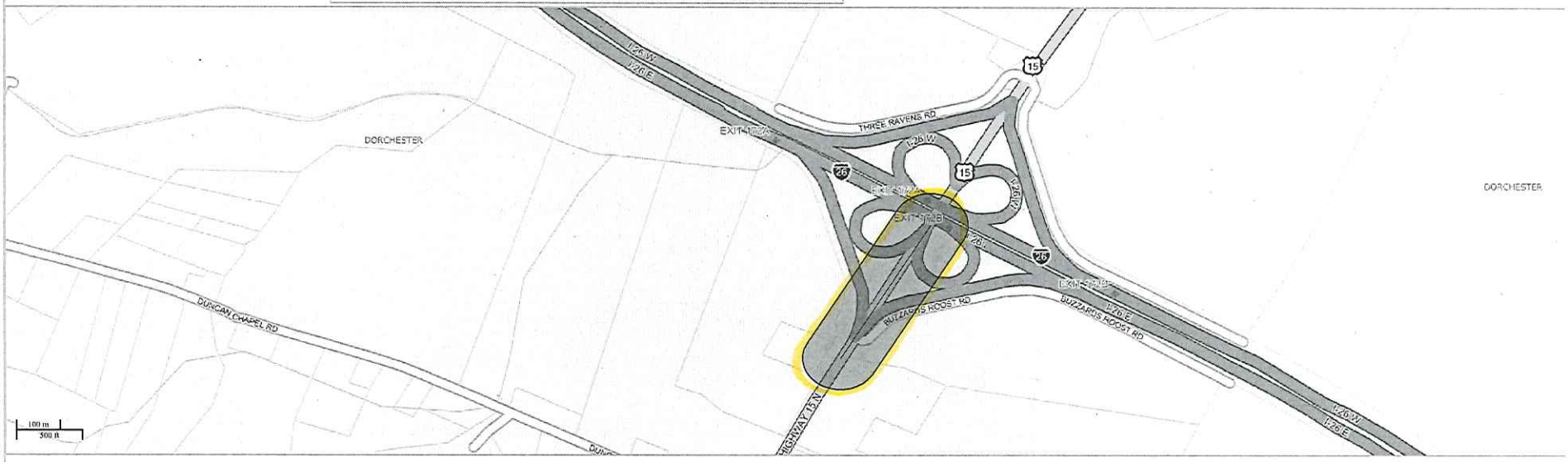
Member

AT&T/D - BSZT29
BSZT29
(843) 536-7203
Phone

Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

South Carolina DOT - SCTD01
SCTD01
(803) 609-9528
Traffic

Refresh | Draw Line



Layers

Lat: 33.29133 Long: -80.50589 part: 0.000 in

m-rwp

Work Area Notice: 72 Compliant Elapsed: 75:08

US 15 south of I-26

GEOCALL V3

Tasks

New

Search

Mapping

Links

m-rwp

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC	DORCHESTER — Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

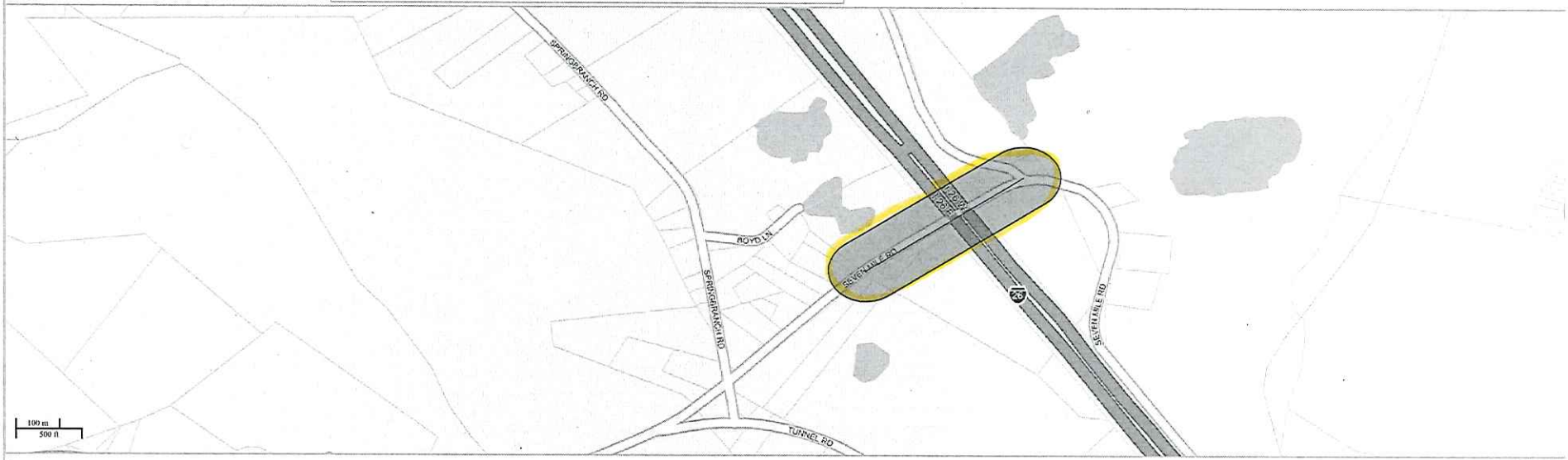
AT&T/D - BSZT29
BSZT29
(843) 536-7203
Phone

Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Edisto Electric Cooperative, Inc.
EEC51
(803) 245-5141
Electric

Home Telephone
HOT21
(843) 761-9113
Telecommunications

Refresh | Draw Line



Layers

Lat: 33.25921 Long: -80.45711 part: 0.000 in

Work Area | Notice: 72 | Compliant | Elapsed: 89:04

7 Mile Rd over I-26

S-18-50

MP 174.77

I-26

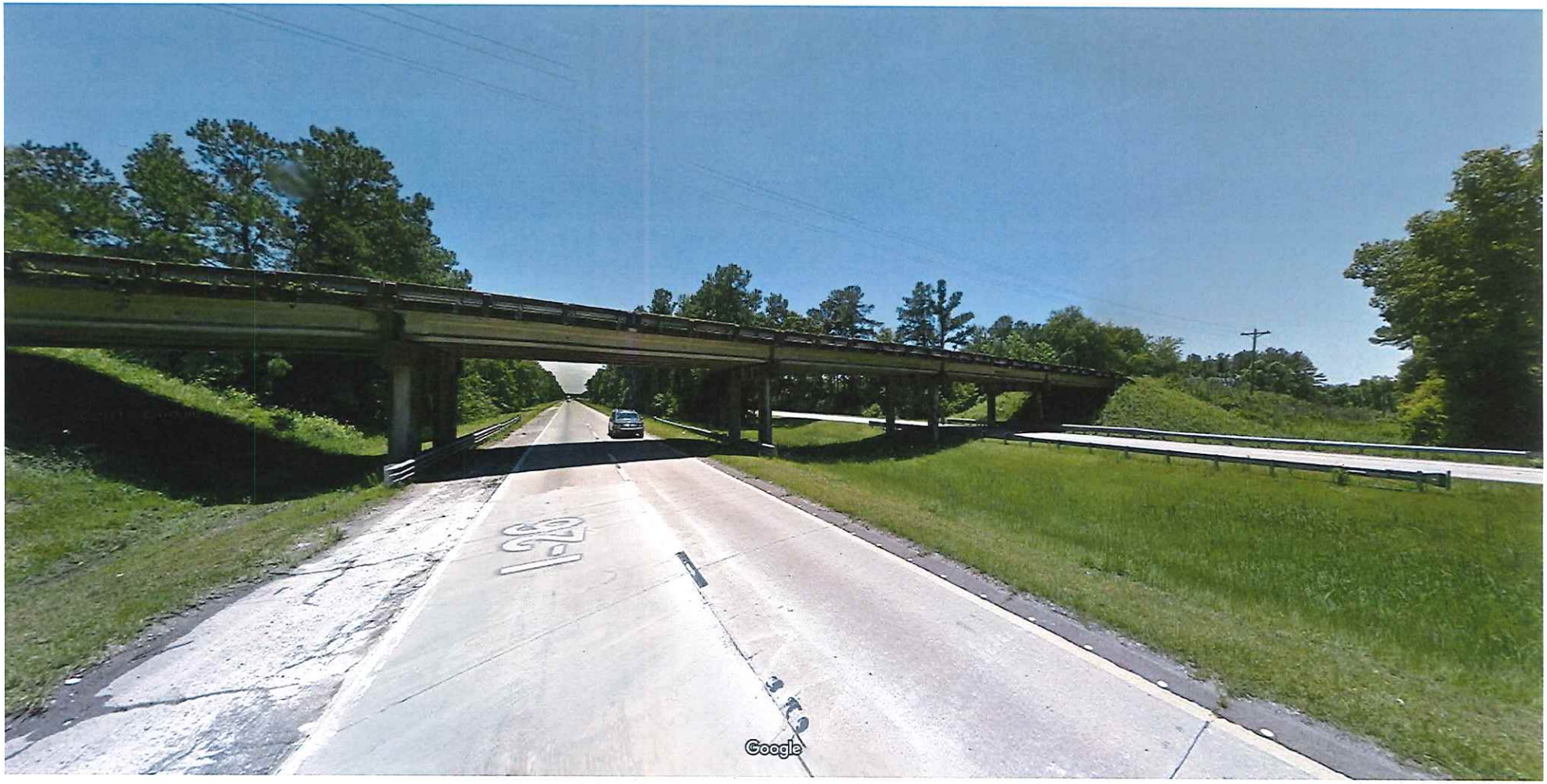


Image capture: Jun 2017 © 2020 Google

Harleyville, South Carolina

Google

Street View

7 Mile Rd.

Overhead lines crossing I-26 at bridge

Google Maps I-26

Image capture: Jun 2017 © 2020 Google

Harleyville, South Carolina
Google
Street View

7 Mile Rd.

Overhead lines crossing I-26 at bridge

GEOCALL V3

Tasks | New | Search | Mapping | Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

Home Telephone
HOT21
(843) 761-9113
Telecommunications

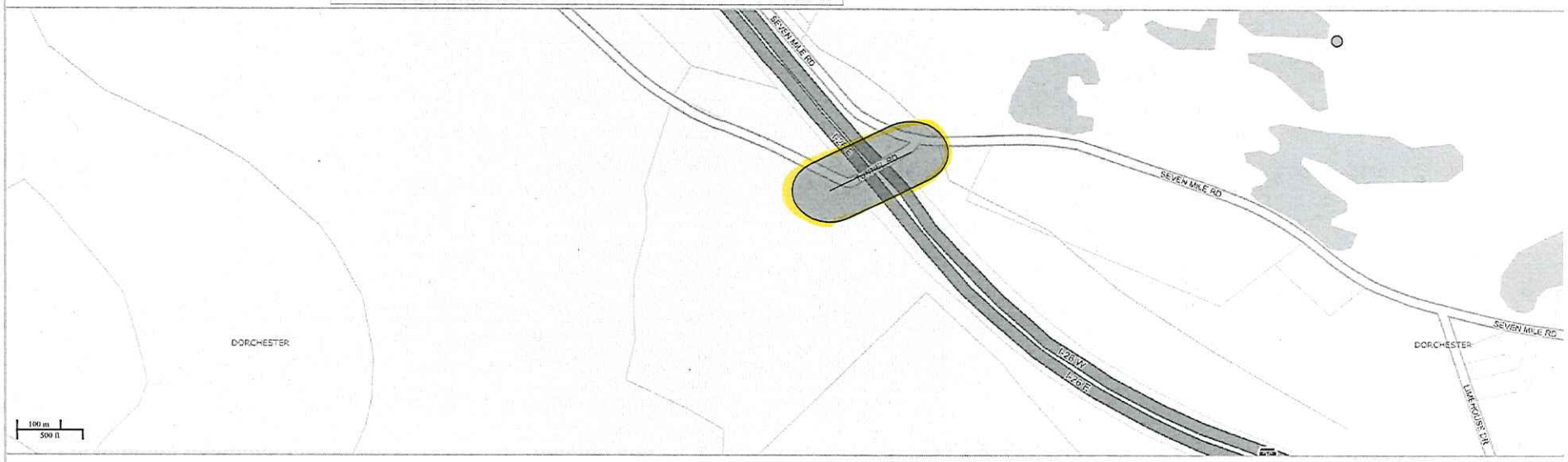
South Carolina DOT - SCTD01
SCTD01
(803) 609-9528
Traffic

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Dorchester County W&S
DWS32
843-832-0085

Refresh | Draw Line



Layers

Lat: 33.24390 Long: -80.45064 part: 0.000

m-rwp

Work Area Notice: 72 Compliant Elapsed: 141:10

Tunnel Rd. underpass
S-18-278
MP 176

GEOCALL V3

Tasks

New

Search

Mapping

Links

m-rwp

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC	DORCHESTER — Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

Dominion Carolina Gas Transmission - CGT60
CGT60
(803) 217-2143
Gas

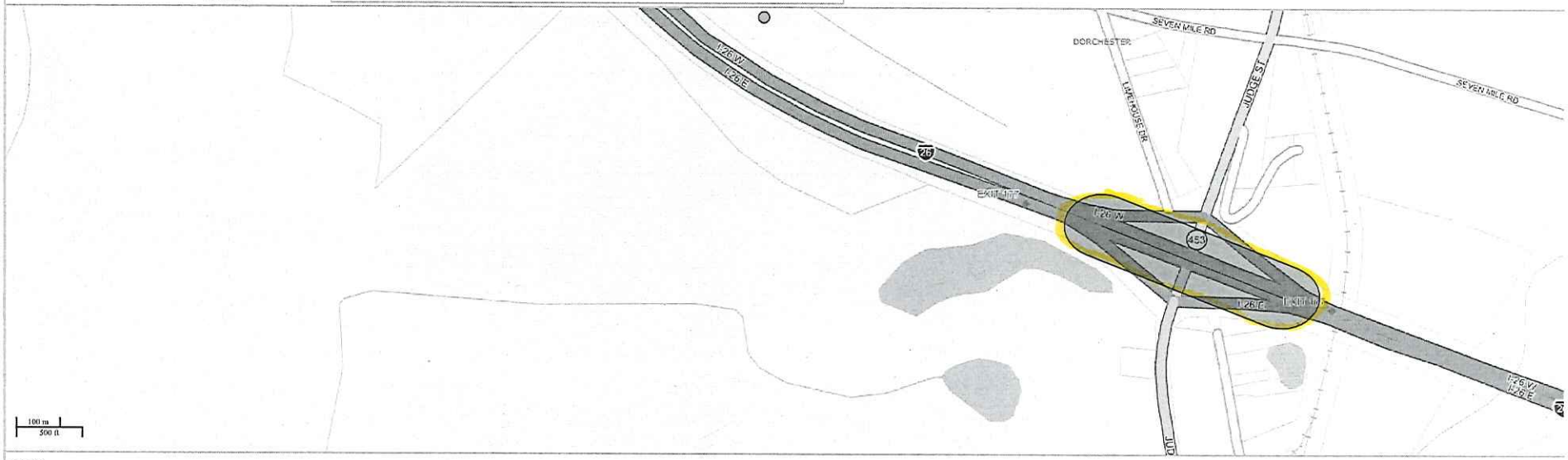
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD01
SCTD01
(803) 609-9528
Traffic

Page 1

Refresh | Draw Line



Layers

Lat: 33.23774 Long: -80.45566 part: 0.000 in

Work Area Notice: 72 Compliant Elapsed: 145:43

SC 453 interchange

MP 177.02

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

Page 2

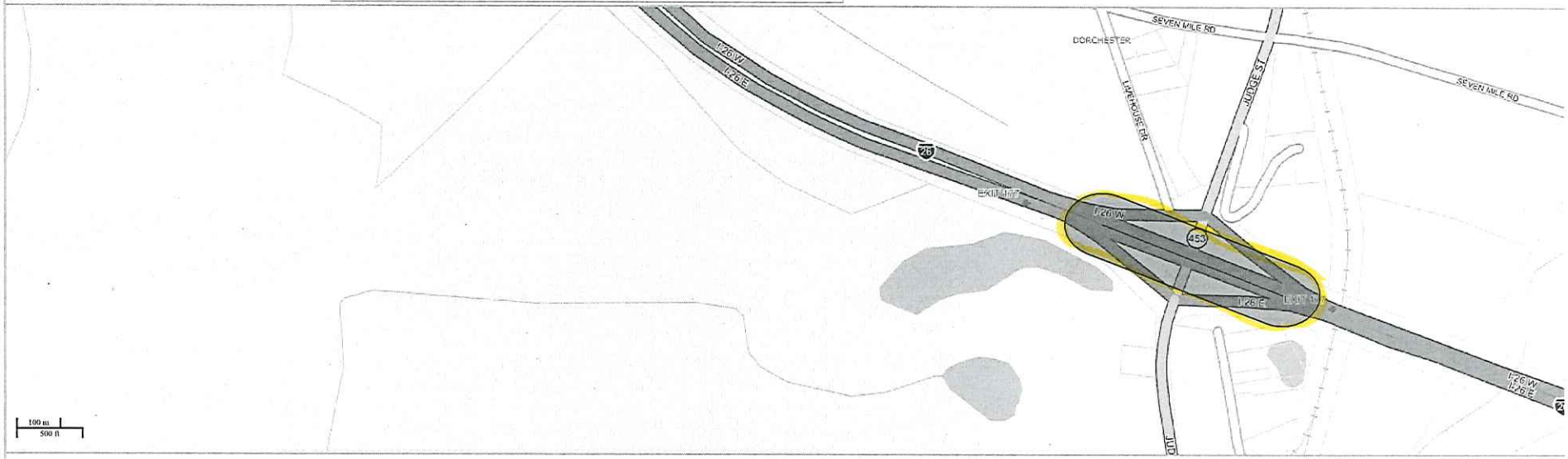
South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Lake Marion Regional Water System - SRLM15
SRLM15
(843) 761-8000
Water

Town of Harleyville
THA26
(843) 560-1837
Sewer, Water

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Refresh | Draw Line



Layers

Lat: 33.23780 Long: -80.43596 part: 0.000 in

m-rwp

Work Area | Notice: 72 | Compliant | Elapsed: 145:59

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly .

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

Dominion Carolina Gas Transmission - CGT60
CGT60
(803) 217-2143
Gas

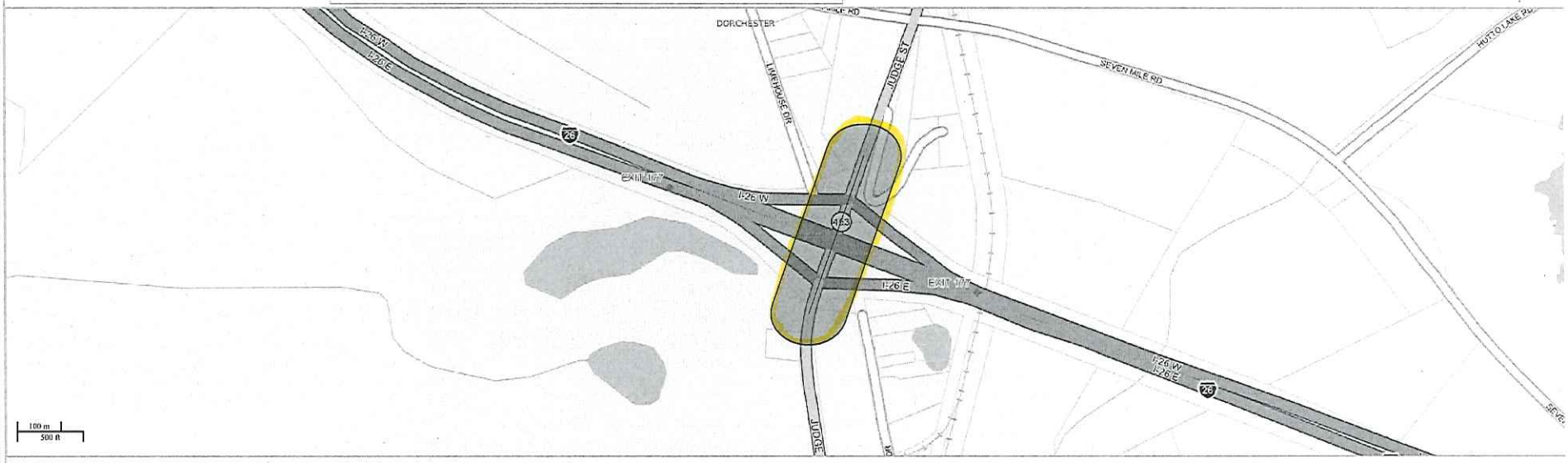
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Centurylink formerly Embarq - EMBZ11
EMBZ11
(843) 607-6931
Fiber

Home Telephone
HOT21
(843) 761-9113
Telecommunications

Page 1

Refresh | Draw Line



Layers

Lat: 33.23750 Long: -80.42982 part: 0.000 in

m-rwp

Work Area Notice: 72 Compliant Elapsed: 161:56

SC 453 over I-26

GEOCALL V3

Tasks

New

Search

Mapping

Links

m-rwp

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

Page 2

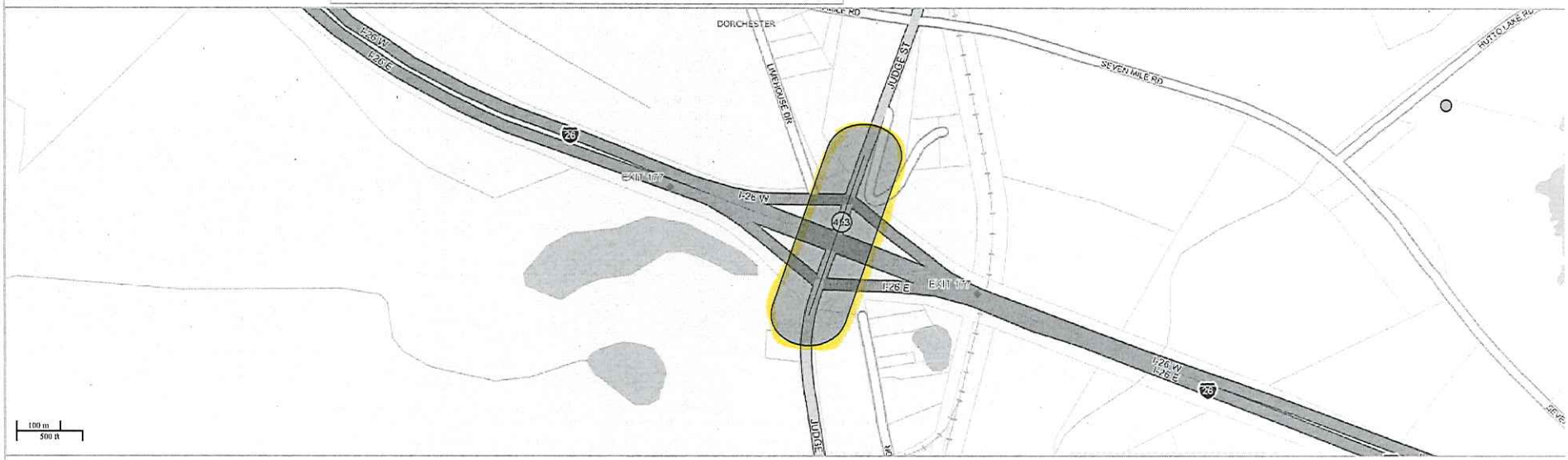
Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Town of Harleyville
THA26
(843) 560-1837
Sewer, Water

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Refresh | Draw Line



Layers

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Work Area Notice: 72 Compliant Elapsed: 162:08

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

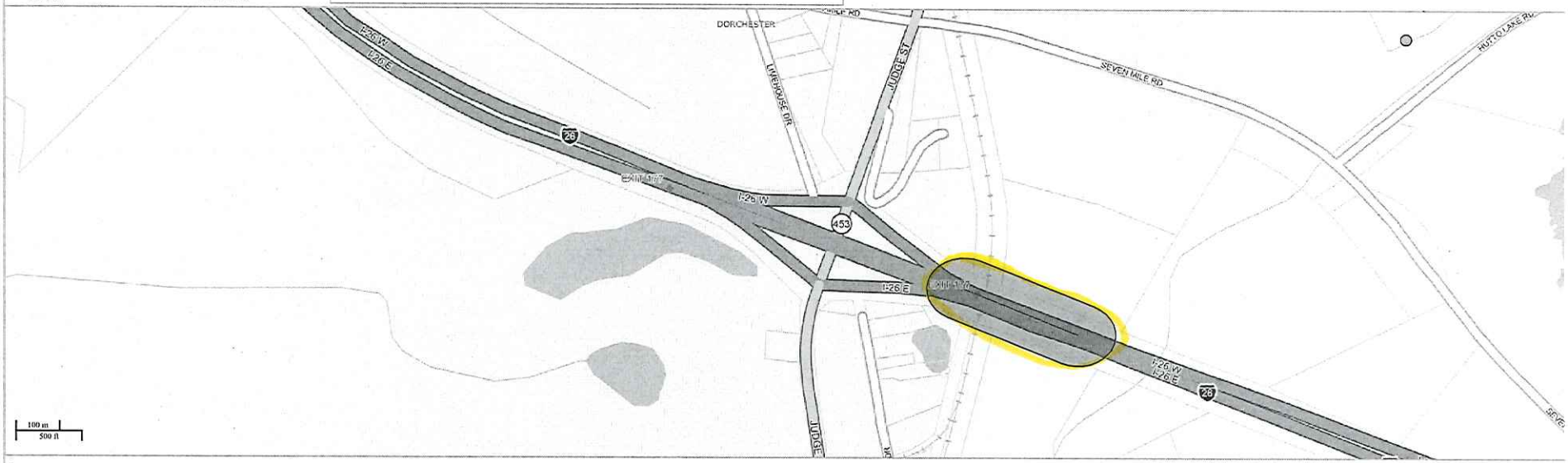
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Lake Marion Regional Water System - SRLM15
SRLM15
(843) 761-8000
Water

Refresh | Draw Line



Layers

Lat: 33.23694 Long: -80.43406 part: 0.000 i

m-rwp

Work Area | Notice: 72 | Compliant | Elapsed: 176:59

I-26 bridges over Southern Railroad

MP 177.2

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

GEOCALL V3

Tasks

New

Search

Mapping

Links

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

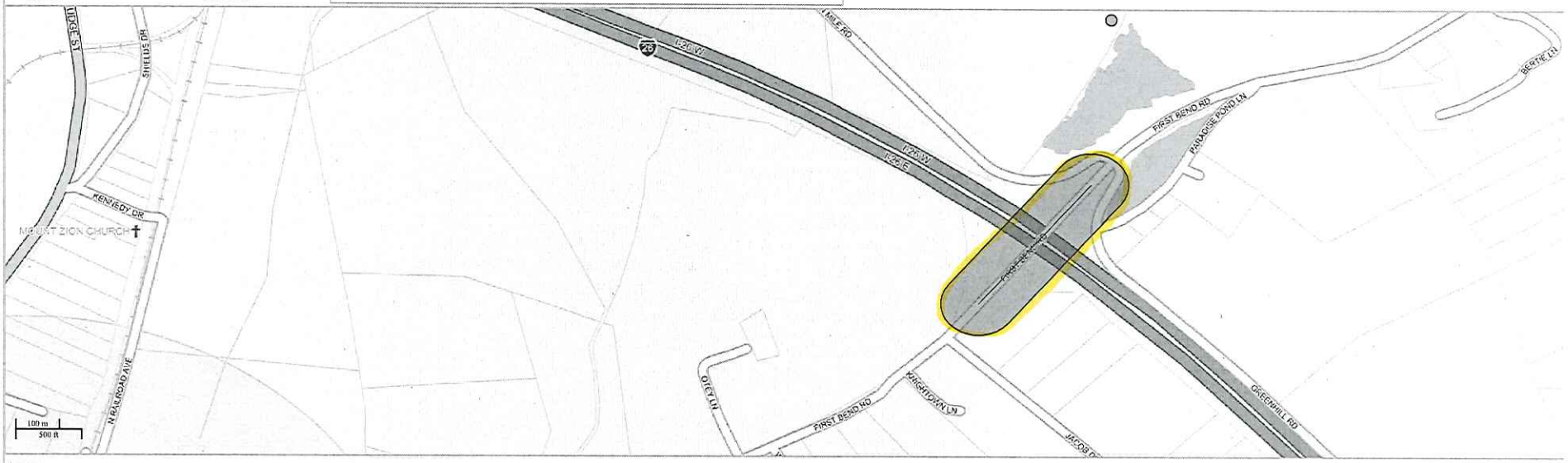
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Refresh | Draw Line



Layers

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m-rwp

Work Area Notice: 72 Compliant Elapsed: 180:33

1st Bend Rd

S-18-28

MP 178.34

GEOCALL V3

Tasks

New

Search

Mapping

Links

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

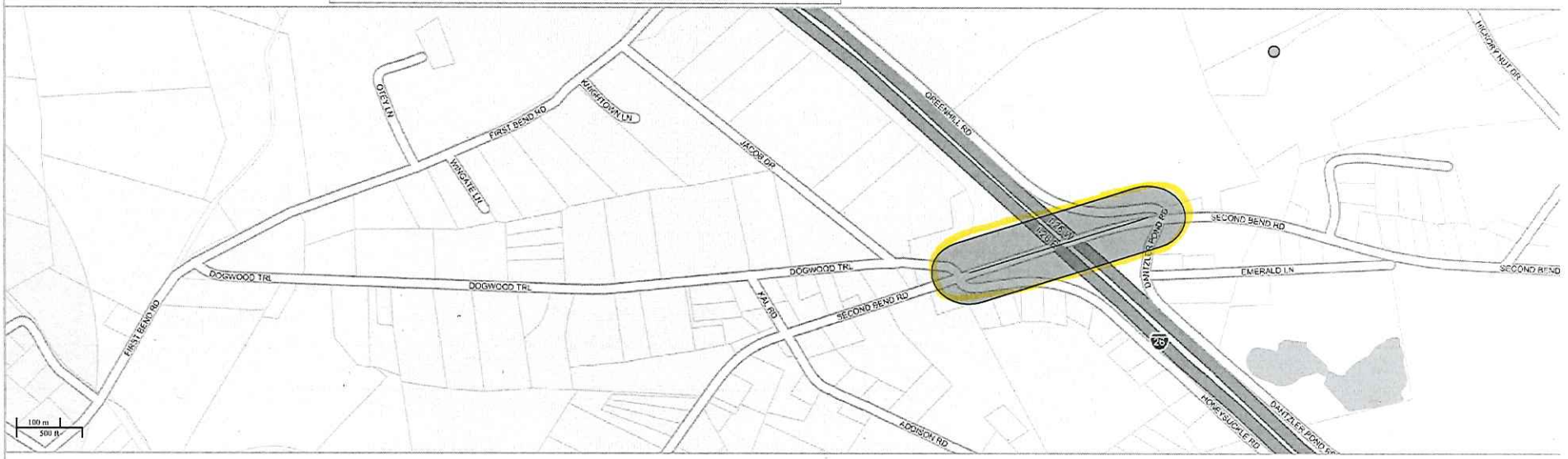
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Refresh | Draw Line



Layers

Lat: 33.22126 Long: -80.41378 part: 0.000 in

m-rwp

Work Area Notice: 72 Compliant Elapsed: 181:33

2nd Bend Rd

S-18-55

MP 178.97

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

GEOCALL V3

Tasks

New

Search

Mapping

Links

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC	DORCHESTER — Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

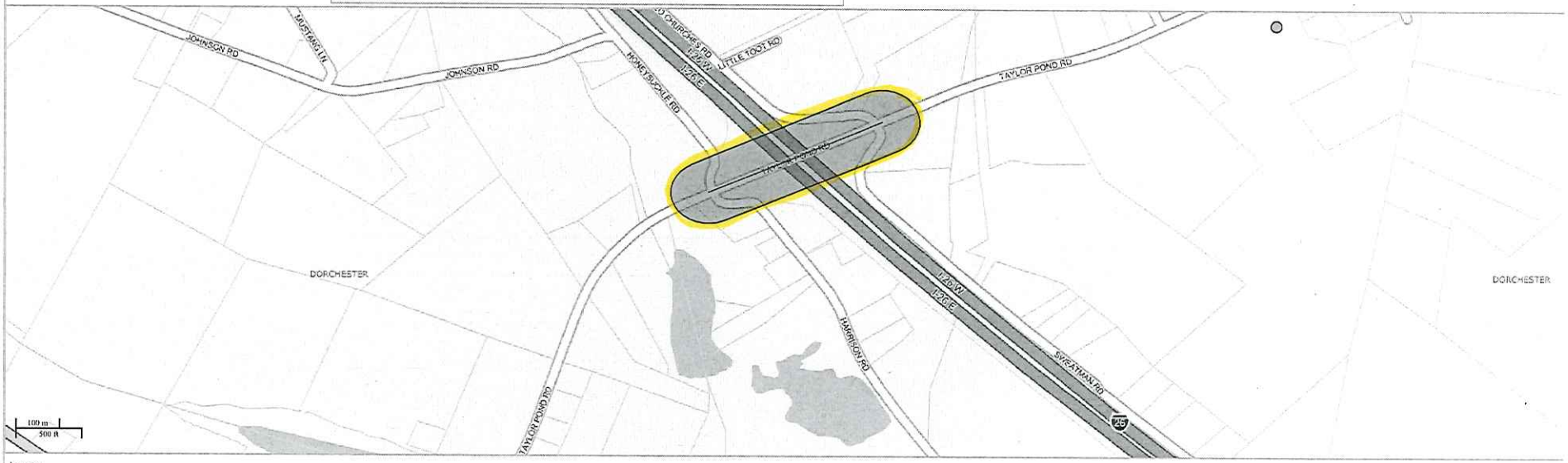
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Refresh | Draw Line



Layers

Lat: 33.19154 Long: -80.37687 part: 0.000 in

m-rwp

Work Area Notice: 72 Compliant Elapsed: 184:02

Taylor Pond Rd

5-18-139

MP 181.63

Google Maps I-26

Image capture: Dec 2018 © 2020 Google

Harleyville, South Carolina

Google

Street View

Taylor Pond Rd

Overhead lines crossing I-26 at bridge

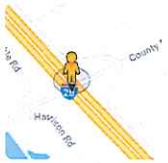
Google Maps I-26

Image capture: Dec 2018 © 2020 Google

Harleyville, South Carolina

Google

Street View



Taylor Pond Rd

Overhead lines crossing I-26 at bridge

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

GEOCALL V3

Tasks

New

Search

Mapping

Links

m-rwp

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC	DORCHESTER — Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

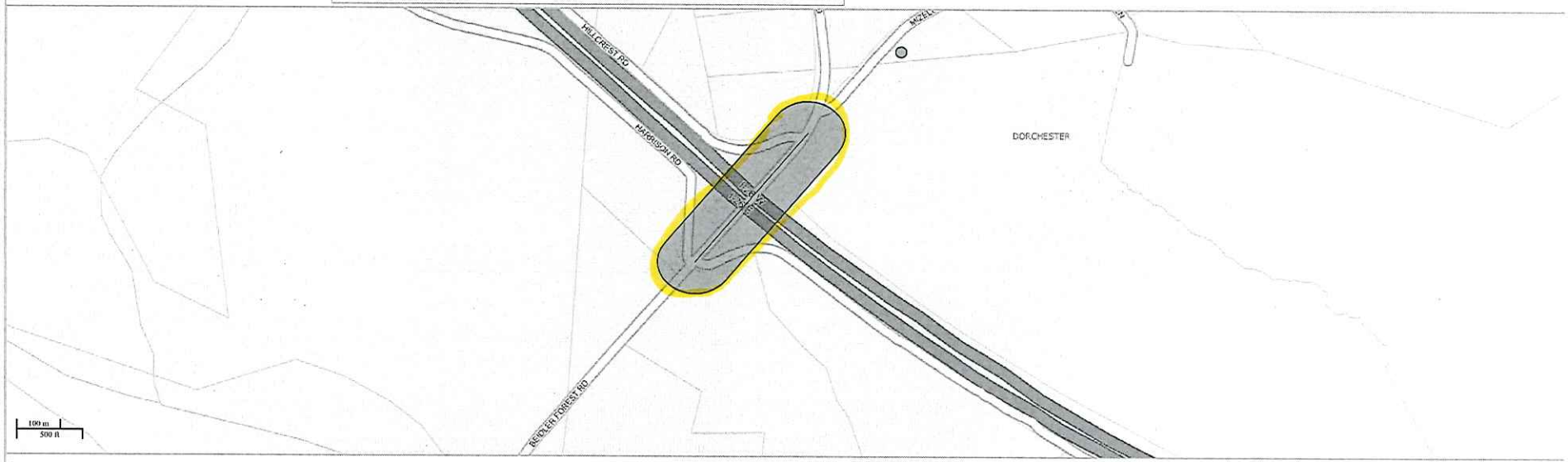
Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Time Warner - Murrells Inlet
TWMIZ88
(843) 536-7203
Cable

Refresh | Draw Line



Layers

Lat: 33.16226 Long: -80.34899 part: 0.000 in

Work Area Notice: 72 Compliant Elapsed: 187:23

Beidlers Forest Rd

S-18-28

MP 184.51

Google Maps I-26

Image capture: Dec 2018 © 2020 Google

South Carolina

Google

Street View

Beidlers Forest Rd

Overhead lines crossing I-26 at bridge

Google Maps I-26

Image capture: Dec 2018 © 2020 Google

South Carolina

Google

Street View

Beidlers Forest Rd

Overhead lines crossing I-26 at bridge.

Welcome | Map Viewer | **Ticket**

Save and Close | Save | Add Member | Remove Work Information | Secondary Action | Replicate | Action | View | Web Maps | Multi-Save | Mapping Anomaly

GEOCALL V3

Tasks

New

Search

Mapping

Links

Work Location

Type/Work:	Normal	DESIGN/ENGINEERING
Work Date & Time:	11/20/2020	11:59 PM
ST/County/City:	SC DORCHESTER	Select a city...
Address:		
Intersection:		
Directions / Instructions:		
Remarks:		
Update/Expires:	12/10/2020 11:59:00 PM	12/15/2020 11:59:00 PM

Member

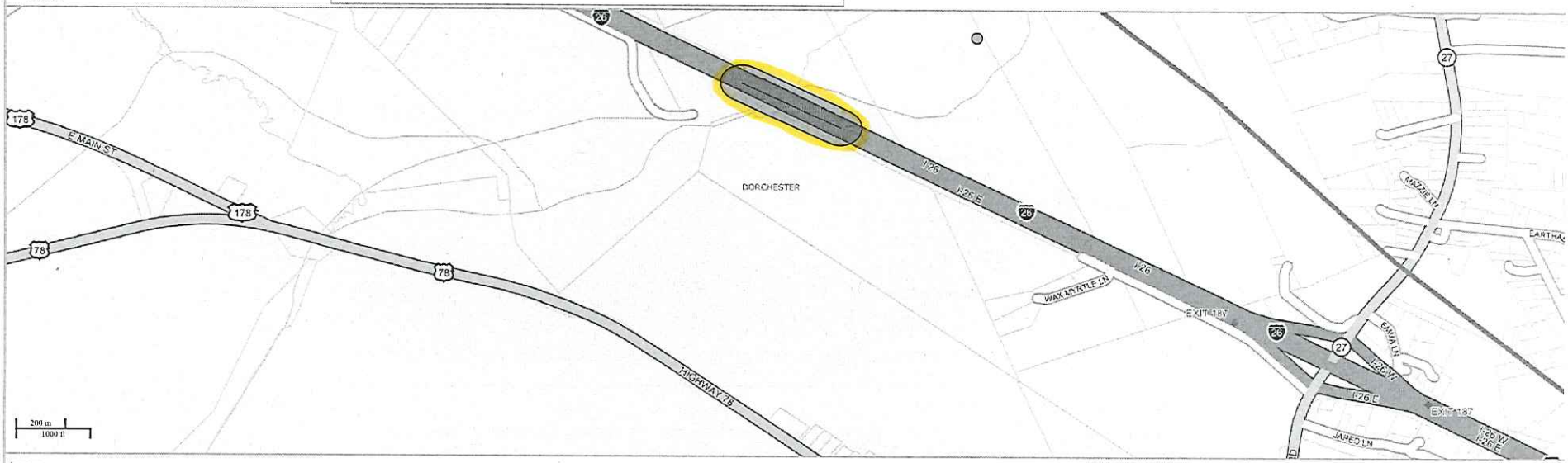
AT&T/D - BSZT29
BSZT29
(843) 536-7203
Phone

Dorchester County Wtr & Swr
DWS32
(843) 832-0085
Sewer, Water

Home Telephone
HOT21
(843) 761-9113
Telecommunications

South Carolina DOT - SCTD06
SCTD06
(803) 609-9528
Traffic

Refresh | Draw Line



Layers

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m-rwp

Work Area Notice: 72 Compliant Elapsed: 191:59

I-26 bridges over Four Hole Swamp

MP 185.7

Traffic Safety Data

Crash Summary

I- 26 (INTERSTATE 26) from MPT 169.000 to MPT 187.000

ORANGEBURG COUNTY

01/01/2016 - 12/31/2018 (3.0 years)

Length = 18.000 miles

AADT = 44,100

Functional Class = Rural -- Principal Arterial - Interstate

Crashes by Injury Class		*% of Total Crashes*	
Fatality Crashes	15	*3%*	*Statewide Average = 1%***
Injury Crashes	123	*26%*	*Statewide Average = 21%*
PDO Crashes	341	*71%*	*Statewide Average = 78%*
Total Crashes	**479**	*100%*	

Crashes By Manner of Collision		*% of Total Crashes*	
Rear End	129	*27%*	*Statewide Average = 27%*
Angle	35	*7%*	*Statewide Average = 5%*
Sideswipe	54	*11%*	*Statewide Average = 12%*
Head On	2	*0%*	*Statewide Average = 1%*
Run Off Road	225	*47%*	*Statewide Average = 51%*
Other	34	*7%*	*Statewide Average = 4%*
Total Crashes	**479**	*100%*	

Special Contributing Factors		*% of Total Crashes*	
Night	166	*35%*	*Statewide Average = 37%*
Day	313	*65%*	*Statewide Average = 63%*
Wet	114	*24%*	*Statewide Average = 18%*
Dry	365	*76%*	*Statewide Average = 82%*
Animal	9		
Bicycle	0		
Pedestrian	0		
Ramps	4		

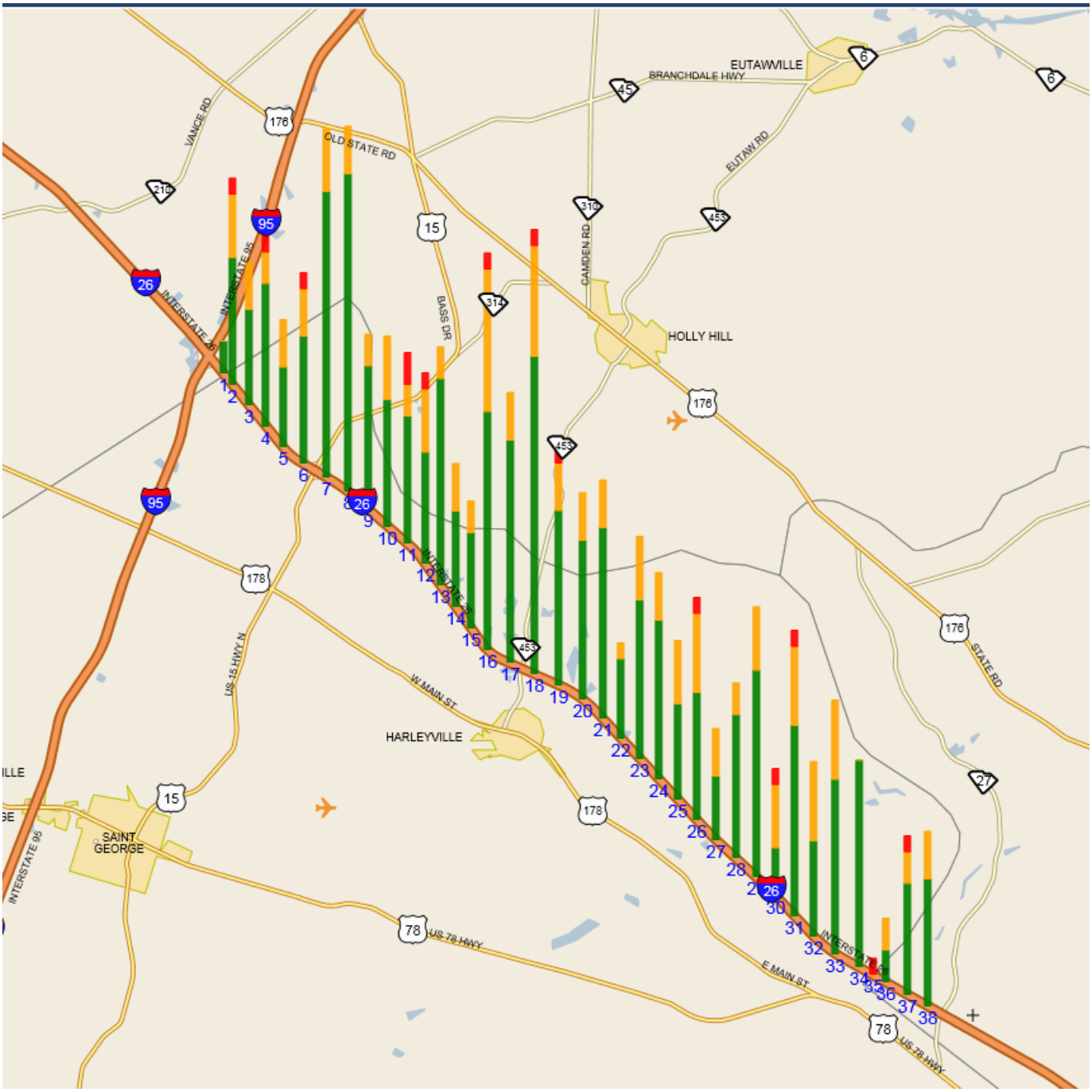
I- 26 (INTERSTATE 26) from MPT 169.000 to MPT 187.000

ORANGEBURG COUNTY

01/01/2016 - 12/31/2018 (3.0 years)

Length = 18.000 miles AADT = 44,100

Functional Class = Rural -- Principal Arterial - Interstate



I- 26 (INTERSTATE 26) from MPT 169.000 to MPT 187.000

ORANGEBURG COUNTY

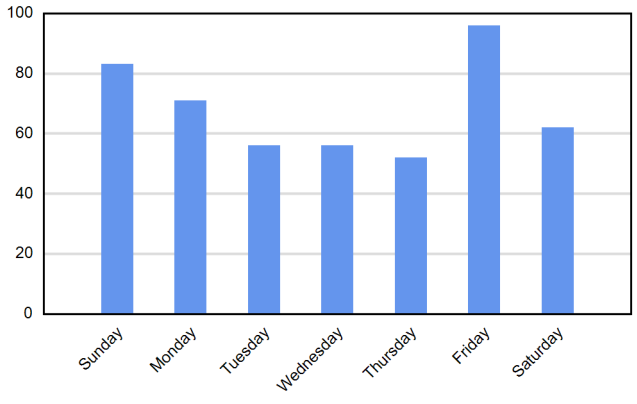
01/01/2016 - 12/31/2018 (3.0 years)

Length = 18.000 miles AADT = 44,100

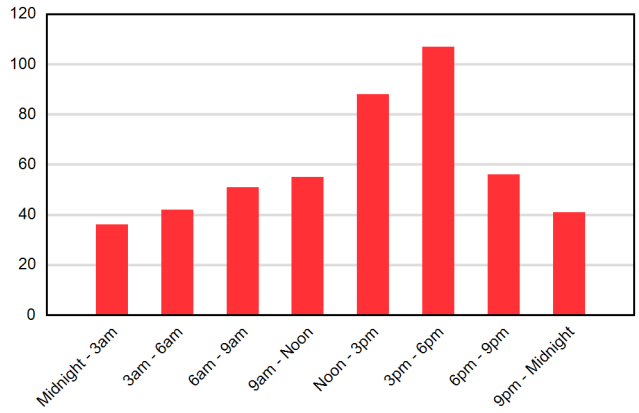
Functional Class = Rural -- Principal Arterial - Interstate

Year	2016	2017	2018	Total
Rear End	35	45	49	129
Angle	9	14	12	35
Sideswipe	23	15	16	54
Head On	0	1	1	2
Run Off Road	73	57	92	222
Animal	7	7	4	18
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	5	7	4	16
	152	146	178	476

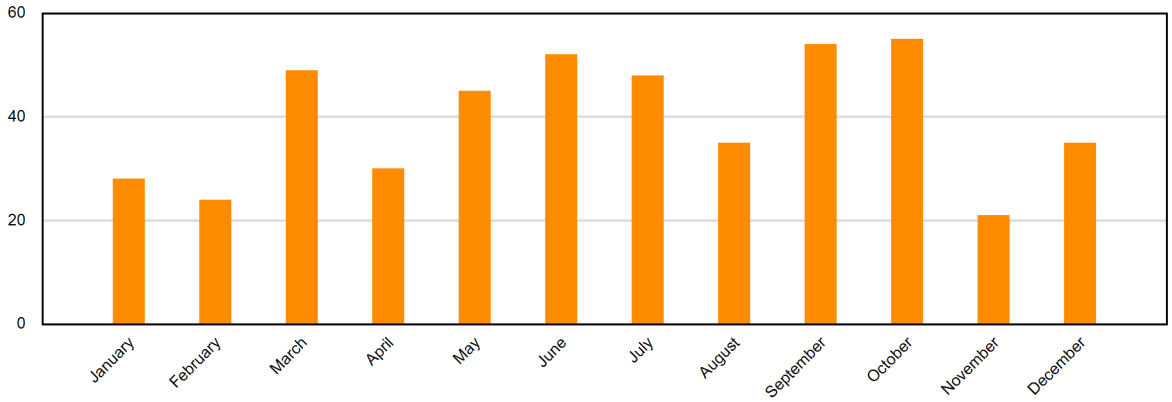
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 169.000 to 169.030 (Stack #1)

Total Crashes: 2 Light: 1 Dark: 1 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 2

1	17637770	169.030	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
2	18608563	169.001	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 169.030 to 169.530 (Stack #2)

Total Crashes: 13 Light: 8 Dark: 5 Dry: 10 Wet: 3 Fatalities: 1 Injuries: 4 PDO: 8

1	16508297	169.399	INJ1	DARK	WET	TREE	NO COLLISION W/MV
2	16537850	169.364	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16564459	169.127	INJ0	DARK	WET	TREE	NO COLLISION W/MV
4	16570908	169.121	INJ0	DARK	DRY	MOTOR VEHICLE (PARKED)	ANGLE
5	16599870	169.224	INJ1	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
6	16657790	169.256	INJ4	DAY	WET	TREE	NO COLLISION W/MV
7	17509361	169.055	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	17589390	169.031	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
9	17637770	169.030	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
10	17665154	169.215	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
11	18539801	169.462	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
12	18582229	169.408	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
13	18654034	169.269	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 169.530 to 170.030 (Stack #3)

Total Crashes: 9 Light: 8 Dark: 1 Dry: 8 Wet: 1 Fatalities: 0 Injuries: 3 PDO: 6

1	16666190	169.820	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	17528504	169.681	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
3	17588758	169.630	INJ2	DAY	DRY	BRIDGE OVERHEAD STRUCTURE	NO COLLISION W/MV
4	17637969	169.785	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
5	18541996	169.816	INJ3	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
6	18582235	169.896	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	18587675	169.601	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	18619317	169.566	INJ2	DARK	DRY	TREE	NO COLLISION W/MV
9	18667363	169.622	INJ0	DAY	WET	TREE	NO COLLISION W/MV

MPT 170.030 to 170.530 (Stack #4)

Total Crashes: 12 Light: 8 Dark: 4 Dry: 11 Wet: 1 Fatalities: 1 Injuries: 2 PDO: 9

1	16505259	170.366	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	16547960	170.509	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

3	17530089	170.263	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	17590141	170.210	INJ2	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
5	17624738	170.190	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
6	18522411	170.155	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
7	18558578	170.046	INJ0	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
8	18577428	170.453	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	18581094	170.509	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	18611768	170.175	INJ4	DAY	DRY	EMBANKMENT	NO COLLISION W/MV
11	18645275	170.223	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
12	18654004	170.129	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME

MPT 170.530 to 171.030 (Stack #5)

Total Crashes: 8 Light: 6 Dark: 2 Dry: 6 Wet: 2 Fatalities: 0 Injuries: 3 PDO: 5

1	16529085	170.576	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
2	16611231	170.682	INJ1	DAY	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	17543360	170.768	INJ2	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	17555525	170.628	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
5	17565646	170.619	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
6	17638682	170.602	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
7	18588646	170.616	INJ0	DAY	WET	DITCH	NO COLLISION W/MV
8	18627265	170.720	INJ2	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV

MPT 171.030 to 171.530 (Stack #6)

Total Crashes: 12 Light: 7 Dark: 5 Dry: 9 Wet: 3 Fatalities: 1 Injuries: 3 PDO: 8

1	16525969	171.072	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	16605971	171.395	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16615812	171.329	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16656846	171.105	INJ4	DARK	DRY	TREE	NO COLLISION W/MV
5	16670699	171.326	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	17548323	171.510	INJ0	DAWN	DRY	TREE	NO COLLISION W/MV
7	18502076	171.111	INJ2	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
8	18529058	171.068	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
9	18538825	171.267	INJ2	DARK	WET	DITCH	NO COLLISION W/MV
10	18571772	171.086	INJ0	DAY	WET	OTHER MOVABLE OBJECT	NO COLLISION W/MV
11	18618863	171.254	INJ0	DARK	WET	TREE	NO COLLISION W/MV
12	18622277	171.132	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

Section Crashes

MPT 171.530 to 172.030 (Stack #7)

Total Crashes: 22 Light: 12 Dark: 10 Dry: 14 Wet: 8 Fatalities: 0 Injuries: 4 PDO: 18

1	16506992	171.625	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	ANGLE
2	16534052	171.962	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	16580476	171.709	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
4	16588105	171.760	INJ3	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
5	16616163	171.612	INJ0	DAY	DRY	ANIMAL (ALL OTHER)	NO COLLISION W/MV
6	16630545	171.949	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
7	16668612	171.550	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	17561659	171.660	INJ2	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
9	17561810	171.860	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
10	17577202	171.760	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	UNKNOWN
11	17596192	172.010	INJ2	DAY	WET	TREE	NO COLLISION W/MV
12	17616974	171.980	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
13	17635157	171.640	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
14	17655842	171.770	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
15	17674561	172.010	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
16	18543660	171.551	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
17	18578810	171.833	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	18613208	171.549	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
19	18618864	171.679	INJ0	DARK	WET	TREE	NO COLLISION W/MV
20	18618865	171.689	INJ0	DARK	WET	TREE	NO COLLISION W/MV
21	18635110	171.661	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
22	18687115	172.010	INJ0	DAWN	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 172.030 to 172.530 (Stack #8)

Total Crashes: 23 Light: 15 Dark: 8 Dry: 19 Wet: 4 Fatalities: 0 Injuries: 3 PDO: 20

1	16570652	172.359	INJ1	DAY	WET	TREE	NO COLLISION W/MV
2	16585578	172.036	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16593383	172.325	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
4	16594292	172.333	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
5	16634818	172.257	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
6	16642472	172.105	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
7	16649513	172.510	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	16667551	172.443	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
9	17534301	172.070	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	17536657	172.270	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

11	17537499	172.270	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
12	17539973	172.160	INJ1	DAY	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
13	17581402	172.510	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
14	17611199	172.510	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
15	17624680	172.520	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	17675916	172.210	INJ0	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
17	18508421	172.344	INJ0	DUSK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
18	18543659	172.303	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
19	18571283	172.065	INJ0	DARK	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
20	18578798	172.125	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
21	18637838	172.511	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
22	18645688	172.163	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
23	18667432	172.087	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 172.530 to 173.030 (Stack #9)

Total Crashes: 11 Light: 5 Dark: 6 Dry: 9 Wet: 2 Fatalities: 0 Injuries: 2 PDO: 9

1	16510867	172.853	INJ0	DARK	WET	TREE	NO COLLISION W/MV
2	16598812	172.533	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16617009	172.545	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16619892	172.866	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
5	17543404	172.770	INJ1	DARK	DRY	TREE	NO COLLISION W/MV
6	17557679	173.010	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
7	17589036	172.810	INJ0	DARK	DRY	GUARDRAIL END	NO COLLISION W/MV
8	17610065	172.740	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
9	17665694	173.010	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	SIDESWIPE SAME
10	18603529	172.818	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
11	18682112	173.000	INJ0	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END

MPT 173.030 to 173.530 (Stack #10)

Total Crashes: 12 Light: 10 Dark: 2 Dry: 11 Wet: 1 Fatalities: 0 Injuries: 4 PDO: 8

1	16508562	173.465	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	16580119	173.462	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16634819	173.104	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
4	17520557	173.110	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17534154	173.260	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
6	17580200	173.070	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	17581403	173.510	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	17622035	173.070	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

9	17629133	173.510	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
10	18558577	173.450	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
11	18651084	173.294	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	18672436	173.167	INJ0	DAY	DRY	GUARDRAIL END	NO COLLISION W/MV

MPT 173.530 to 174.030 (Stack #11)

Total Crashes: 12 Light: 8 Dark: 4 Dry: 9 Wet: 3 Fatalities: 2 Injuries: 2 PDO: 8

1	16500269	173.892	INJ2	DARK	WET	TREE	NO COLLISION W/MV
2	16536359	173.977	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
3	16665110	173.660	INJ4	DAY	DRY	TREE	NO COLLISION W/MV
4	17525476	173.940	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17643720	173.810	INJ4	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	18507697	174.000	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	18531512	173.896	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	18533855	173.730	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	18539779	173.554	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	18560253	173.571	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	18604962	173.641	INJ0	DAY	WET	WORK ZONE MAINT. EQUIPMENT	NO COLLISION W/MV
12	18657660	173.638	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 174.030 to 174.530 (Stack #12)

Total Crashes: 12 Light: 8 Dark: 4 Dry: 8 Wet: 4 Fatalities: 1 Injuries: 4 PDO: 7

1	16521629	174.514	INJ0	DARK	WET	TREE	NO COLLISION W/MV
2	16550802	174.338	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
3	16592168	174.448	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
4	17522762	174.230	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
5	17565343	174.510	INJ1	DAY	WET	TREE	NO COLLISION W/MV
6	17642704	174.510	INJ0	DARK	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
7	18500416	174.373	INJ0	DAY	SNOW	TREE	NO COLLISION W/MV
8	18571275	174.498	INJ2	DAY	WET	TREE	NO COLLISION W/MV
9	18582785	174.348	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	18624517	174.521	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
11	18651390	174.446	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	18690889	174.248	INJ4	DARK	DRY	TREE	NO COLLISION W/MV

MPT 174.530 to 175.030 (Stack #13)

Total Crashes: 15 Light: 13 Dark: 2 Dry: 12 Wet: 3 Fatalities: 0 Injuries: 2 PDO: 13

1	16563749	174.822	INJ0	DARK	WET	TREE	NO COLLISION W/MV

Section Crashes

2	16672515	174.789	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	17536667	174.530	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	17668764	174.670	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
5	17684122	174.540	INJ0	DAY	DRY	EMBANKMENT	NO COLLISION W/MV
6	18532064	174.710	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	18541853	174.947	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	18541983	174.653	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
9	18581106	174.788	INJ0	DAY	DRY	GUARDRAIL END	NO COLLISION W/MV
10	18602532	174.709	INJ0	DARK	WET	TREE	NO COLLISION W/MV
11	18632955	174.614	INJ2	DAY	WET	TREE	NO COLLISION W/MV
12	18652075	174.964	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	18658852	174.616	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
14	18660316	174.569	INJ2	DAY	DRY	TREE	NO COLLISION W/MV
15	18691930	174.914	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 175.030 to 175.530 (Stack #14)

Total Crashes: 9 Light: 5 Dark: 4 Dry: 6 Wet: 3 Fatalities: 0 Injuries: 3 PDO: 6

1	16601037	175.111	INJ1	DAY	WET	TREE	NO COLLISION W/MV
2	16645529	175.405	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	17563899	175.110	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	17650811	175.360	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
5	18560523	175.396	INJ0	DARK	WET	MEDIAN BARRIER	NO COLLISION W/MV
6	18577296	175.086	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	18621937	175.486	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	18682094	175.318	INJ1	DAY	WET	DITCH	NO COLLISION W/MV
9	18692008	175.479	INJ0	DAWN	DRY	MEDIAN BARRIER	NO COLLISION W/MV

MPT 175.530 to 176.030 (Stack #15)

Total Crashes: 8 Light: 8 Dark: 0 Dry: 5 Wet: 3 Fatalities: 0 Injuries: 2 PDO: 6

1	16524681	175.773	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	16615986	176.026	INJ0	DAY	WET	DITCH	NO COLLISION W/MV
3	17511308	175.960	INJ0	DAY	WET	BRIDGE RAIL	NO COLLISION W/MV
4	17533688	175.690	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
5	18510447	176.009	INJ1	DAY	WET	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
6	18603518	175.826	INJ3	DAY	DRY	FENCE	NO COLLISION W/MV
7	18639646	175.982	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	18640009	175.730	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

MPT 176.030 to 176.530 (Stack #16)

Total Crashes: 25 Light: 16 Dark: 9 Dry: 6 Wet: 19 Fatalities: 1 Injuries: 9 PDO: 15

1	16534051	176.472	INJ0	DAY	WET	TREE	NO COLLISION W/MV
2	16537694	176.514	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	16571512	176.519	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	16584169	176.426	INJ0	DAY	WET	TREE	NO COLLISION W/MV
5	16588280	176.375	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
6	16609560	176.212	INJ0	DAY	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
7	16615618	176.190	INJ0	DARK	WET	DITCH	NO COLLISION W/MV
8	16625788	176.031	INJ4	DAY	WET	TREE	NO COLLISION W/MV
9	16645329	176.190	INJ1	DARK	WET	DITCH	NO COLLISION W/MV
10	17619757	176.320	INJ1	DARK	WET	TREE	NO COLLISION W/MV
11	17669566	176.450	INJ0	DAY	WET	TREE	NO COLLISION W/MV
12	18519035	176.233	INJ1	DAY	WET	TREE	NO COLLISION W/MV
13	18531515	176.488	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
14	18540120	176.523	INJ2	DAY	WET	TREE	NO COLLISION W/MV
15	18549555	176.293	INJ0	DARK	WET	TREE	NO COLLISION W/MV
16	18557761	176.231	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
17	18562090	176.299	INJ0	DAWN	DRY	TREE	NO COLLISION W/MV
18	18564621	176.087	INJ0	DAY	WET	TREE	NO COLLISION W/MV
19	18603531	176.457	INJ1	DARK	WET	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
20	18640842	176.361	INJ0	DAY	DRY	OTHER (POST, POLE, SUPPORT, ETC)	NO COLLISION W/MV
21	18644744	176.514	INJ1	DAY	WET	OTHER (POST, POLE, SUPPORT, ETC)	NO COLLISION W/MV
22	18651065	176.468	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
23	18651090	176.126	INJ1	DARK	WET	TREE	NO COLLISION W/MV
24	18677649	176.443	INJ0	DAY	WET	TREE	NO COLLISION W/MV
25	18690426	176.360	INJ0	DARK	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV

MPT 176.530 to 177.030 (Stack #17)

Total Crashes: 17 Light: 10 Dark: 7 Dry: 11 Wet: 6 Fatalities: 0 Injuries: 3 PDO: 14

1	16505486	176.598	INJ2	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
2	16521938	176.610	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16540294	176.711	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16540309	176.663	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	16588104	176.652	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	16625789	176.581	INJ0	DAY	WET	TREE	NO COLLISION W/MV
7	16645517	176.630	INJ0	DARK	UNKNOWN	TREE	NO COLLISION W/MV

Section Crashes

8	17512464	176.730	INJ0	DARK	DRY	MEDIAN BARRIER	NO COLLISION W/MV
9	17530088	176.570	INJ0	DAY	DRY	OTHER NONCOLLISION	NO COLLISION W/MV
10	17546424	176.890	INJ0	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
11	17620422	176.620	INJ0	DAY	WET	TREE	NO COLLISION W/MV
12	17674417	176.670	INJ0	DARK	WET	TREE	NO COLLISION W/MV
13	18577949	176.844	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
14	18635091	176.972	INJ0	DARK	UNKNOWN	MEDIAN BARRIER	NO COLLISION W/MV
15	18691777	176.778	INJ2	DAWN	WET	MOTOR VEHICLE (STOPPED)	REAR END
16	18691910	176.703	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
17	18691946	176.708	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV

MPT 177.030 to 177.530 (Stack #18)

Total Crashes: 28 Light: 15 Dark: 13 Dry: 25 Wet: 3 Fatalities: 1 Injuries: 7 PDO: 20

1	16516927	177.281	INJ1	DARK	DRY	MOTOR VEHICLE (PARKED)	REAR END
2	16518003	177.066	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
3	16559748	177.067	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	16636284	177.454	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
5	16645532	177.422	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	17502573	177.423	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
7	17509437	177.270	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
8	17529486	177.520	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
9	17531589	177.150	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	ANGLE
10	17534103	177.220	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
11	17534105	177.260	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
12	17555500	177.270	INJ2	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
13	17569274	177.120	INJ0	DAWN	DRY	UNKNOWN MOVABLE OBJECT	NO COLLISION W/MV
14	17574593	177.110	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
15	17582958	177.200	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
16	17598053	177.120	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
17	17600235	177.200	INJ1	DAY	DRY	MOTOR VEHICLE (PARKED)	REAR END
18	17625723	177.270	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
19	17640377	177.340	INJ1	DAY	DRY	MEDIAN BARRIER	SIDESWIPE SAME
20	17674375	177.220	INJ0	DUSK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
21	17674418	177.330	INJ0	DARK	WET	TREE	NO COLLISION W/MV
22	17681191	177.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
23	17681816	177.330	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
24	18507695	177.499	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
25	18578829	177.192	INJ4	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV

Section Crashes

26	18587674	177.294	INJ0	DARK	WET	TREE	NO COLLISION W/MV
27	18600800	177.258	INJ2	DARK	DRY	DITCH	NO COLLISION W/MV
28	18625883	177.361	INJ0	DUSK	DRY	GUARDRAIL FACE	NO COLLISION W/MV

MPT 177.530 to 178.030 (Stack #19)

Total Crashes: 15 Light: 10 Dark: 5 Dry: 12 Wet: 3 Fatalities: 1 Injuries: 3 PDO: 11

1	16511274	177.567	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
2	16521638	177.953	INJ0	DARK	WET	DITCH	NO COLLISION W/MV
3	16534073	177.565	INJ0	DUSK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	16580478	177.795	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
5	16606018	177.865	INJ1	DAY	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
6	16675223	177.834	INJ4	DARK	DRY	TREE	NO COLLISION W/MV
7	17530071	177.620	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	17555532	177.720	INJ0	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
9	17571170	177.990	INJ1	DAY	WET	TREE	NO COLLISION W/MV
10	17632794	177.987	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
11	17644675	177.830	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
12	18578993	177.746	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	HEAD ON
13	18629671	177.760	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
14	18644762	177.998	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
15	18667263	177.825	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 178.030 to 178.530 (Stack #20)

Total Crashes: 13 Light: 8 Dark: 5 Dry: 7 Wet: 6 Fatalities: 0 Injuries: 3 PDO: 10

1	16506991	178.296	INJ1	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	16591345	178.112	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16612877	178.471	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
4	16614123	178.477	INJ0	DAY	WET	TREE	NO COLLISION W/MV
5	17567481	178.340	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
6	17575833	178.470	INJ0	DAY	WET	EMBANKMENT	NO COLLISION W/MV
7	17582966	178.370	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	17637920	178.220	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
9	17672994	178.340	INJ0	DARK	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
10	18597859	178.086	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
11	18602353	178.450	INJ0	DAY	WET	TREE	NO COLLISION W/MV
12	18622294	178.164	INJ1	DARK	WET	TREE	NO COLLISION W/MV
13	18682108	178.515	INJ0	DARK	WET	TREE	NO COLLISION W/MV

Section Crashes

MPT 178.530 to 179.030 (Stack #21)

Total Crashes: 15 Light: 11 Dark: 4 Dry: 12 Wet: 3 Fatalities: 0 Injuries: 3 PDO: 12

1	16565466	178.704	INJ0	DAY	WET	TREE	NO COLLISION W/MV
2	16585872	178.614	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16592132	178.823	INJ3	DAY	DRY	TREE	NO COLLISION W/MV
4	16672466	178.871	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17516329	178.940	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
6	17548315	178.540	INJ0	DUSK	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
7	17568860	178.580	INJ0	DAY	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
8	17608745	178.580	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
9	17624750	178.970	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
10	17677118	178.640	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	18539812	178.823	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
12	18578766	178.817	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
13	18590403	178.995	INJ1	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
14	18613362	179.005	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
15	18635093	178.609	INJ0	DAY	WET	TREE	NO COLLISION W/MV

MPT 179.030 to 179.530 (Stack #22)

Total Crashes: 6 Light: 4 Dark: 2 Dry: 6 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 5

1	16544971	179.100	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	16584159	179.216	INJ0	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
3	17533722	179.190	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	17553024	179.390	INJ0	DAY	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
5	17632796	179.270	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	17634416	179.170	INJ0	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV

MPT 179.530 to 180.030 (Stack #23)

Total Crashes: 14 Light: 8 Dark: 6 Dry: 11 Wet: 3 Fatalities: 0 Injuries: 4 PDO: 10

1	16501758	179.956	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	16586045	179.834	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	16594820	179.982	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16629431	179.897	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	16664887	179.912	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
6	17561685	179.710	INJ1	DAY	WET	TREE	NO COLLISION W/MV
7	17678967	179.620	INJ0	DAY	DRY	BRIDGE OVERHEAD STRUCTURE	NO COLLISION W/MV
8	17679780	179.580	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

9	18538813	179.805	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
10	18566238	179.804	INJ2	DARK	DRY	TREE	NO COLLISION W/MV
11	18593156	179.664	INJ2	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
12	18598754	179.662	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
13	18611769	179.741	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
14	18647205	179.930	INJ0	DARK	WET	TREE	NO COLLISION W/MV

MPT 180.030 to 180.530 (Stack #24)

Total Crashes: 13 Light: 8 Dark: 5 Dry: 9 Wet: 4 Fatalities: 0 Injuries: 3 PDO: 10

1	16539264	180.032	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
2	16594578	180.192	INJ0	DAY	WET	DITCH	NO COLLISION W/MV
3	16617657	180.377	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
4	17552529	180.270	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17577205	180.050	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	17655311	180.260	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	17675385	180.130	INJ0	DARK	WET	TREE	NO COLLISION W/MV
8	18504221	180.455	INJ0	DARK	UNKNOWN	TREE	NO COLLISION W/MV
9	18578772	180.241	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
10	18605439	180.273	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
11	18628037	180.115	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	18643336	180.392	INJ0	DARK	WET	DITCH	NO COLLISION W/MV
13	18669996	180.171	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	ANGLE

MPT 180.530 to 181.030 (Stack #25)

Total Crashes: 10 Light: 7 Dark: 3 Dry: 4 Wet: 6 Fatalities: 0 Injuries: 4 PDO: 6

1	16612752	180.859	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	17582992	180.550	INJ1	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	18560337	180.890	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	18566484	180.840	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	18573965	180.972	INJ1	DAY	WET	TREE	NO COLLISION W/MV
6	18616775	180.976	INJ2	DARK	WET	TREE	NO COLLISION W/MV
7	18622280	181.024	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
8	18625884	180.904	INJ0	DAY	WET	TREE	NO COLLISION W/MV
9	18647203	180.671	INJ0	DARK	WET	TREE	NO COLLISION W/MV
10	18647206	180.671	INJ1	DARK	WET	TREE	NO COLLISION W/MV

Section Crashes

MPT 181.030 to 181.530 (Stack #26)

Total Crashes: 14 Light: 8 Dark: 6 Dry: 12 Wet: 2 Fatalities: 1 Injuries: 5 PDO: 8

1	16592682	181.032	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	16604561	181.518	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	17548871	181.110	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	17559194	181.430	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17580172	181.360	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	17675574	181.200	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	18500849	181.312	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
8	18502071	181.048	INJ1	DARK	DRY	TREE	NO COLLISION W/MV
9	18560403	181.210	INJ4	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
10	18573949	181.505	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	18593004	181.185	INJ2	DAY	WET	TREE	NO COLLISION W/MV
12	18647213	181.399	INJ1	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
13	18658793	181.124	INJ0	DAY	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
14	18691945	181.154	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV

MPT 181.530 to 182.030 (Stack #27)

Total Crashes: 7 Light: 6 Dark: 1 Dry: 5 Wet: 2 Fatalities: 0 Injuries: 3 PDO: 4

1	16521625	182.021	INJ0	DARK	WET	TREE	NO COLLISION W/MV
2	16536173	181.733	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	17553046	181.840	INJ1	DAY	DRY	OTHER	NO COLLISION W/MV
4	17564480	181.880	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17569923	181.846	INJ1	DAY	DRY	DITCH	NO COLLISION W/MV
6	17681076	181.630	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
7	18635098	181.551	INJ0	DAY	WET	TREE	NO COLLISION W/MV

MPT 182.030 to 182.530 (Stack #28)

Total Crashes: 11 Light: 9 Dark: 2 Dry: 11 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 9

1	16540308	182.305	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	16563835	182.127	INJ2	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	17561889	182.310	INJ0	DAY	DRY	DITCH	NO COLLISION W/MV
4	17654059	182.220	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	18507685	182.269	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
6	18555199	182.490	INJ1	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
7	18573966	182.428	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
8	18585610	182.410	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

9	18637839	182.406	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
10	18665493	182.057	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	18667369	182.508	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV

MPT 182.530 to 183.030 (Stack #29)

Total Crashes: 17 Light: 10 Dark: 7 Dry: 15 Wet: 2 Fatalities: 0 Injuries: 4 PDO: 13

1	16500011	183.022	INJ1	DARK	WET	TREE	NO COLLISION W/MV
2	16511288	182.787	INJ0	DARK	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
3	16518986	182.627	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16520024	182.580	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	16567660	182.848	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
6	16572909	182.855	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
7	16585900	182.600	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
8	16615092	182.967	INJ0	DAY	DRY	OTHER (POST, POLE, SUPPORT, ETC)	NO COLLISION W/MV
9	16653678	182.819	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
10	17530666	182.850	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	17575050	182.810	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	17608797	182.790	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	17627905	182.790	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
14	18506189	182.636	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
15	18558804	182.677	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
16	18637276	182.971	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
17	18651402	182.534	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 183.030 to 183.530 (Stack #30)

Total Crashes: 8 Light: 6 Dark: 2 Dry: 5 Wet: 3 Fatalities: 1 Injuries: 4 PDO: 3

1	16544616	183.150	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
2	16585866	183.039	INJ3	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	17576808	183.443	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
4	17597308	183.130	INJ0	DARK	WET	TREE	NO COLLISION W/MV
5	18522087	183.425	INJ2	DARK	WET	TREE	NO COLLISION W/MV
6	18587187	183.289	INJ4	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
7	18593464	183.505	INJ0	DAY	WET	FENCE	NO COLLISION W/MV
8	18603206	183.126	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 183.530 to 184.030 (Stack #31)

Total Crashes: 18 Light: 14 Dark: 4 Dry: 15 Wet: 3 Fatalities: 1 Injuries: 5 PDO: 12

1	16564591	183.679	INJ4	DAY	DRY	SPILL (TWO-WHEELED VEH)	NO COLLISION W/MV

Section Crashes

2	16565509	183.757	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	16573670	183.968	INJ1	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	16605963	183.773	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
5	16605964	183.774	INJ2	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
6	16609353	183.771	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	16612436	183.793	INJ0	DAY	WET	TREE	NO COLLISION W/MV
8	16614162	183.961	INJ0	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
9	16649149	183.538	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
10	17530700	183.920	INJ1	DAY	DRY	TREE	NO COLLISION W/MV
11	17552532	183.640	INJ0	DUSK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
12	17597316	183.600	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	17608747	183.750	INJ2	DAY	DRY	MOTOR VEHICLE (PARKED)	REAR END
14	17610061	183.970	INJ0	DAY	DRY	UNKNOWN MOVABLE OBJECT	NO COLLISION W/MV
15	17626488	183.630	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	18534966	183.780	INJ1	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
17	18593010	183.533	INJ0	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END
18	18651388	183.817	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	BACKED INTO

MPT 184.030 to 184.530 (Stack #32)

Total Crashes: 11 Light: 3 Dark: 8 Dry: 8 Wet: 3 Fatalities: 0 Injuries: 5 PDO: 6

1	16534054	184.103	INJ0	DARK	WET	TREE	NO COLLISION W/MV
2	16562975	184.230	INJ1	DARK	DRY	GUARDRAIL END	NO COLLISION W/MV
3	16573878	184.099	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	16592063	184.034	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
5	16641892	184.485	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
6	16657376	184.032	INJ2	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
7	16657957	184.457	INJ2	DARK	DRY	TREE	NO COLLISION W/MV
8	17588770	184.420	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
9	17618965	184.080	INJ1	DAY	WET	TREE	NO COLLISION W/MV
10	17635135	184.442	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	18538821	184.527	INJ2	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 184.530 to 185.030 (Stack #33)

Total Crashes: 16 Light: 8 Dark: 8 Dry: 15 Wet: 1 Fatalities: 0 Injuries: 5 PDO: 11

1	16534040	184.948	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	16598821	184.821	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
3	16622814	184.535	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16624774	184.997	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

5	16664031	184.869	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
6	17509436	184.850	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
7	17575842	184.950	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
8	17598038	184.881	INJ1	DARK	DRY	DITCH	NO COLLISION W/MV
9	17598051	184.630	INJ0	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
10	17637883	184.960	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
11	17640339	184.630	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
12	17647533	184.724	INJ1	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
13	17654028	184.903	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	HEAD ON
14	18524625	184.847	INJ0	DUSK	DRY	DITCH	NO COLLISION W/MV
15	18573968	184.870	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
16	18577948	184.746	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 185.030 to 185.530 (Stack #34)

Total Crashes: 13 Light: 10 Dark: 3 Dry: 11 Wet: 2 Fatalities: 0 Injuries: 0 PDO: 13

1	16519371	185.357	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
2	16521364	185.383	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
3	16562793	185.154	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV
4	16645331	185.094	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	17509590	185.226	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
6	17627037	185.380	INJ0	DAY	DRY	GUARDRAIL FACE	NO COLLISION W/MV
7	17636588	185.050	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
8	17648501	185.353	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	18548081	185.514	INJ0	DAY	WET	GUARDRAIL FACE	NO COLLISION W/MV
10	18576175	185.463	INJ0	DAY	WET	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
11	18603205	185.266	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
12	18620929	185.476	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
13	18680294	185.263	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 185.530 to 185.600 (Stack #35)

Total Crashes: 1 Light: 0 Dark: 1 Dry: 1 Wet: 0 Fatalities: 1 Injuries: 0 PDO: 0

1	17570957	185.537	INJ4	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 185.600 to 186.100 (Stack #36)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 2 PDO: 2

1	16604554	185.678	INJ1	DAY	DRY	BRIDGE PARAPET END	NO COLLISION W/MV
2	17594520	185.820	INJ2	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	18593154	185.844	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

4	18676993	185.871	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV

MPT 186.100 to 186.600 (Stack #37)

Total Crashes: 10 Light: 6 Dark: 4 Dry: 10 Wet: 0 Fatalities: 1 Injuries: 2 PDO: 7

1	16519415	186.392	INJ0	DUSK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
2	16521398	186.248	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	16605968	186.434	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	16624777	186.574	INJ0	DAY	DRY	ANIMAL (ALL OTHER)	NO COLLISION W/MV
5	16629798	186.541	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	18520862	186.256	INJ0	DARK	DRY	EQUIPMENT FAILURE	ANGLE
7	18533274	186.474	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	18598853	186.368	INJ1	DARK	DRY	TREE	NO COLLISION W/MV
9	18626580	186.246	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	18657339	186.547	INJ4	DARK	DRY	TREE	NO COLLISION W/MV

MPT 186.600 to 187.000 (Stack #38)

Total Crashes: 11 Light: 9 Dark: 2 Dry: 10 Wet: 1 Fatalities: 0 Injuries: 3 PDO: 8

1	16518975	186.958	INJ1	DAY	DRY	CROSS MEDIAN/CENTER	NO COLLISION W/MV
2	16524142	186.994	INJ0	DAY	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
3	16530851	186.734	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	16541056	186.837	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	16592073	186.781	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	16622229	186.682	INJ3	DAY	DRY	TREE	NO COLLISION W/MV
7	16629725	186.736	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	16672539	186.673	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	18505134	186.896	INJ0	DUSK	ICE	TREE	NO COLLISION W/MV
10	18523008	186.983	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	18594615	186.854	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Interactive Highway Safety Design Model

Crash Prediction Evaluation Report
I-26 MP 169-187
HSM Sample Crash Rate for
MP 179-184 Mainline Existing

October 15, 2020

Methodology Used: In order to review the effects of the preferred alternative for this I-26 project, it was determined that it would be impractical to model the entire project including mainline, interchanges, geometrics. Alternatively, as it appeared the majority of the crash history showed to be attributed to potential mainline concerns and not speed change / interchanges, a 5 mile sample segment of the project area was modeled in the IHSDM. The crash rates of the existing section model were then compared to the future alternative model.

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1. Report Overview

Report Generated: Oct 15, 2020 9:13 AM
Report Template: User: My CPM Template (mlcpm6, Sep 14, 2020 9:29 AM)

Evaluation Date: Thu Oct 15 08:48:37 EDT 2020
IHSDM Version: v16.0.0 (Sep 30, 2020)
Crash Prediction Module: v11.0.0 (Sep 30, 2020)

User Name: Eugene Taylor
Organization Name: South Carolina Department of Transportation
Phone: 803-737-1103
E-Mail: Taylorea@scdot.org

Project Title: I-26 MP169-187
Project Comment: Created using wizard
Project Unit System: U.S. Customary

Highway Title: I-26 179-184 Mainline Existing
Highway Comment: Created using wizard
Highway Version: 1

Evaluation Title: Existing MP179-184
Evaluation Comment: Created Thu Oct 15 08:45:53 EDT 2020

Minimum Location: 9451+20.000
Maximum Location: 9715+20.000
Policy for Superelevation: AASHTO 2011 U.S. Customary
Calibration: SCDOT Calibration Factors
Crash Distribution: SCDOT Crash Distribution
Model/CMF: HSM Configuration
First Year of Analysis: 2020
Last Year of Analysis: 2025
Empirical-Bayes Analysis: Whole-Project
Highway with Crash History: I-26 179-184 Mainline Existing
Highway with Crash History Comment: Created using wizard
Highway with Crash History Version: 1
First Year of Observed Crashes: 2017
Last Year of Observed Crashes: 2019

1.1 Disclaimer Regarding Crash Prediction Method

IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70 AND 17-58

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The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58 and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

2. Section Types

2.1 Section 1 Evaluation

Section: Section 1
Evaluation Start Location: 9451+20.000
Evaluation End Location: 9715+20.000
Functional Class: Freeway
Type of Alignment: Divided, Multilane
Model Category: Freeway Segment
Calibration Factor: FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

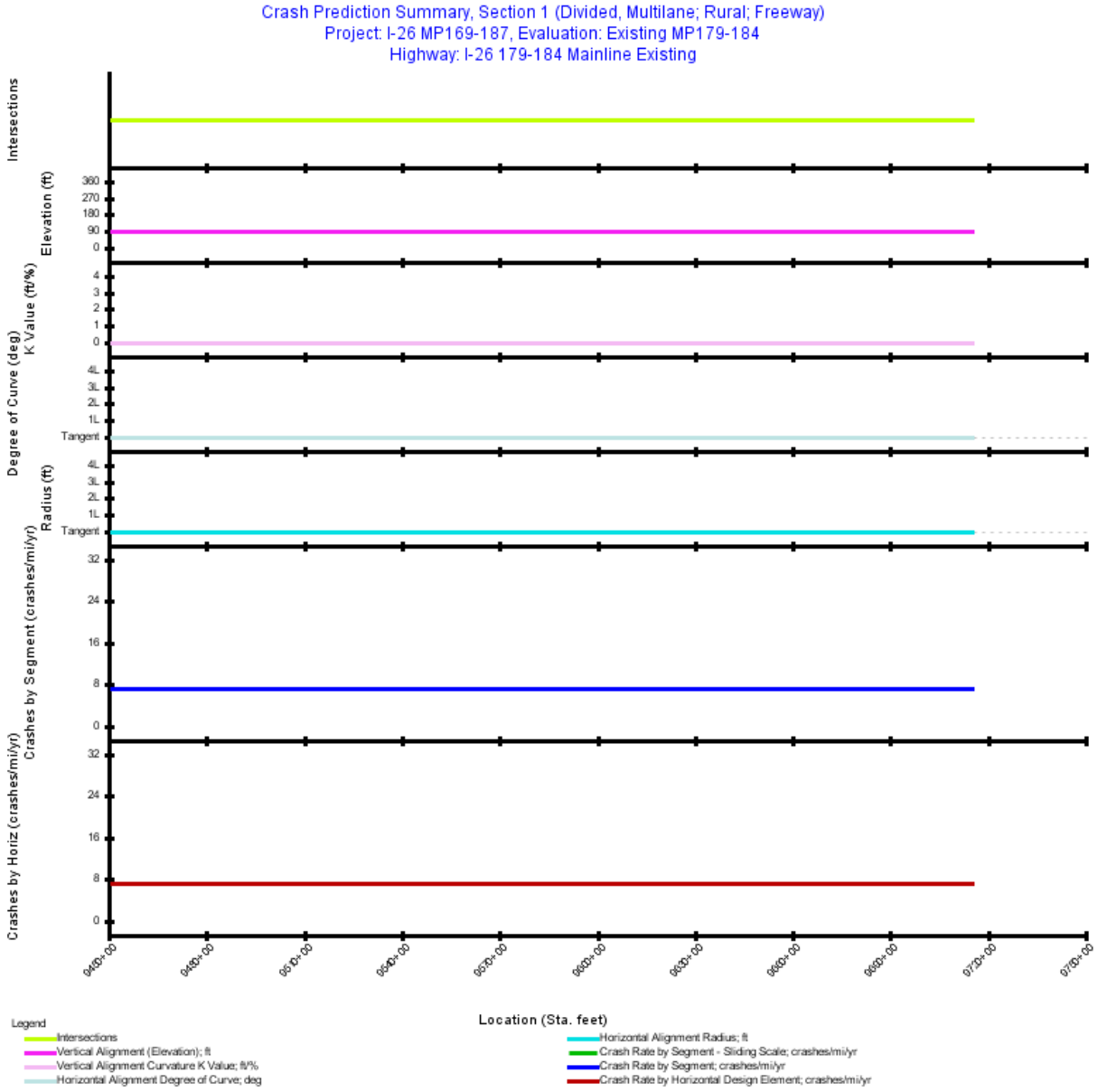

Figure 1. Crash Prediction Summary (Section 1)

Table 1. Observed Crashes Used in the Evaluation (Section 1)

Year	Observed Crashes	Total Crashes Used	FI Crashes	FI no/C Crashes	PDO Crashes
2017	34	34	0	0	0
2018	48	48	0	0	0
2019	34	34	0	0	0
All Years	116 [1]	116	0	0	0

Footnotes

[1] Note: Observed crash data that does not comply with the associated CPM model requirements may not be used in EB processing.

Table 2. Evaluation Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	4F	Rural	9451+20.000	9715+20.000	26,400.00	5.0000	2020-2025: 44,900	77.00	Non-Traversable Median	89.00

Table 3. Crash Highway Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	4F	Rural	9451+20.000	9715+20.000	26,400.00	5.0000	2017-2019: 44,900	77.00	Non-Traversable Median	89.00

Table 4. Expected Freeway Crash Rates and Frequencies Summary (Section 1)

First Year of Analysis	**2020**
Last Year of Analysis	**2025**
Effective Length (mi)	**5.0000**
Average Future Road AADT (vpd)	**44,900**
Expected Crashes	
Total Crashes	**211.81**
Fatal and Injury Crashes	**57.50**
Property-Damage-Only Crashes	**154.31**
Percent of Total Expected Crashes	
Percent Fatal and Injury Crashes (%)	**27**
Percent Property-Damage-Only Crashes (%)	**73**
Expected Crash Rate	
Crash Rate (crashes/mi/yr)	**7.0602**
FI Crash Rate (crashes/mi/yr)	**1.9167**
PDO Crash Rate (crashes/mi/yr)	**5.1436**
Expected Travel Crash Rate	
Total Travel (million veh-mi)	**491.65**
Travel Crash Rate (crashes/million veh-mi)	**0.43**
Travel FI Crash Rate (crashes/million veh-mi)	**0.12**
Travel PDO Crash Rate (crashes/million veh-mi)	**0.31**

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
Note: *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 5. Expected Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

Segment Number/Intersection Name/Cross Road	Start Location (Sta. ft)	End Location (Sta. ft)	Effective Length (mi)	Total Expected Crashes for Evaluation Period	Total Predicted Crashes for Evaluation Period	Expected Total Crash Frequency (crashes/yr)	Expected FI Crash Frequency (crashes/yr)	Expected PDO Crash Frequency (crashes/yr)	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	(Expected - Predicted) Total Crash Frequency (crashes/yr)	(Expected - Predicted) FI Crash Frequency (crashes/yr)	(Expected - Predicted) PDO Crash Frequency (crashes/yr)	Expected Crash Rate (crashes/mi/yr)	Expected Travel Crash Rate (crashes/million veh-mi)
1	9451+20.000	9715+20.000	5.0000	211.807	200.190	35.3012	9.5834	25.7179	33.3649	9.0577	24.3072	1.9363	0.5257	1.4107	7.0602	0.43
Total			5.0000	211.807	200.190	35.3012	9.5834	25.7179	33.3649	9.0577	24.3072	1.9363	0.5257	1.4107	7.0602	0.43

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 6. Expected Crash Frequencies and Rates by Horizontal Design Element (Section 1)

Title	Start Location (Sta. ft)	End Location (Sta. ft)	Length (mi)	Total Expected Crashes for Evaluation Period	Total Predicted Crashes for Evaluation Period	Expected Total Crash Frequency (crashes/yr)	Expected FI Crash Frequency (crashes/yr)	Expected PDO Crash Frequency (crashes/yr)	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	(Expected - Predicted) Total Crash Frequency (crashes/yr)	(Expected - Predicted) FI Crash Frequency (crashes/yr)	(Expected - Predicted) PDO Crash Frequency (crashes/yr)	Expected Crash Rate (crashes/mi/yr)	Expected Travel Crash Rate (crashes/million veh-mi)
Tangent	9451+20.000	9715+20.000	5.0000	211.807	200.190	35.3012	9.5834	25.7179	33.3649	9.0577	24.3072	1.9363	0.5257	1.4107	7.0602	0.43

Table 7. Predicted Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2020	33.37	9.06	27.147	24.31	72.853
2021	33.37	9.06	27.147	24.31	72.853
2022	33.37	9.06	27.147	24.31	72.853
2023	33.37	9.06	27.147	24.31	72.853
2024	33.37	9.06	27.147	24.31	72.853
2025	33.37	9.06	27.147	24.31	72.853
Total	200.19	54.35	27.147	145.84	72.853
Average	33.37	9.06	27.147	24.31	72.853

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Expected Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2020	35.30	9.58	27.147	25.72	72.853
2021	35.30	9.58	27.147	25.72	72.853
2022	35.30	9.58	27.147	25.72	72.853
2023	35.30	9.58	27.147	25.72	72.853
2024	35.30	9.58	27.147	25.72	72.853
2025	35.30	9.58	27.147	25.72	72.853
Total	211.81	57.50	27.147	154.31	72.853
Average	35.30	9.58	27.147	25.72	72.853

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 9. Comparing Predicted and Expected Crashes for the Evaluation Period (Section 1)

Scope	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
Predicted	200.19	54.35	27.147	145.84	72.853
Expected	211.81	57.50	27.147	154.31	72.853
Expected - Predicted	11.62	3.15		8.46	
Percent Difference	5.49	5.49		5.49	

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 10. Expected Crash Severity by Freeway Segment (Section 1)

Seg. No.	Fatal (K) Crashes (crashes)	Incapacitating Injury (A) Crashes (crashes)	Non-Incapacitating Injury (B) Crashes (crashes)	Possible Injury (C) Crashes (crashes)	No Injury (O) Crashes (crashes)
1	2.0804	5.0333	21.8671	28.5193	154.3072

Table 11. Expected Freeway Crash Type Distribution (Section 1)

Element Type	Crash Type	Fatal and Injury		Property Damage Only		Total	
		Crashes	Crashes (%)	Crashes	Crashes (%)	Crashes	Crashes (%)
Highway Segment	Collision with Animal	0.33	0.2	6.50	3.1	6.83	3.2
Highway Segment	Collision with Fixed Object	18.57	8.8	62.53	29.5	81.10	38.3
Highway Segment	Collision with Other Object	1.01	0.5	12.51	5.9	13.52	6.4
Highway Segment	Other Single-vehicle Collision	12.05	5.7	16.21	7.7	28.26	13.3
Highway Segment	Collision with Parked Vehicle	0.79	0.4	2.30	1.1	3.09	1.5
Highway Segment	Total Single Vehicle Crashes	32.75	15.5	100.05	47.2	132.80	62.7
Highway Segment	Right-Angle Collision	1.39	0.7	1.63	0.8	3.01	1.4
Highway Segment	Head-on Collision	0.45	0.2	0.22	0.1	0.66	0.3
Highway Segment	Other Multi-vehicle Collision	1.46	0.7	4.23	2.0	5.69	2.7
Highway Segment	Rear-end Collision	15.59	7.4	27.56	13.0	43.15	20.4
Highway Segment	Sideswipe, Same Direction Collision	5.87	2.8	20.62	9.7	26.48	12.5
Highway Segment	Total Multiple Vehicle Crashes	24.75	11.7	54.25	25.6	79.00	37.3
Highway Segment	Total Highway Segment Crashes	57.50	27.1	154.31	72.9	211.81	100.0
	Total Crashes	57.50	27.1	154.31	72.9	211.81	100.0

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 12. Evaluation Message

Start Location (Sta. ft)	End Location (Sta. ft)	Message
9451+20.000	9715+20.000	for segment #1 (9451+20.000 to 9715+20.000), Median barrier distance from edge of inside shoulder to barrier face (38.50 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations.
9451+20.000	9715+20.000	for segment #1 (9451+20.000 to 9715+20.000), Median barrier distance from edge of inside shoulder to barrier face (38.50 feet) is greater than specified boundaries (17.00 feet); adjusted in CMF calculations.
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Interactive Highway Safety Design Model

Crash Prediction Evaluation Report
I-26 MP 169-187
HSM Sample Crash Rate for
MP 179-184 Mainline Alternative

October 15, 2020

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Report Template: User: My CPM Template (mlcpm6, Sep 14, 2020 9:29 AM)

Evaluation Date: Thu Oct 15 09:13:06 EDT 2020
IHSDM Version: v16.0.0 (Sep 30, 2020)
Crash Prediction Module: v11.0.0 (Sep 30, 2020)

User Name: Eugene Taylor
Organization Name: South Carolina Department of Transportation
Phone: 803-737-1103
E-Mail: Taylorea@scdot.org

Project Title: I-26 MP169-187
Project Comment: Created using wizard
Project Unit System: U.S. Customary

Highway Title: I-26 179-184 Mainline Alternative
Highway Comment: Copied from I-26 179-184 Mainline Existing (v1)
Highway Version: 1

Evaluation Title: Evaluation 1
Evaluation Comment: Created Thu Oct 15 09:12:28 EDT 2020

Minimum Location: 9451+20.000
Maximum Location: 9715+20.000
Policy for Superelevation: AASHTO 2011 U.S. Customary
Calibration: SCDOT Calibration Factors
Crash Distribution: SCDOT Crash Distribution
Model/CMF: HSM Configuration
First Year of Analysis: 2020
Last Year of Analysis: 2025
Empirical-Bayes Analysis: None
First Year of Observed Crashes:
Last Year of Observed Crashes:

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IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70 AND 17-58

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58 and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

2. Section Types

2.1 Section 1 Evaluation

Section: Section 1
Evaluation Start Location: 9451+20.000
Evaluation End Location: 9715+20.000
Functional Class: Freeway
Type of Alignment: Divided, Multilane
Model Category: Freeway Segment
Calibration Factor: FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

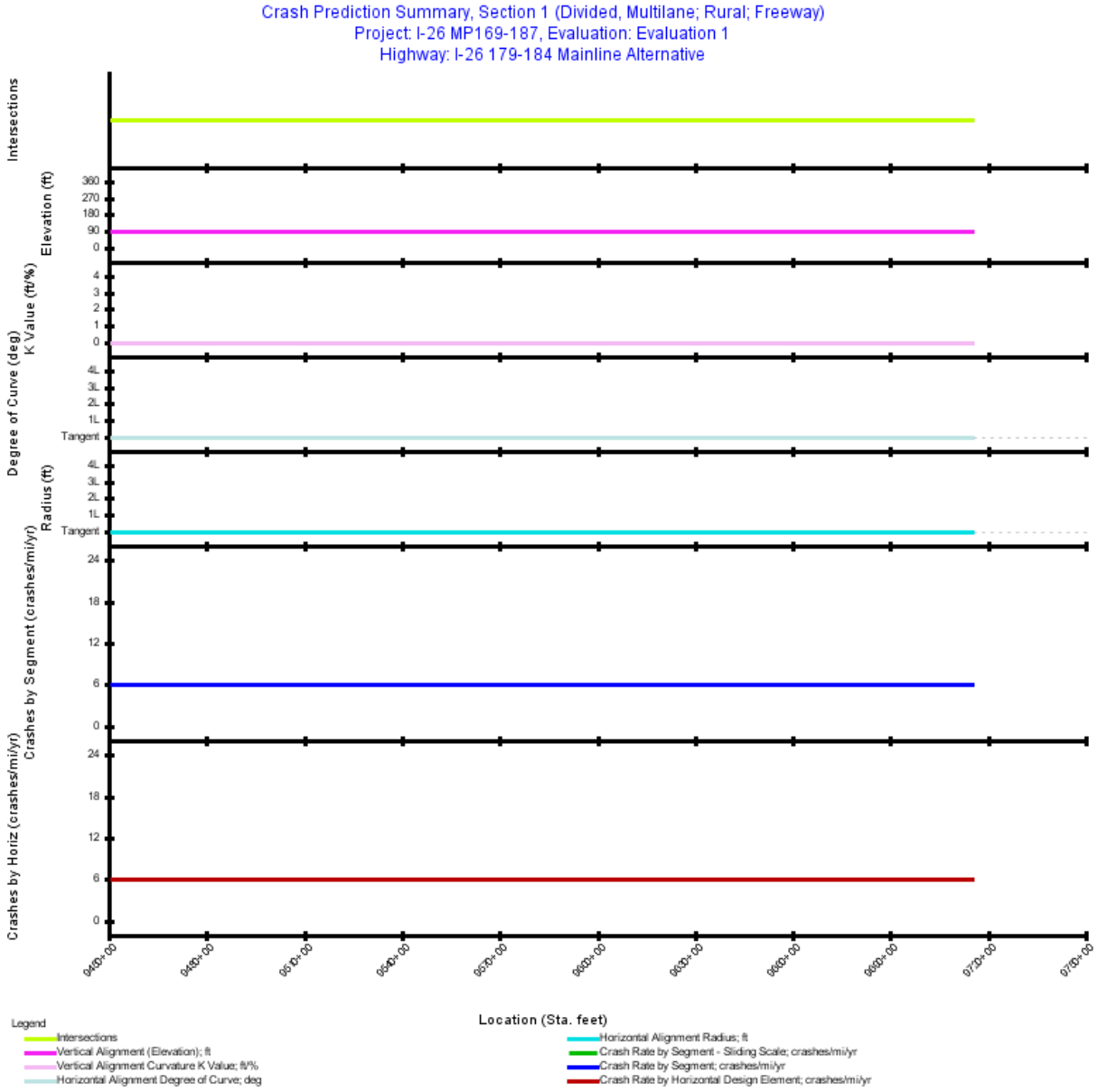


Figure 1. Crash Prediction Summary (Section 1)

Table 1. Evaluation Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	6F	Rural	9451+20.000	9715+20.000	26,400.00	5.0000	2020-2025: 44,900	45.00	Non-Traversable Median	65.00

Table 2. Predicted Freeway Crash Rates and Frequencies Summary (Section 1)

First Year of Analysis	**2020**
Last Year of Analysis	**2025**
Effective Length (mi)	**5.0000**
Average Future Road AADT (vpd)	**44,900**
Predicted Crashes	
Total Crashes	**177.24**
Fatal and Injury Crashes	**50.84**
Property-Damage-Only Crashes	**126.39**
Percent of Total Predicted Crashes	
Percent Fatal and Injury Crashes (%)	**29**
Percent Property-Damage-Only Crashes (%)	**71**
Predicted Crash Rate	
Crash Rate (crashes/mi/yr)	**5.9078**
FI Crash Rate (crashes/mi/yr)	**1.6947**
PDO Crash Rate (crashes/mi/yr)	**4.2131**
Predicted Travel Crash Rate	
Total Travel (million veh-mi)	**491.65**
Travel Crash Rate (crashes/million veh-mi)	**0.36**
Travel FI Crash Rate (crashes/million veh-mi)	**0.10**
Travel PDO Crash Rate (crashes/million veh-mi)	**0.26**

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
Note: *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 3. Predicted Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

Segment Number/Intersection Name/Cross Road	Start Location (Sta. ft)	End Location (Sta. ft)	Effective Length (mi)	Total Predicted Crashes for Evaluation Period	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	Predicted Crash Rate (crashes/mi/yr)	Predicted Travel Crash Rate (crashes/million veh-mi)
1	9451+20.000	9715+20.000	5.0000	177.235	29.5392	8.4734	21.0657	5.9078	0.36
Total			5.0000	177.235	29.5392	8.4734	21.0657	5.9078	0.36

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 4. Predicted Crash Frequencies and Rates by Horizontal Design Element (Section 1)

Title	Start Location (Sta. ft)	End Location (Sta. ft)	Length (mi)	Total Predicted Crashes for Evaluation Period	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	Predicted Crash Rate (crashes/mi/yr)	Predicted Travel Crash Rate (crashes/million veh-mi)
Tangent	9451+20.000	9715+20.000	5.0000	177.235	29.5392	8.4734	21.0657	5.9078	0.36

Table 5. Predicted Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2020	29.54	8.47	28.685	21.07	71.315
2021	29.54	8.47	28.685	21.07	71.315
2022	29.54	8.47	28.685	21.07	71.315
2023	29.54	8.47	28.685	21.07	71.315
2024	29.54	8.47	28.685	21.07	71.315
2025	29.54	8.47	28.685	21.07	71.315
Total	177.24	50.84	28.685	126.39	71.315
Average	29.54	8.47	28.685	21.07	71.315

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 6. Predicted Crash Severity by Freeway Segment (Section 1)

Seg. No.	Fatal (K) Crashes (crashes)	Incapacitating Injury (A) Crashes (crashes)	Non-Incapacitating Injury (B) Crashes (crashes)	Possible Injury (C) Crashes (crashes)	No Injury (O) Crashes (crashes)
1	1.8395	4.4504	19.3345	25.2163	126.3944

Table 7. Predicted Freeway Crash Type Distribution (Section 1)

Element Type	Crash Type	Fatal and Injury		Property Damage Only		Total	
		Crashes	Crashes (%)	Crashes	Crashes (%)	Crashes	Crashes (%)
Highway Segment	Collision with Animal	0.31	0.2	5.73	3.2	6.04	3.4
Highway Segment	Collision with Fixed Object	17.48	9.9	55.07	31.1	72.55	40.9
Highway Segment	Collision with Other Object	0.96	0.5	11.02	6.2	11.97	6.8
Highway Segment	Other Single-vehicle Collision	11.34	6.4	14.28	8.1	25.62	14.5
Highway Segment	Collision with Parked Vehicle	0.74	0.4	2.03	1.1	2.77	1.6
Highway Segment	Total Single Vehicle Crashes	30.82	17.4	88.12	49.7	118.94	67.1
Highway Segment	Right-Angle Collision	1.12	0.6	1.15	0.6	2.27	1.3
Highway Segment	Head-on Collision	0.36	0.2	0.15	0.1	0.51	0.3
Highway Segment	Other Multi-vehicle Collision	1.18	0.7	2.99	1.7	4.17	2.4
Highway Segment	Rear-end Collision	12.61	7.1	19.45	11.0	32.05	18.1
Highway Segment	Sideswipe, Same Direction Collision	4.74	2.7	14.54	8.2	19.29	10.9
Highway Segment	Total Multiple Vehicle Crashes	20.02	11.3	38.28	21.6	58.29	32.9
Highway Segment	Total Highway Segment Crashes	50.84	28.7	126.39	71.3	177.24	100.0
	Total Crashes	50.84	28.7	126.39	71.3	177.24	100.0

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Crash Summary

SC 453 (JUDGE ST) from MPT 1.160 to MPT 1.400

DORCHESTER COUNTY

01/01/2016 - 12/31/2018 (3.0 years)

Length = 0.240 miles

AADT = 4,467

Functional Class = Rural -- Major Collector

Crashes by Injury Class

Fatality Crashes	0
Injury Crashes	1
PDO Crashes	3
Total Crashes	**4**

Crashes by Manner Of Collision

Rear End	0
Angle	2
Sideswipe	1
Head On	0
Run Off Road	1
Animal	0
Bicycle	0
Pedestrian	0
Other	0
Total Crashes	**4**

Special Contributing Factors

Night	1
Day	3
Wet	0
Dry	4

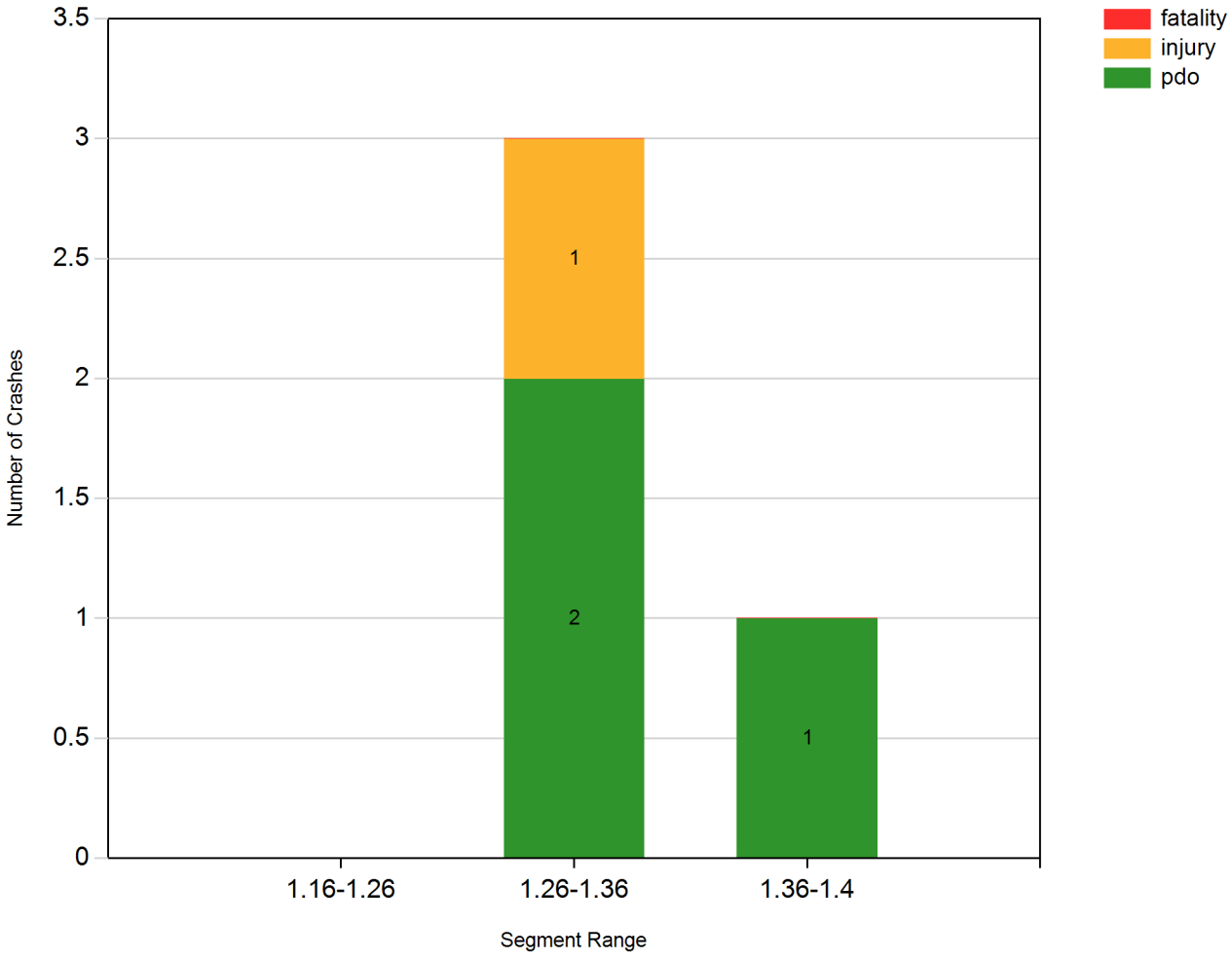
SC 453 (JUDGE ST) from MPT 1.160 to MPT 1.400

DORCHESTER COUNTY

01/01/2016 - 12/31/2018 (3.0 years)

Length = 0.240 miles AADT = 4,467

Functional Class = Rural -- Major Collector



SC 453 (JUDGE ST) from MPT 1.160 to MPT 1.400

DORCHESTER COUNTY

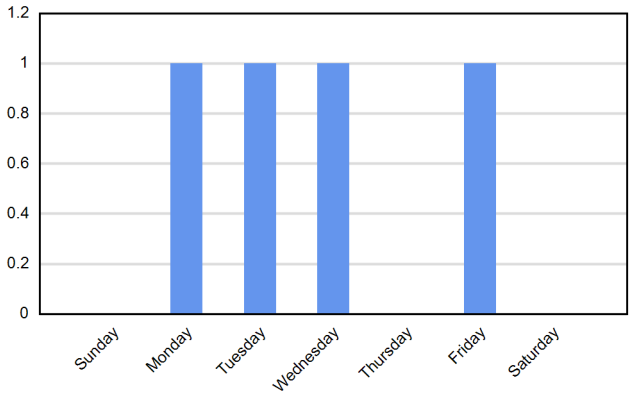
01/01/2016 - 12/31/2018 (3.0 years)

Length = 0.240 miles AADT = 4,467

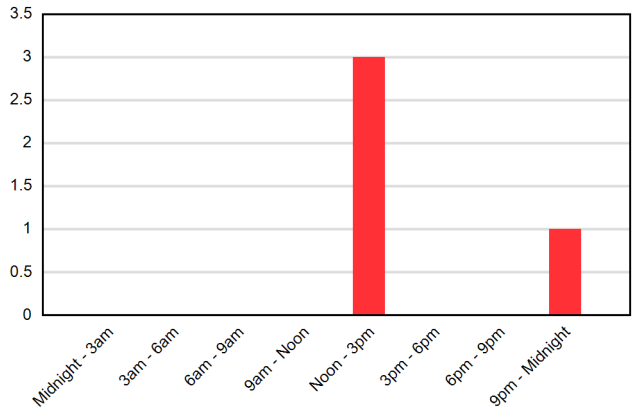
Functional Class = Rural -- Major Collector

Year	2016	2017	2018	Total
Rear End	0	0	0	0
Angle	0	0	2	2
Sideswipe	0	1	0	1
Head On	0	0	0	0
Run Off Road	0	1	0	1
Animal	0	0	0	0
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	0	0	0	0
	0	2	2	4

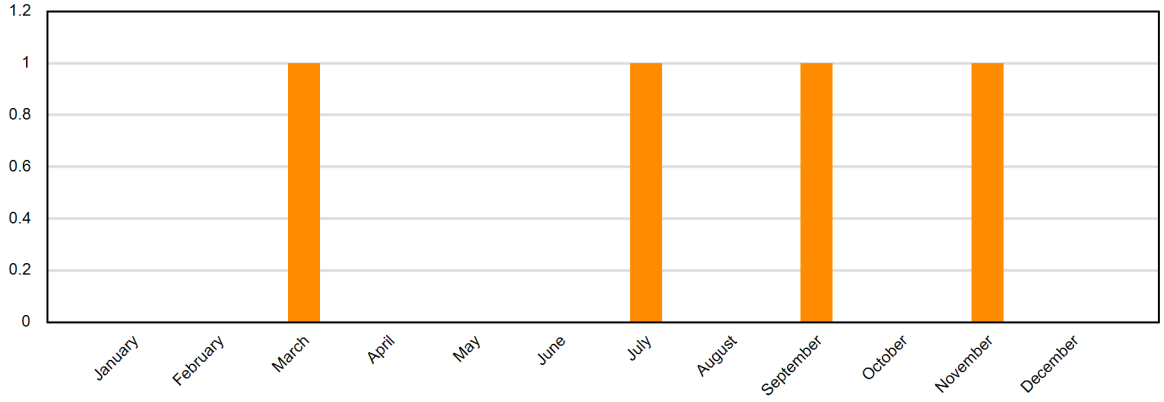
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 1.260 to 1.360 (Stack #2)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 2

1	17659850	1.260	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
2	18597701	1.330	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	18632725	1.328	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 1.360 to 1.400 (Stack #3)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	17525995	1.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

Crash Summary

US 15 (US 15 HWY N) from MPT 17.000 to MPT 17.650

DORCHESTER COUNTY

01/01/2016 - 12/31/2018 (3.0 years)

Length = 0.650 miles

AADT = 2,300

Functional Class = Rural -- Major Collector

Crashes by Injury Class

Fatality Crashes	0
Injury Crashes	2
PDO Crashes	5
Total Crashes	**7**

Crashes by Manner Of Collision

Rear End	1
Angle	5
Sideswipe	1
Head On	0
Run Off Road	0
Animal	0
Bicycle	0
Pedestrian	0
Other	0
Total Crashes	**7**

Special Contributing Factors

Night	0
Day	7
Wet	2
Dry	5

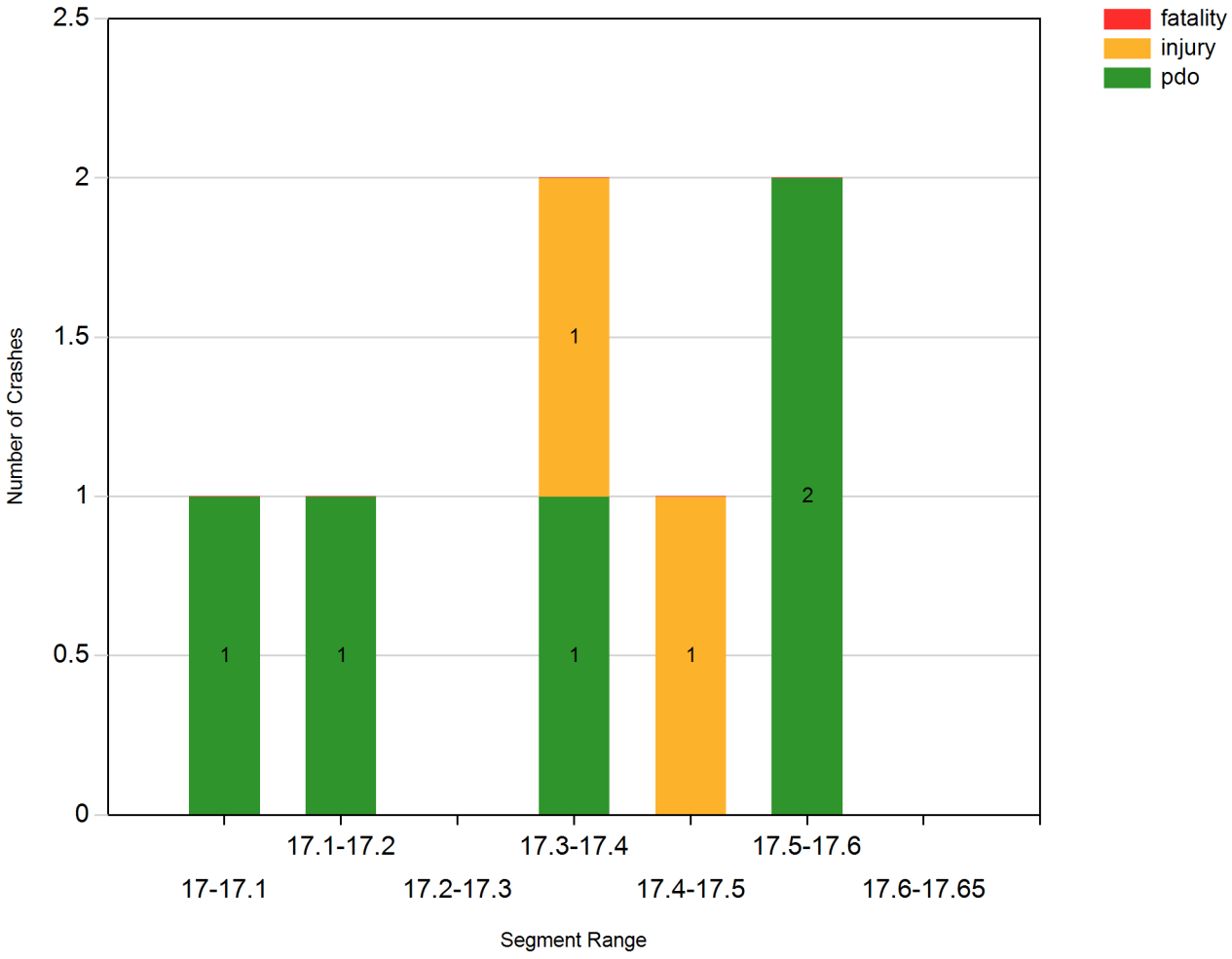
US 15 (US 15 HWY N) from MPT 17.000 to MPT 17.650

DORCHESTER COUNTY

01/01/2016 - 12/31/2018 (3.0 years)

Length = 0.650 miles AADT = 2,300

Functional Class = Rural -- Major Collector



US 15 (US 15 HWY N) from MPT 17.000 to MPT 17.650

DORCHESTER COUNTY

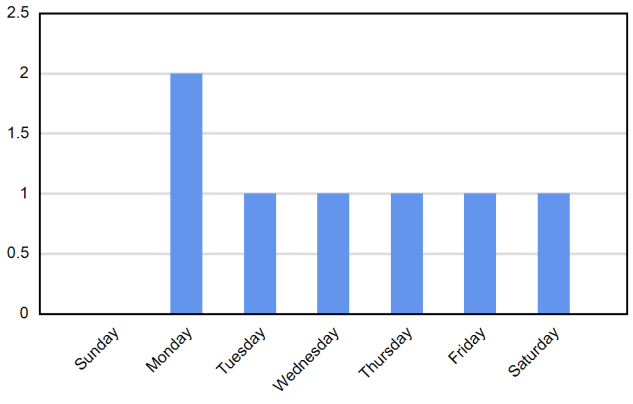
01/01/2016 - 12/31/2018 (3.0 years)

Length = 0.650 miles AADT = 2,300

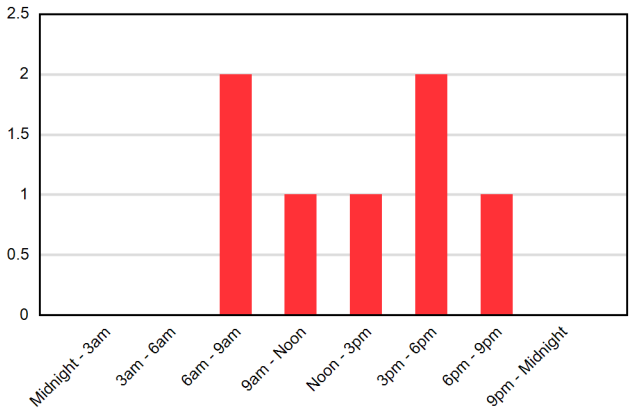
Functional Class = Rural -- Major Collector

Year	2016	2017	2018	Total
Rear End	1	0	0	1
Angle	1	2	2	5
Sideswipe	0	0	1	1
Head On	0	0	0	0
Run Off Road	0	0	0	0
Animal	0	0	0	0
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	0	0	0	0
	2	2	3	7

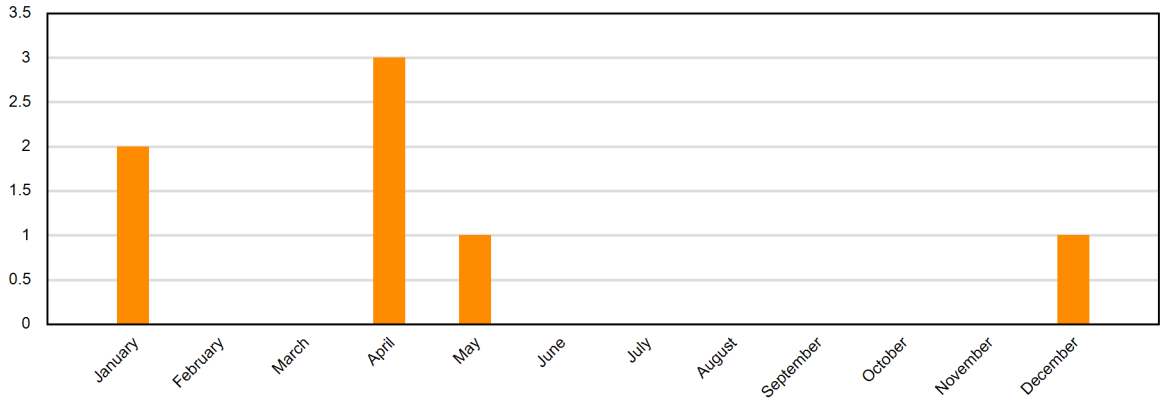
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 17.000 to 17.100 (Stack #1)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	16510789	17.040	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 17.100 to 17.200 (Stack #2)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18568038	17.111	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 17.300 to 17.400 (Stack #4)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 1

1	17579075	17.310	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	18564624	17.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 17.400 to 17.500 (Stack #5)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 0 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 0

1	18682142	17.498	INJ1	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 17.500 to 17.600 (Stack #6)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 2

1	16547942	17.545	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	17511739	17.550	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

Traffic Design Data

South Carolina
Department of Transportation

MEMORANDUM

TO: Betsy McCall – Office of Planning

FROM: Brent S. Dillon, State Traffic Design Engineer

DATE: February 26, 2020

RE: Dorchester County P038677
Exit 172 (I-26 @ US 15) and Exit 177 (I-26 @ SC 453)
Feasibility Study – Interchange Alternative Analysis

Traffic Engineering Design Review has completed an analysis for feasibility planning purposes along the I-26 corridor in Dorchester County. The two exits studied were Exit 172 (US 15) and Exit 177 (SC 453). The following memorandum provides a summary of the analyses performed, a report of the results generated, as well as recommendations for future development.

According to the project schedule, the design year for this project is 2045. For analysis purposes, the design year of 2045 was analyzed for the No Build and Build Scenarios. Determination of future volumes was completed through a combination of sources. Planning provided anticipated future volumes at both interchanges for analysis purposes. A recent traffic study performed by Stantec for nearby interchanges was utilized to determine mainline volumes on I-26. Turning movement counts from Stantec's report were utilized in determining traffic patterns at Exit 177 (SC 453). Tube counts were performed at Exit 172 (US 15) in December of 2019 to determine traffic patterns at that location. A combination of worst case scenario volumes was used to determine the design peak hour volumes of traffic expected to be utilizing the interchange in the year 2045. A truck percentage of roughly 25% on the mainline of I-26 and 19% on ramps was obtained from ITMS and applied where applicable to the analysis process. Truck percentages were much lower on the secondary routes, 12% and 9% respectively for US 15 and SC 453.

Exit 172 (US 15) Interchange

Exit 172 (US 15) interchange is currently a full cloverleaf interchange with two exits along both directions of I 26 allowing for traffic to exit in either the northbound or southbound directions on to US 15. Likewise, US 15 has two exits in both directions allowing for traffic to enter I-26 in either the eastbound or westbound directions. This configuration allows for traffic to enter and exit continuously but is limited by the weave segments where traffic must merge and diverge.

For Exit 172 (US 15), Traffic Engineering Design Review analyzed three separate scenarios which are described as follows:

- No Build – Existing Configuration. No Improvements.
- Alternative 1 – Existing Configuration with widening I-26 to three lanes in each direction.
- Alternative 2 – Removal of loop ramps in the north and south quadrants in addition to widening I-26 to three lanes in each direction, leaving a partial cloverleaf (Parclo A) interchange configuration. The interchange will remain a diamond interchange with loops remaining in both the east and west quadrants, allowing a single exit and two entrance ramps to I-26.

Highway Capacity Software was used to determine the capacity of the loops and ramps at the interchange under each scenario providing insight into the possible design solutions at this interchange. The results of these analyses can be found in the table below.

I-26 Exit 172 (US 15) 2045 Peak Hour HCS Analysis

Capacity Results LOS				
Movement	**No Build**	**Alternative 1**	**Alternative 2**	**Movement**
I-26 WB to US 15NB Diverge	Near Capacity D	Under Capacity B	Under Capacity B	**I-26 WB to US 15 NB / US 15 SB Diverge**
US 15 NB to I-26 WB Weaving	Under Capacity C	Under Capacity B	Under Capacity B	**US 15 NB to I-26 WB Merge**
I-26 WB to US 15 SB Weaving	Under Capacity A	Under Capacity A		
US 15 SB to I-26 WB Merge	Near Capacity D	Under Capacity B	Under Capacity B	**US 15 SB to I-26 WB Merge**
I-26 EB to US 15 SB Diverge	Under Capacity B	Under Capacity A	Under Capacity A	**I-26 EB to US 15 SB / US 15 NB Diverge**
US 15 SB to I-26 EB Weaving	Under Capacity B	Under Capacity B	Under Capacity B	**US 15 SB to I-26 EB Merge**
I-26 EB to US 15 NB Weaving	Under Capacity A	Under Capacity A		
US 15 NB to I-26 EB Merge	Under Capacity C	Under Capacity B	Under Capacity B	**US 15 NB to I-26 EB Merge**

Upon removal of the loop ramps in the north and south quadrants of Exit 172, the impacts to the remaining exit ramps were found to be minimal, with all movements still performing well under maximum capacity. Based on this information, a third alternative was developed as described below:

- Alternative 3 – Removal of all loop ramps in addition to widening I-26 to three lanes in each direction, leaving a diamond interchange configuration.

The same analysis process applied to the previous alternatives was applied to the newly developed Alternative 3. The results of this analysis can be found in the table below.

I-26 Exit 172 (US 15) 2045 Peak Hour HCS Analysis

Capacity Results LOS	
Movement	**Alternate 3**
I-26 WB to US 15	Under Capacity B
US 15 to I-26 WB	Under Capacity B
I-26 EB to US 15	Under Capacity A
US 15 to I-26 EB	Under Capacity B

With the removal of the loop ramps in Alternative 2 and Alternative 3, the exit movements off of the mainline of I-26 will be combined, creating a need for intersection traffic control at the exit ramps. What was once a free flowing right turn movement, will now consist of left and right turning movements. These intersection traffic control types have the option of being stop signs, signals, or roundabouts. According to the Roadway Design Manual, when a stop-controlled intersection reaches a certain level of congestion, a signalized intersection may become necessary, and future signal operation should be considered during the design process in order to ensure operation efficiency. Therefore, a signal was chosen for the analysis purposes at these intersections to ensure adequate performance in future scenarios. The appropriate intersection traffic control type will be necessary to control traffic making left turns on to and off of the interstate ramps with the configuration found in Alternative 3.

Reconfiguration of the intersections will be required to accommodate the changes necessary for the redirected movements, and reconstruction of the bridge should include a minimum of three lanes to accommodate the left turning traffic on to the ramps entering the I-26 mainline for Alternative 3 and two lanes for Alternative 2. After the removal of the loop ramps, the estimated volumes at each intersection ranged from 175 vehicles per hour exiting I-26 westbound to 275 vehicles per hour exiting I-26 eastbound. Both exit ramps do not exceed 70 vehicles per hour turning left on to US 15. All other ramps do not exceed 150 vehicles per hour. A synchro analysis was performed using the HCM 6th Edition software to determine the levels of service at each intersection. The following table shows the anticipated LOS at each intersection after the removal of the loop ramps.

I-26 Exit 172 (US 15) 2045 Peak Hour LOS Analysis

LOS (Delay,s)		
Intersection	**Alternate 2**	**Alternate 3**
I-26 WB at US 15	A (8.9)	B (12.5)
I-26 EB at US 15	A (6.0)	B (15.2)

The results of the 2045 Build conditions at Exit 172 (US 15) all provide adequate capacity and LOS for all movements. Removal of the loop ramps provides no decrease in level of service for any of the movements, and eliminates the complexity of a weaving movement for

drivers entering and exiting the mainline of I-26. The improved geometry will also eliminate the need for vehicles exiting I-26 to perform a weaving movement along US 15, simplifying the overall operations of the interchange.

Exit 177 (SC 453) Interchange

At the Exit 177 (SC 453) interchange, the current diamond interchange configuration was analyzed under both a No Build and Build condition. The details of the conditions are described as follows:

- No Build – Existing Configuration. No Improvements.
- Alternative 1 – Existing Configuration with widening of I-26 to three lanes in each direction.

Highway Capacity Software was used to determine the capacity of the ramps at the interchange under each scenario determining the effectiveness of the current interchange configuration. The results of these analyses can be found in the table below.

I-26 Exit 177 (SC 453) 2045 Peak Hour HCS Analysis

Capacity Results LOS		
Movement	**No Build**	**Build**
I-26 WB to SC 453 Diverge	Near Capacity D	Under Capacity C
SC 453 to I-26 WB Merge	Near Capacity D	Under Capacity C
I-26 EB to SC 453 Diverge	Under Capacity C	Under Capacity B
SC 453 to I-26 EB Merge	Near Capacity D	Under Capacity B

The results of the HCS analysis performed on the existing diamond interchange at Exit 177 (SC 453) in both the No Build and Build conditions show the current diamond configuration to be performing under capacity and with acceptable levels of service. The addition of the third lane on the I-26 mainline reduces both the turbulence and the density at decision points and allows for an improvement in the level of service of each movement. This increase in mainline capacity is represented in the Build condition, confirming that a diamond interchange functions well at this location.

As part of the Build scenario, signals were modeled at the ramp locations to provide better functionality for traffic entering and exiting the interstate. Volumes exiting I-26 westbound are estimated to be around 445 vehicles per hour, with an estimated 180 vehicles per hour exiting I-26 in the eastbound direction. Left turn lanes along SC 453 were included at the signal in each direction to provide storage for vehicles entering the I-26 corridor. An estimated 137 vehicles per are expected to use the entrance ramp from SC 453 to I-26 westbound, while an estimated 465 vehicles per hour are expected to enter I-26 in the eastbound direction. All of the

volumes are evenly distributed to the north and south along SC 453 to and from I-26. Reconstruction of the bridge should include a minimum of three lanes to accommodate the left turn lanes required at each location. A synchro analysis was performed using the HCM 6th Edition software to determine the levels of service at each intersection. The results can be found in the following table.

I-26 Exit 177 (SC 453) 2045 Peak Hour LOS Analysis

LOS (Delay,s)	
Intersection	**Build**
I-26 WB at SC 453	B (12.1)
I-26 EB at SC 453	B (12.4)

Recommendations

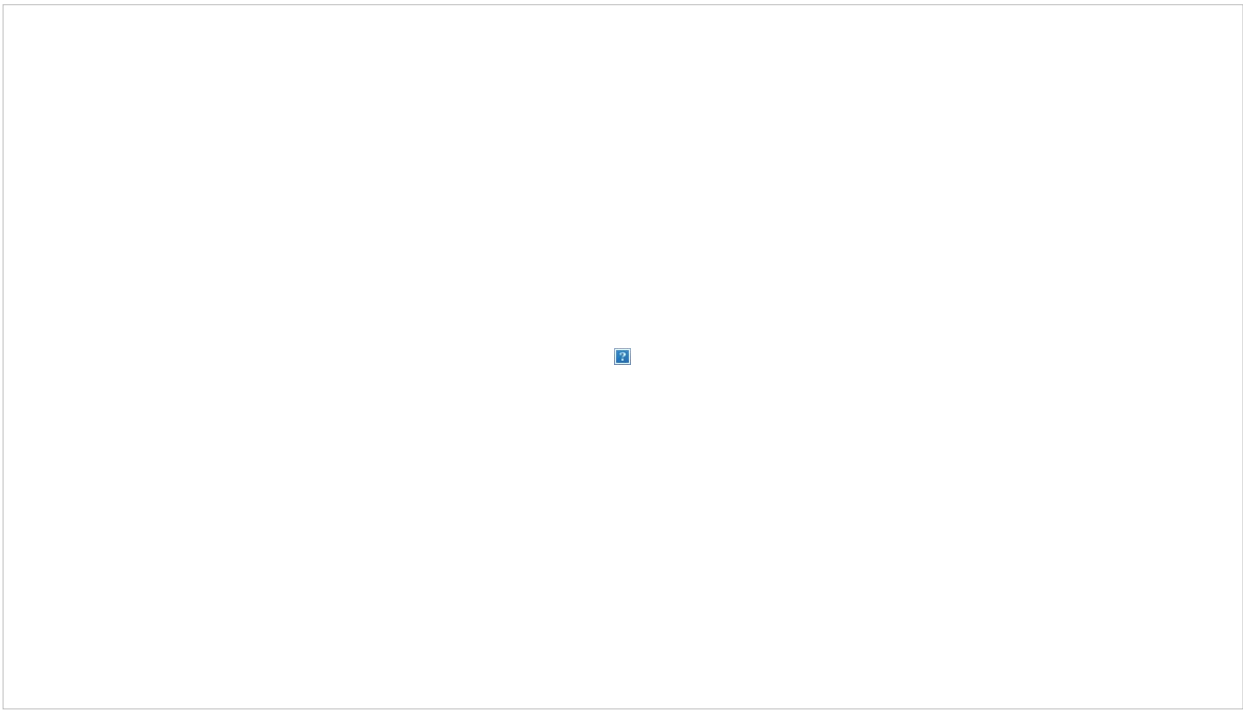
Based on the results of the analyses performed, it is the recommendation of Traffic Engineering Design Review that a diamond interchange configuration be utilized at each location. For Exit 172 (US 15), Alternative 3 is the preferred Alternative with Alternative 2 also being acceptable, and for Exit 177 (SC 453), the existing interchange configuration should remain. The HCS analyses conclude that all merge and diverge movements associated with the entrance and exit ramps will perform with acceptable levels of service, thus eliminating the need for weaving maneuvers. Reconstruction of the bridges should include adequate width for the development of left turn lanes along the local routes for vehicles entering the I-26 corridor. These intersections should be considered with stop control, signalization when warranted, or roundabout control. Reconfiguration of the ramp termini to accommodate turn lanes for additional turning movements is required. It is anticipated that a diamond interchange at both locations will have desirable performance in the design year.

If you have any comments or questions, please do not hesitate to contact Ron Hinson or me.

BSD:sc

From: Hinson, Ron E
To: McCall, Betsy D
Subject: RE: Feasibility
Date: Tuesday, February 11, 2020 8:58:43 AM
Attachments: image001.jpg

Betsy,
The I-26 at SC 453 interchange can stay as a diamond in the proposed condition. I'm assuming the bridge will be replaced with the project and in doing so should be replaced with a 3-lane typical section to accommodate one thru lane in each direction along with a median for left turn lanes. Single lane exits and entrances will meet the LOS C goal at the merge and diverge points along I-26. As the exit ramps approach SC 453 they will need to be widened to two lanes. I've attached a drawing to illustrate the design. Let me know if you or the RPG has any questions.



Thanks,
Ron

-----Original Message-----
From: McCall, Betsy D
Sent: Wednesday, January 08, 2020 7:31 AM
To: Hinson, Ron E
Subject: RE: Feasibility

No problem. Hope you feel better!

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

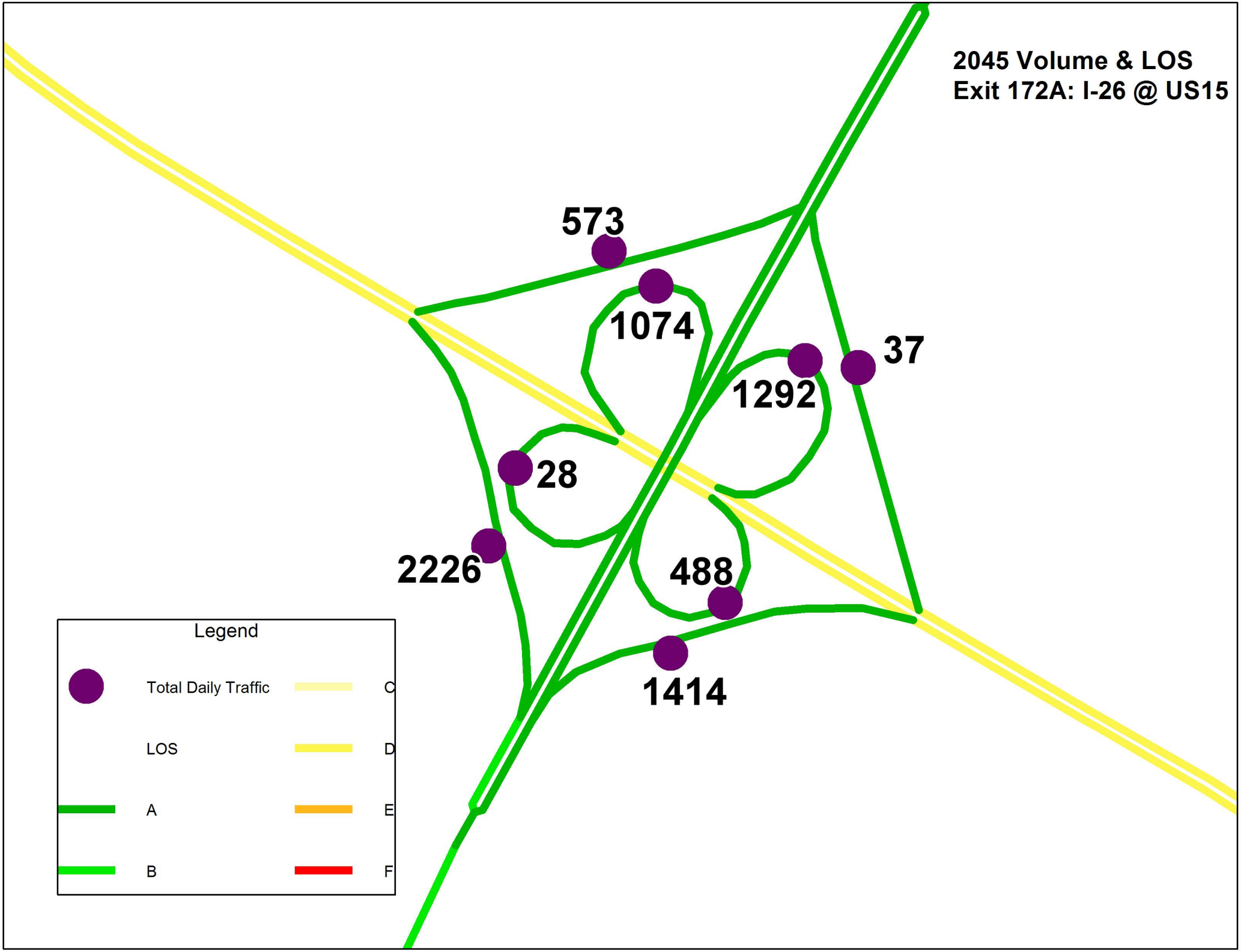
-----Original Message-----
From: Hinson, Ron E
Sent: Wednesday, January 08, 2020 7:24 AM
To: McCall, Betsy D <McCallBD@scdot.org>
Cc: Giovanetti, Douglas <GiovanetD@scdot.org>; Dillon, Brent S <DillonBS@scdot.org>
Subject: Feasibility

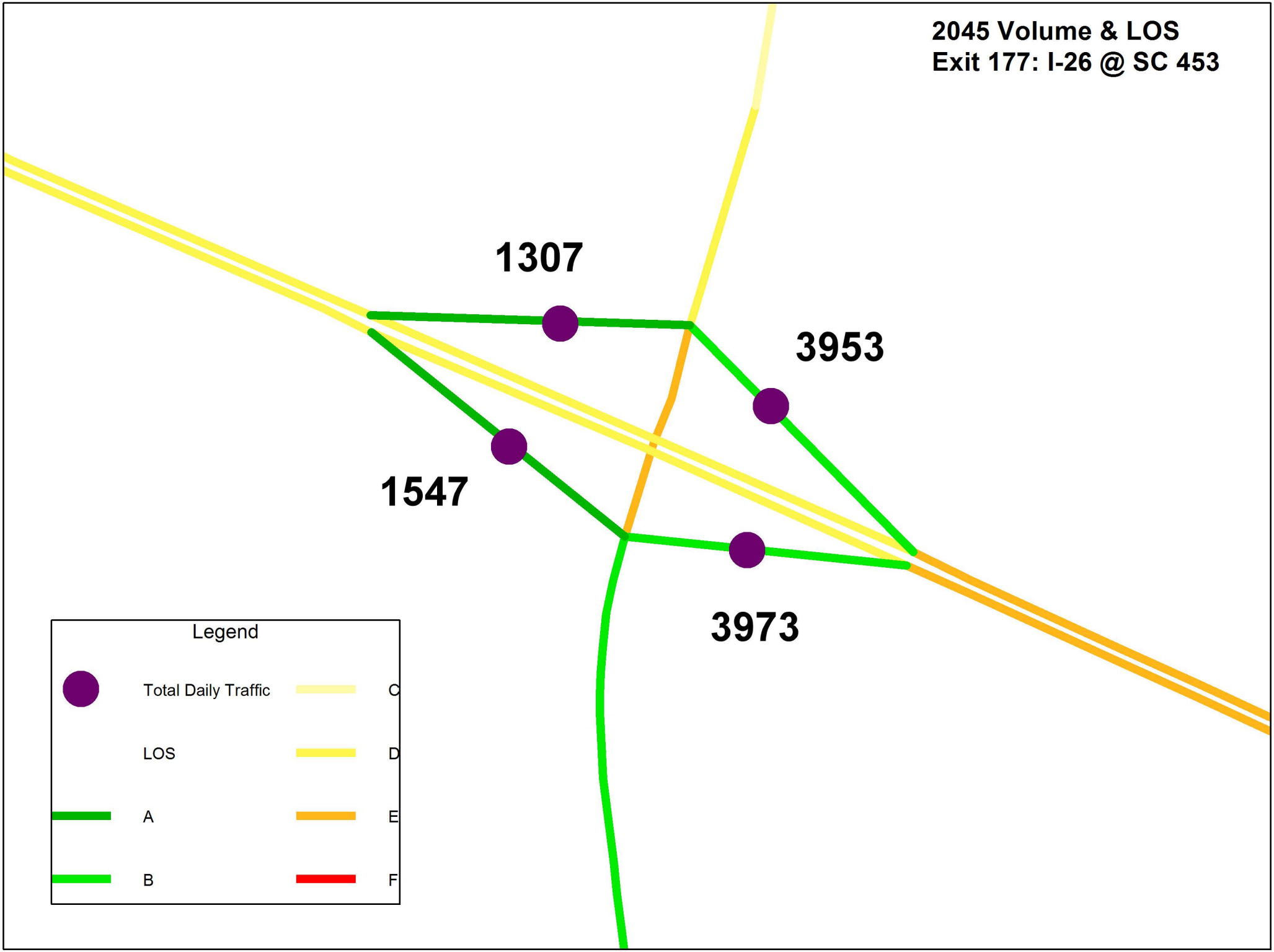
Betsy,
I'm out sick today. I will follow up with you tomorrow on feasibility report status.

Thanks,
Ron

Sent from my iPhone

System Performance Data


2045 Volume & LOS
Exit 172A: I-26 @ US15
573
1074
37
1292
28
2226
488
1414
Legend
Total Daily Traffic
LOS
A
B
C
D
E
F


2045 Volume & LOS
Exit 177: I-26 @ SC 453
1307
3953
1547
3973
Legend
Total Daily Traffic
LOS
A
B
C
D
E
F

I-26 MM 169-187
BY 2015

Holly Hill

19774
18890
18641
18468
17147
17329
15950
15924
18520
18661
17866
17828
21943
22135

453
311
95
15
78
178
26
27
173

Harleyville
St. George
Ridgeville
DORCHESTER

Legend

Total Daily Traffic

LOS

B

C

I-26 MM 169-187
FY 2045
6 Lane Scenario

Holly Hill

25377
26777
24358
24377
453
23716
24223
22681
253175
Harleyville
95
15
78
St. George
27
26967
27094
178
26
78
26025
26024
33378
33162
43163
43203
173
Ridgeville
15
DORCHESTER

Legend

Total Daily Traffic

LOS

C

D

E

F

I-26 MM 169-187
FY 2045
8 Lane Scenario

Holly Hill

25918
27262
23639
24867
23833
24291
22824
23287
27263
27246
26232
26176
32910
33105
42919
43117

453
95
15
78
178
26
27
173

St. George
Harleyville
Ridgeville
DORCHESTER

Legend

Total Daily Traffic

LOS

B

D

E

F

I-26 MM 169-187
FY 2045
Base Data

Holly Hill

23512
22695
21904
20826
21941
22240
20666
20755
24595
24566
32459
32633
42850
42712

453
15
27
178
26
78
176
173
61

Harleyville
St. George
Ridgeville
Summerville
DORCHESTER

Legend

Total Daily Traffic

Level Of Service

D

E

F

Sponsor Data

Rural Interstate Freight Network Mobility Improvement Program

October 2018

						Criteria Points							Combined		
Rank	Freight Corridor Designation	Begin	End	Length	Area Type	Tonnage Points	Commerce Points	TTTR Points	Truck AADT Points	AdjacentWidening Points	Port Auth Points	2013-17 Total CMV Crash/Mile	Combined Score	Rank	
2018-1	I-26 M2, N	Old Sandy Run Road/Exit 125	I-95/Exit 169	44	Rural	126	64	205	200	50	92	100	836	2018-1	
2018-2	I-95 A,B	GA State Line	US-17 (Ridgeland) (North)/Exit 33	33	Rural	200	30	234	150	50	0	67	731	2018-2	
2018-3	I-26 O	I-95/Exit 169	Ridgeville Rd/Exit 187	18	Rural	83	100	200	145	50	100	49	727	2018-3	
2018-4	I-85 A	GA State Line	US-76/SC-28/Exit 19	19	Rural	137	60	192	193	50	8	82	722	2018-4	
2018-5	I-77 F	SC-9/Exit 65	US 21/Exit 77	12	Rural	104	90	196	124	50	75	78	718	2018-5	

Feasibility Report Information for **I-26 MM169-187**
P038676

Sep-19

Project Limits for Evaluation
I-26 MM169, Western End
I95 Interchange would be the tie in point
I26 MM 187, Eastern End
SC 27 at MM187 is being done on another project. This project will tie to P029263

Limited List of Items to Investigate
Rest Areas
Overpass Bridge clearances
RR crossing
Creek Crossing
Clearance issues between new lanes and bridge piers for overpasses
Narrow median at SC453 and RR crossing.

Problem
Operational: Truck ADT
Truck Time Reliability

Preliminary Purpose and Need
The purpose of this project is to improve operations and reliability.

Financial Plan
NHP - National Highway Program

Project Ranking
3 on Rural Interstate Ranking List

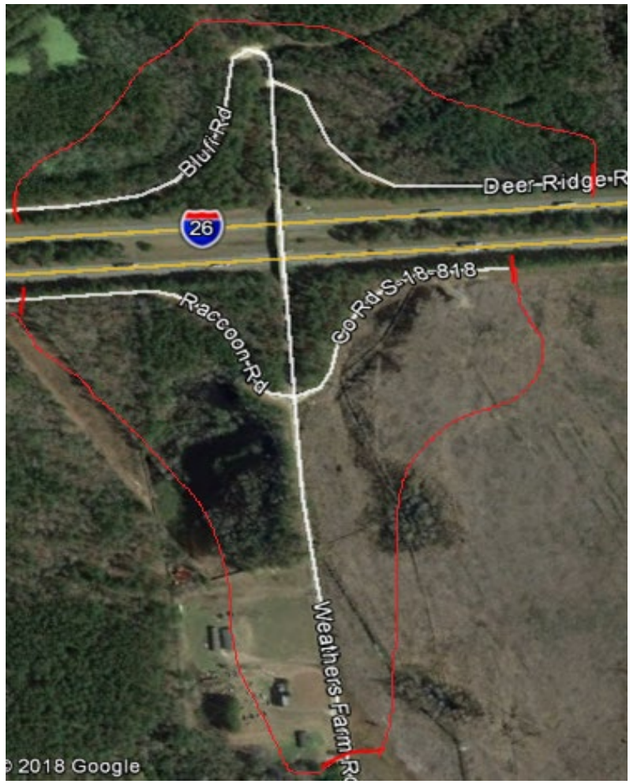
I26 Western End

I26 Eastern End

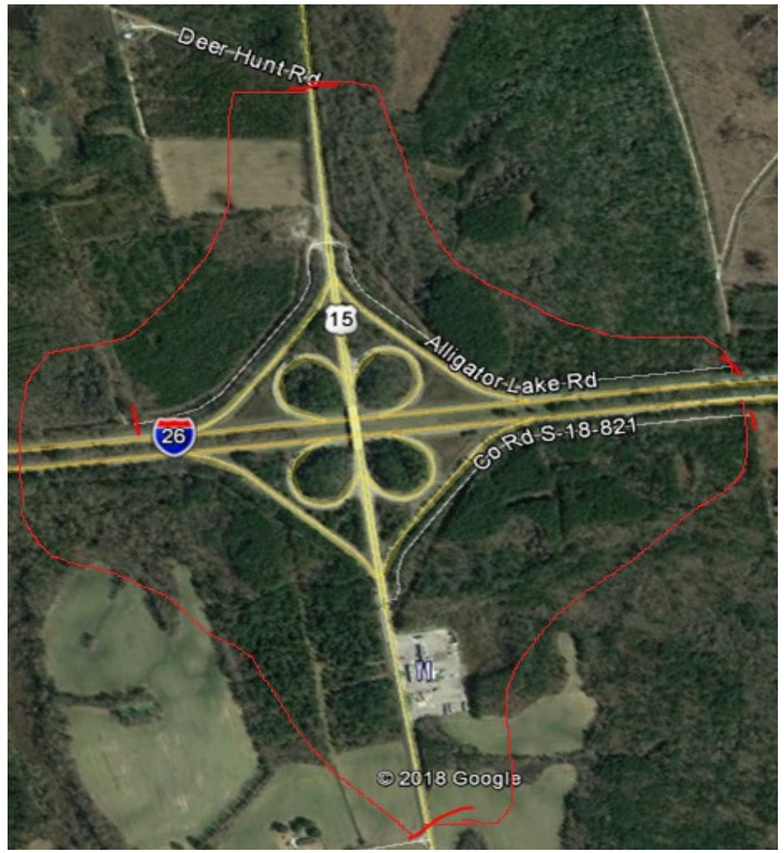
Evaluation Limits

The limits, red polygons, are set based on the possibility of a total redesign.
These polygons represent the area that could be impacted due to interchange/overpass reconstruction.
For Mainline of the interstate the width of the limits will be the RW line.
For overpasses and interchanges not shown below, the width of the limits will be 100' on either side of the roadway.

Weathers Farm Road MM169 Dorchester



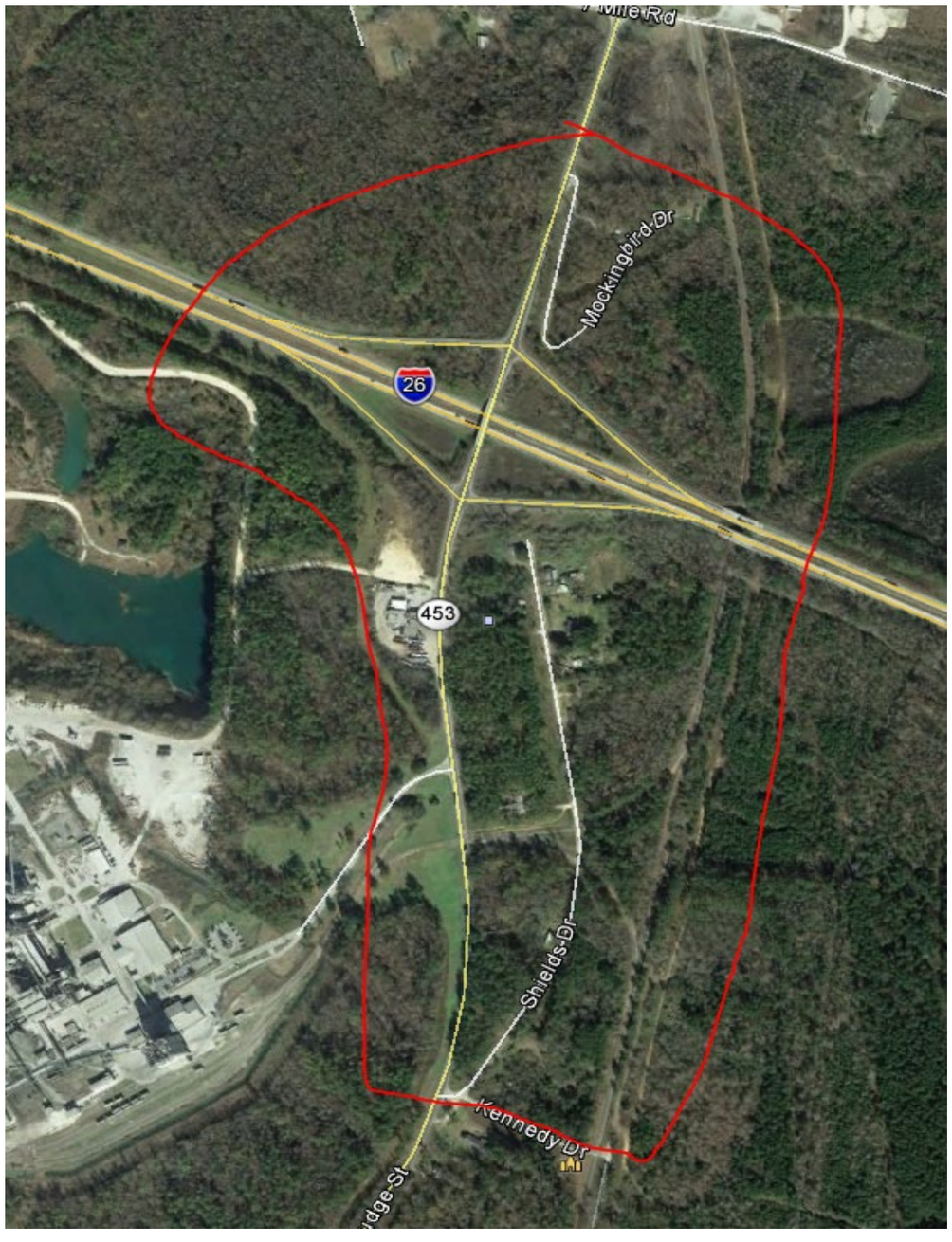
US15 Exit 172 Dorchester



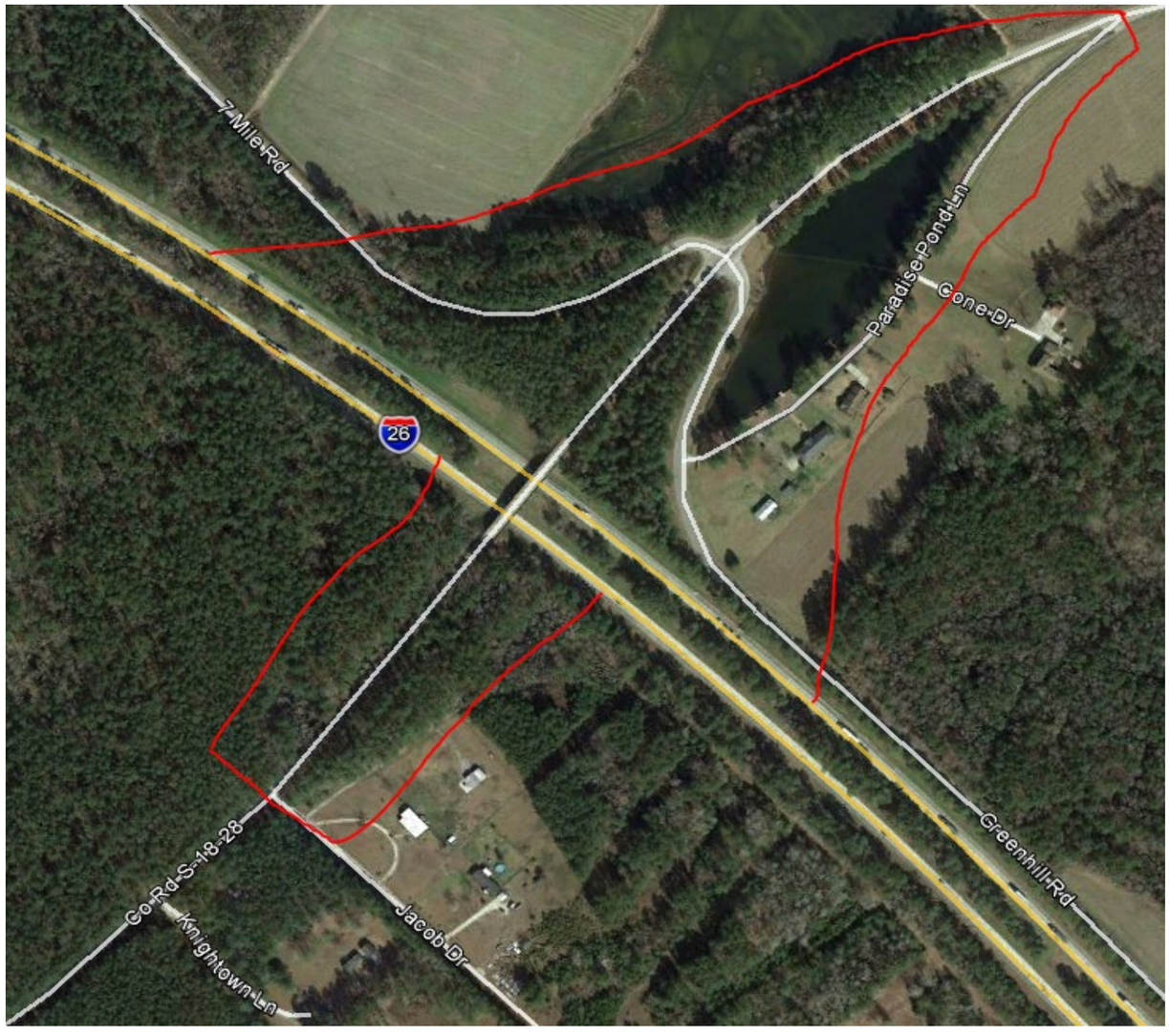
S50, 7 Mile Road MM174 Dorchester

S278, Tunnel Road MM176 Dorchester

SC453 MM177 Dorchester



S28, First Bend Road MM178 Dorchester



S55, 2nd Bend MM179 Dorchester

S139, Talyor Pond Road MM181 Dorchester

S28, Beidler Forest Road MM 184 Dorchester

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Number of Total Lanes	% Truck	Truck Year	Factored AADT Year
DORCHESTER I- 26	18010002600E	169.03	171.51	2.48	39000	4	19.5	2017	2017
DORCHESTER I- 26	18010002600E	171.51	177.02	5.51	38700	4	19.5	2017	2017
DORCHESTER I- 26	18010002600E	177.02	185.6	8.58	40500	4	21.37	2016	2017
BERKELEY I- 26	08010002600E	185.6	187.38	1.78	40500	4	21.37	2016	2017
BERKELEY I- 26	08010002600E	187.38	194.47	7.09	49100	4	21.03	2016	2017
BERKELEY I- 26	08010002600E	194.47	196.9	2.43	61800	4	19.5	2017	2017
BERKELEY I- 26	08010002600E	196.9	197.618	0.718	61800	6	19.5	2017	2017
BERKELEY I- 26	08010002600E	197.618	198.71	1.092	61800	8	19.5	2017	2017
BERKELEY I- 26	08010002600E	198.71	199.04	0.33	61800	6	19.5	2017	2017
BERKELEY I- 26	08010002600E	199.04	203.24	4.2	79700	6	6	2013	2017
BERKELEY I- 26	08010002600E	203.24	203.84	0.6	97700	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	203.84	204.95	1.11	97700	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	204.95	208.09	3.14	108000	6	10.6	2016	2017
CHARLESTON I- 26	10010002600E	208.09	208.54	0.45	190600	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	208.54	211.14	2.6	162400	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	211.14	211.54	0.4	144000	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	211.54	212.6	1.06	164600	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	212.6	213.52	0.92	103400	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	213.52	215.47	1.95	100100	6	4.43	2015	2017
CHARLESTON I- 26	10010002600E	215.47	216.35	0.88	102700	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	216.35	217.266	0.916	100100	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	217.266	219.21	1.944	99500	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	219.21	219.45	0.24	91400	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	219.45	219.71	0.26	81000	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	219.71	220.37	0.66	71800	6	8.6	2017	2017
CHARLESTON I- 26	10010002600E	220.37	220.95	0.58	71600	6	8.6	2017	2017

Interchange	Exit	Ranking, from Planning	Suggestion from Planning	History and comments from Traffic
I95	169	147	Y	There are issues at this interchange, several past projects have been planned to both fully and partially improve operations. Loops and weaving would need to be addressed. During high traffic flows, Highway Patrol has to direct trafic and close lanes to relieve congestion.
US15	172	216	N	No past history at this interchange
SC453	177	259	N	No past history at this interchange
SC27	187	178		Interchange to be reconstructed as part of widening to Volvo plant for Charleston

Ranking, from Planning: Info from IIMS from 2007. It is being updated.

Recommendation to Replace the interchange, from Traffic and Planning: Based on feedback over time from other areas outside of HQ Traffic

Logical Termini is denoted by color and described below. Two sections are proposed.
For this section, the termini is the system to system interchange and the rest of the section.

1	System to system (I95)	$100 mil
2	US15 to SC27	$664 mil

FHWA concurred with logical termini but advised that during the FR to look at the next interchange on all four legs to see if they are affected by the new configuration.

Interchanges

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER US 15	18020001500N	14.81	17.26	2.45	2300	Rural -- Minor Arterial	2018	12	2018	Yes
DORCHESTER US 15	18020001500N	17.26	19.04	1.78	2300	Rural -- Major Collector	2018	12	2018	Yes

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER SC 453	18040045300N	0.48	1.26	0.78	4000	Rural -- Major Collector	2018	24.4	2018	Yes
DORCHESTER SC 453	18040045300N	1.26	3.31	2.05	4800	Rural -- Major Collector	2018	9.5	2018	No

Other Routes Adjacent to the Interchanges

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 822	18070082200E	0	0.32	0.32	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 820	18070082000E	0	0.5	0.5	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 821	18070082100N	0	0.5	0.5	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	
DORCHESTER L- 3653	18090365300N	0	0.29	0.29	200	Rural -- Local	2019			No	Mockingbird Dr

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	
DORCHESTER L- 348	18090034800E	0	0.478	0.478	200	Rural -- Local	2019	4.8	2017	No	Sheilds Drive

Overpasses

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	Weathers Farm Road
DORCHESTER L- 337	18090033700N	0.72	1.247	0.527	200	Rural -- Local	2019	4.8	2017	No	

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 818	18070081800E	0	0.75	0.75	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 819	18070081900N	0	1.45	1.45	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 50	18070005000E	0	4.98	4.98	600	Rural -- Local	2018	4.8	2017	No
DORCHESTER S- 50	18070005000E	4.98	5.87	0.89	150	Rural -- Local	2018	4.8	2017	No
DORCHESTER S- 50	18070005000E	5.87	7.42	1.55	1600	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 823	18070082300N	0	1.43	1.43	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 278	18070027800E	0	1.36	1.36	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 28	18070002800E	0.2	11.52	11.32	325	Rural -- Minor Collector	2018	26.8	2018	Yes

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 825	18070082500N	0	0.99	0.99	500	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	Paridise Point Lane
DORCHESTER L- 2618	18090261800E	0	0.307	0.307	200	Rural -- Local	2019			No	

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 55	18070005500N	0	3.38	3.38	700	Rural -- Minor Collector	2018	18.3	2018	Yes

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 824	18070082400E	0	0.4	0.4	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	Emerald Lane
DORCHESTER L- 3403	18090340300N	0	0.309	0.309	200	Rural -- Local	2019			No	

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 827	18070082700N	0	2.7	2.7	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	Dogwood Trail
DORCHESTER L- 340	18090034000E	0	0.979	0.979	200	Rural -- Local	2019	4.8	2017	No	

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 139	18070013900N	0	2.59	2.59	200	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 553	18070055300N	0	2.26	2.26	325	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 829	18070082900N	0	0.85	0.85	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 828	18070082800E	2.565	2.665	0.1	250	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 830	18070083000E	0	1.42	1.42	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific	Mizell Road
DORCHESTER L- 354	18090035400E	0	1.651	1.651	200	Rural -- Local	2019	4.8	2017	No	

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 831	18070083100N	0	0.37	0.37	125	Rural -- Local	2018	4.8	2017	No

Route	LRS	Begin MilePoint	End MilePoint	Length	AADT (Factored)	Functional Class	Factored AADT Year	% Truck	Truck Year	Site Specific
DORCHESTER S- 832	18070083200E	0	1.2	1.2	125	Rural -- Local	2018	4.8	2017	No

From:	Hinson, Ron E
To:	McCall, Betsy D; Fulmer, Michael J; Harmon, Jeremiah; Taylor, Eugene A.; Kelly, David P.; Beckham, Chris; Gantt, Kevin L; Riley, Jason T; Kelly, Christopher S.; Quattlebaum, Josh B.; Lackey, Diane M.; Mmanu-ike, Johnny K; Larimore, Kenny; Kim, Dahae; Hekter, Jessica - FHWA; Dillon, Brent S; Thomas, Emily G.; Phillips, Henry; Connolly, Sean; Harrington, Kevin B.; Thompson Jr, Jesse U.; Worthy, Lorenzo R; Spradley, Freedom; Galagedera, Lalith; Power, Robert W.; Necker, Jennifer L.
Subject:	RE: I26/I95 System to System FR Scoping Meeting
Date:	Monday, July 8, 2019 2:54:25 PM
Attachments:	image001.jpg image002.jpg image003.jpg

There are two folders in the linked project folder below labeled “Bandaid Option” and “Fix Option”. The “Bandaid Option” provides an I-26 collector distributor which basically removes the weaving maneuver from I-26 mainline and puts the slower lane changing maneuvers on a parallel roadway. The “Fix Option” adds a directional movement from NB I-95 to WB I-26 changing the highest system to system turning movement from loop to directional movement.

The “Fix Option” is not considered the ultimate fix for the interchange, but just something we knew would be a benefit at the time.

Thanks,
Ron

From: McCall, Betsy D
Sent: Tuesday, July 02, 2019 8:27 AM
To: Fulmer, Michael J; Harmon, Jeremiah; Hinson, Ron E; Taylor, Eugene A.; Kelly, David P.; Beckham, Chris; Gantt, Kevin L; Riley, Jason T; Kelly, Christopher S.; Quattlebaum, Josh B.; Lackey, Diane M.; Mmanu-ike, Johnny K; Larimore, Kenny; Kim, Dahae; Hekter, Jessica - FHWA; Dillon, Brent S; Thomas, Emily G.; Phillips, Henry; Connolly, Sean; Harrington, Kevin B.; Thompson Jr, Jesse U.; Worthy, Lorenzo R; Spradley, Freedom; Galagedera, Lalith; Power, Robert W.; Necker, Jennifer L.
Subject: RE: I26/I95 System to System FR Scoping Meeting

This meeting is coming up soon. The system performance info has been uploaded into PW. Please have your data uploaded this week. Start reviewing everyone’s data before the meeting on July 18.

Traffic Design, could you guys please look over the data in this folder and convey to the group which files are associated with a fix and which files are associated with a bandaid?
Previous Traffic Info

Let me know if you have any questions.

Have a good 4th!

Betsy

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

From: McCall, Betsy D
Sent: Wednesday, June 12, 2019 4:55 PM
To: Fulmer, Michael J <FulmerMJ@scdot.org>; Harmon, Jeremy (HarmonJR@scdot.org) <HarmonJR@scdot.org>; Hinson, Ron E; Taylor, Eugene A. <TaylorEA@scdot.org>; Kelly, David P. <KellyDP@scdot.org>; Beckham, Chris <BeckhamJC@scdot.org>; Gantt, Kevin L <GanttKL@scdot.org>; Riley, Jason T <RileyJT@scdot.org>; Kelly, Christopher S. <KellyCS@scdot.org>; Quattlebaum, Josh B. <QuattlebB@scdot.org>; Lackey, Diane M. <LackeyDM@scdot.org>; Mmanu-ike, Johnny K <MmanuikeJK@scdot.org>; Larimore, Kenny (LarimoreKW@scdot.org) <LarimoreKW@scdot.org>; Kim, Dahae <KimD@scdot.org>; Hekter, Jessica - FHWA <Jessica.Hekter@dot.gov>; Dillon, Brent S <DillonBS@scdot.org>; Thomas, Emily G. <ThomasEG@scdot.org>; Phillips, Henry <PhillipsMH@scdot.org>; Connolly, Sean <ConnollyMS@scdot.org>; Harrington, Kevin B. <HarringtKG@scdot.org>; Thompson Jr, Jesse U. <ThompsonJU@scdot.org>; Worthy, Lorenzo R (WorthyLR@scdot.org) <WorthyLR@scdot.org>; Spradley, Freedom (SpradleyMF@scdot.org) <SpradleyMF@scdot.org>; Galagedera, Lalith <GalagederaNL@scdot.org>; Power, Robert W. (PowerRW@scdot.org) <PowerRW@scdot.org>; Necker, Jennifer L. <NeckerJL@scdot.org>
Subject: RE: I26/I95 System to System FR Scoping Meeting

All,

First, I apologize for not sending this last week. There is a PW folder for project and the link is below. I do not have all of the system performance data yet. Please look in the Project Sponsor folder for the scoping excel file that has the limits of the project and other pertinent information for your use. Other information is there as well for your use.

In that folder is all of the emails that I received from Traffic Engineering on previous discussions for improving this interchange. We discovered in our kickoff meeting that some of the plots are not solutions but rather band-aids. This information is presented for information but not as a path forward. The PDT will decide a path forward. Brent Dillon, you may want to reply to this email and let everyone know which files are solutions and which ones are band-aids.

This meeting is July 18. Please have all of your information uploaded by July 5th. Let me know if you encounter issues. Thanks so those who have reached out to me about issues with the other 2 rural interstate projects (I95 0-18, I26 125-139). We may learn a lot from the other two interstate projects that will help us in finding the best data sources to use as a team for this project.

Let me know if you have any questions. Thanks for your efforts in making this process move forward.

Thanks,
Betsy

01 Planning

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

From: McCall, Betsy D
Sent: Wednesday, May 15, 2019 3:43 PM
To: Fulmer, Michael J <FulmerMJ@scdot.org>; Harmon, Jeremy (HarmonJR@scdot.org) <HarmonJR@scdot.org>; Hinson, Ron E; Taylor, Eugene A. <TaylorEA@scdot.org>; Kelly, David P. <KellyDP@scdot.org>; Beckham, Chris <BeckhamJC@scdot.org>; Gantt, Kevin L <GanttKL@scdot.org>; Riley, Jason T <RileyJT@scdot.org>; Kelly, Christopher S. <KellyCS@scdot.org>; Quattlebaum, Josh B. <QuattlebB@scdot.org>; Lackey, Diane M. <LackeyDM@scdot.org>; Mmanu-ike, Johnny K <MmanuikeJK@scdot.org>; Larimore, Kenny (LarimoreKW@scdot.org) <LarimoreKW@scdot.org>; Kim, Dahae <KimD@scdot.org>; Hekter, Jessica - FHWA <Jessica.Hekter@dot.gov>; Dillon, Brent S <DillonBS@scdot.org>; Thomas, Emily G. <ThomasEG@scdot.org>; Phillips, Henry <PhillipsMH@scdot.org>; Connolly, Sean <ConnollyMS@scdot.org>; Harrington, Kevin B. <HarringtKG@scdot.org>; Thompson Jr, Jesse U. <ThompsonJU@scdot.org>; Worthy, Lorenzo R (WorthyLR@scdot.org) <WorthyLR@scdot.org>; Spradley, Freedom (SpradleyMF@scdot.org) <SpradleyMF@scdot.org>; Galagedera, Lalith <GalagederaNL@scdot.org>; Power, Robert W. (PowerRW@scdot.org) <PowerRW@scdot.org>; Necker, Jennifer L. <NeckerJL@scdot.org>
Subject: I26/I95 System to System FR Scoping Meeting

All,

With the dates of meetings potentially being changed and the fact that when people are forwarded the request they show up as optional, I felt I needed to email the team and those who have expressed interest in attending this meeting and explain a few things.

First, the original plan was to send the meeting request to the point of contact for each group. That person would forward the invite to those that they want to attend. Most of the group contacts are not choosing to attend. When this happened the cc'd person was listed as optional. This has caused some confusion in some groups as to who should attend.

Second, building on the first issue above, the invite list becomes very long between the group contacts and all of those being cc'd the invitation. Those group contacts that are not attending are getting unnecessary emails if I move the date.

In the future I will ask the group contacts for the list of people to invite to the meetings. Live and learn.

All of you receiving this email is a member of the PDT and are a required participant ***except*** those named below (see PDT attached). I understand that the following names have been asked to attend by your group, but if you are listed below you are not a voting member of the PDT. Please let me know if you want others invited to the meetings or about changes to the PDT.

Emily Thomas
Brent Dillon
Henry Phillips
Sean Connolly
Kevin Harrington
Jay Thompson
Lorenzo Worthy
Freedom Spradley
Lalith Galagedera
Robert Power
Jen Necker

Sorry for any confusion. I am trying to rectify some scheduling issues on the first few projects and alleviate the scheduling issues for the next ones. Thanks for your patience and understanding.

Last thing, FHWA said that we could use loops as an option in the interchange if they are an applicable solution.

Thanks,
Betsy

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Summary of Public Comments Received for SCDOT's Public Notification of:

The Addition of Right-of-Way(s) To Improve Road Safety In Two Counties &

The Commission Approving Additional Interstate Widening Projects for the Rural Areas of the State

Comment Period: October 25, 2018 – November 14, 2018

Consistent with the Department's Public Participation Plan and STIP Administration Process, the following items were made available for public comment following the approval of the Commission meeting. SCDOT's Public Notification of:

1. The Addition of Right-of-Way(s) To Improve Road Safety In Two Counties

Summary: The South Carolina Department of Transportation (SCDOT) is providing public notification of two safety projects. These two safety projects are receiving additional funding for acquisition of Right-of-Way and construction. These projects are located in Berkeley and Dorchester Counties and will be reflected in the Statewide Transportation Improvement Program (STIP).

- **No comments** were **received during THE 21-DAY COMMENT PERIOD.**

2. The Commission Approving Additional Interstate Widening Projects for the Rural Areas of the State

Summary: The South Carolina Department of Transportation (SCDOT) is providing public notification of Commission approval of the **Rural Interstate Freight Network Mobility Improvement Program**, which specifically targets rural sections of the interstate system that are critical to the movement of freight across the state. This freight program is in addition to the interstate widening program previously approved by the Commission that has focused on the urban areas of the state. The section of I-26 between Columbia and Charleston as well as a portion of I-95 at the southern end of the state are noted as the top three rural interstate corridors designated for widening by the Commission.

Two Hundred Twenty-four (224) comments were received for this project during THE 21-DAY COMMENT PERIOD.

- **One Hundred-six (106) comments submitted were in favor of widening I-95.**
- **Seventy-three (75) comments were in favor of widening I-95 at Georgia State Line or #2 ranking.**
- **Twenty-one (21) comments were in favor of the overall project.**
- **Twelve (12) comments were in favor of I-95 and mentioned I-26 or #3 ranking.**
- **Five (5) comments were not substantive.**
- **Five (5) comments required responses from SCDOT staff members.**

➢ **A comment received from a citizen said; I like the decision to expand the top 5 Freight Corridors. I hope the vision of the Commissioners and the SCDOT leadership will look at the eastern portion of our great state. And take into consideration Sumter, Florence, and the Dillion Inland Ports.**

- ✓ **The response was provided from the Deputy Secretary of Intermodal Planning Office. The following is a summation of the response, "we looked at all rural interstate segments, which included all of I-95 (with the exception of the 6-lane section in Florence). We only chose to submit the top 5 to the Commission for approval at this time due to the time it will take to deliver those projects. Other rural segments will be ranked and submitted to the Commission for approval as the top five are completed or as additional funding is identified".**

- ➢ **A comment was submitted from a citizen stating; Out of state motorists and truckers are heavy users of both of these roads, many times never stopping anywhere in SC on their way through. In so doing, they contribute heavily to the volume of traffic and to the wear and tear on these roadways, without contributing even $1 to the state's economy to offset the expense the taxpayers of SC will need to pay overtime to repair and upgrade these roadways. Why is that fair, and why should it be allowed to continue? How about implementing some sort of toll system on these roads at state entry/exit points to target the through traffic to capture their fair share of all of this expected expense?**

- ✓ **The response was provided from the Office of Finance and Administration. The following is a summation of the response, SECTION 57-3-615 governs SCDOT on tolling of intestates, and however, we will take your comment into consideration in addressing the needs along the I-95 corridor. SECTION 57-3-615 states:**
  No toll may be imposed on passage of any vehicle on federal interstate highways in this state which were inexistence as of January 1, 1997, unless the imposition is otherwise affirmatively approved by the General Assembly in separate legislation enacted solely for that purpose.

- ➢ **Three comments were made that spoke to the Safety of motorists on I-95.**

  - **I object to the widening of I-95 between MM 1 and 35--the most dangerous portion of any roadway in our state, without also allowing video enforcement of speed limits. The trees are being removed because they have been seen as the reason for so many accidents, and the beauty of that roadway is now lost. Without enforcement of the speed limits, lives will continue to be lost. Please DO NOT WIDEN without enforcing. Thank you.**

  - **The corridor between Ridgeland and the Georgia border is extremely dangerous with high incidents of accidents and related deaths. Truck traffic along with speed, lack of roadway shoulders, is the cause. At a minimum a third lane should be added along with hard surface shoulders and guardrail to prevent tree impact should be considered. Another option would be the addition of solar overhead lights to improve night time visibility.**

  - **It is vital that I95 be widened to three lanes from the Georgia border northward. This area has experienced several fatalities due to congestion and other problems. As the Bluffton/Hilton Head areas continue to grow and draw tourists, we will experience higher traffic volume and more crashes. This is a necessary project, long overdue for this area. We hope it will be given serious consideration and save countless lives.**

- ✓ **A response was prepared by the Traffic Engineering Safety Office. A summation of the response that each citizen received is as follows; South Carolina's fatality rate is currently the highest of any state in the nation and more than 50% higher than the national average. Nearly 60% of all fatalities in SC occur on our rural roadways. Further safety analysis has identified that**

approximately 30% of all rural fatal and severe injury crashes occur on just over 5% of the state's total rural roadways which includes the entire length of I-95 in Jasper County. This 33 mile stretch of I-95 experienced 1,486 crashes, resulting in 31 fatalities and 81 incapacitating injuries between 2011 and 2015. In addition, 246 of these reported crashes involved vehicles hitting trees resulting in a total of 50 persons (20%) being fatally injured or incapacitated because of the crash. I-95 between mile marker 0 and mile marker 33 was selected for improvement through the federally funded Highway Safety Improvement Program (HSIP). This program uses a data-driven strategic approach to identify locations throughout the state with high crash rates or patterns and implements safety enhancements through infrastructure-related improvements. The HSIP project selection requires an engineering study that includes an analysis of the crash data, an assessment of field conditions, and the identification of possible engineering countermeasures. SCDOT safety engineers determined the most cost effective mitigation strategy to improve safety through a reduction in fatal and serious injury crashes was to utilize a combination of engineering strategies by installing rumble strips to alert drivers they are in the process of leaving the roadway and by increasing the recovery area (i.e. clear zone) for those vehicles that do leave the roadway. In addition, Improvements will include select installation of median cable rail along with, the strategic installation of steel beam guardrail to reduce the environmental impacts.

Addendum Data

FOR MM 165 TO MM169

From:	Taylor, Eugene A.
To:	McCall, Betsy D
Cc:	Thomas, Emily G.
Subject:	RE: I-26 MM165-169 PDT FR Info
Date:	Tuesday, October 12, 2021 10:35:55 AM
Attachments:	I-26_Crash History_MPT 165-168_2018-2020 excluding I95 interchange.pdf I-26_Crash History_MPT 165-169_2018-2020 with I95 interchange.pdf I-26_Truck Crashes_MPT 165-169_2018-2020.pdf SC-210 Crash History.pdf I-26 Crash History_MPT 164-166_Exit 165.pdf image001.png Calibrated (2.59) 2021 Mainline_EB_139-169.pdf Non-Calibrated 2021 Mainline_EB_139-169.pdf

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Betsy,

Please find the attached crash histories for I-26 from MPT 165-169 (with and without I-95 interchange area), and crash history for the SC-210 area. I wasn't sure if there was another folder for this segment in project wise or not, so I figured you could place it where ever you felt it should go.

The HSM models show the interstate mainline expected crash rates should range from about 10 crashes/mile/year if un-calibrated up to an expected crash rate of approximately 21 crashes/mile/year with the SC calibration factor of 2.59 applied.

The observed crash rate including crashes at the I-95 interchange is approximately 16 crashes/mile/year, or approximately 12 crashes/mile/year excluding the interchange area.

Similar to the other sections of I-26 we have reviewed… Safety performance for this area is in-line with the average crash rates when compared to other SC interstates of similar conditions, but safety performance is not as good when compared to other interstates nationally.
As with the other sections, roadway departures make up the majority of the crash types (43%), followed by rear end (24%) and sideswipe crashes (20%). No anomalies or elevated crash rates were found at specific locations, such as the bridges or the SC210 Exit 165.

Thanks,
Gene-o

Eugene A. Taylor, P.E.
Engineering Associate
Traffic Safety Planning & Research
SC Department of Transportation
(Office) 803-737-1103| TaylorEA@SCDOT.org

Safety 1st – Live By It!
Let 'em Work, Let 'em Live!

From: McCall, Betsy D <McCallBD@scdot.org>
Sent: Thursday, September 9, 2021 1:30 PM
To: Hinson, Ron E <HinsonRE@scdot.org>; Taylor, Eugene A. <TaylorEA@scdot.org>; Frierson, Ed W <FriersonEW@scdot.org>; Gordon, Siobhan <GordonSO@scdot.org>; Hood, Michael L. <HoodML@scdot.org>; Humphries, Adam S. <HumphrieAS@scdot.org>; Terry, Jeffrey S <TerryJS@scdot.org>; Riley, Jason T <RileyJT@scdot.org>; Keitt, Cedric C. <KeittCC@scdot.org>; Kelly, Christopher S. <KellyCS@scdot.org>; Scott, Katherine D. <ScottKD@scdot.org>; Lackey, Diane M. <LackeyDM@scdot.org>; Lewis, Christina <LewisC@scdot.org>; Kim, Dahae <KimD@scdot.org>; Pleasant, Mark (FHWA) <mark.pleasant@dot.gov>; Reginald Simmons <rsimmons@centralmidlands.org>; Peterson, Machael M <PetersonMM@scdot.org>; Connolly, Sean <ConnollyMS@scdot.org>; Hadsock, Hugh S. <HadsockHS@scdot.org>; Frate, Douglas W. <FrateDW@scdot.org>; Phillips, Henry <PhillipsMH@scdot.org>; Porter, Erin P. <PorterEP@scdot.org>; Dantzler, Efrem S <DantzlerES@scdot.org>; Baskin, Ems <BaskinEP@scdot.org>; Heape, Brian W. <HeapeBW@scdot.org>; Carr, Samantha K. <CarrSK@scdot.org>; Gerken, Blake - FHWA <blake.gerken@dot.gov>; Cantey, Jeffrey (FHWA) <jeffrey.cantey@dot.gov>; Morris, Yolanda - FHWA <yolanda.morris@dot.gov>; Fisher, Carolyn - FHWA <carolyn.fisher@dot.gov>
Cc: Mattox, Jae <MattoxJH@scdot.org>; McKinney, Ben <McKinneyWB@scdot.org>; McGoldrick, Will <McGoldriWR@scdot.org>
Subject: I-26 MM165-169 PDT FR Info

All,

This section of interstate, as interstates go, is fairly straightforward. No formal FR meetings will be held. However, I do still need some information from the PDT. Below are some questions that different groups will need address. This is not a comprehensive list of questions. Please send risks that need to be identified and accounted for in the cost and schedule whether I ask the question below or not. You can recognize your subject matter risk more so than I or anyone else on the PDT.

The intent is to amend the report for I-26 MM169-187 based on information gathered. Many of you were not involved in that PDT. You can access data from that section of interstate at this location: Feasibility Report Scoping meeting minutes and Final PDT meeting minutes should tell you what you want to know, but you can read the two reports. There is one report for I26 MM169-187 and one for I26/I95 interchange. Let me know if you need any help.

Again, do not feel handcuffed by the questions below. Send me information that you feel is pertinent to the project for consideration and documentation. Please send me this information by October 23.

Thanks,
Betsy

SC210, Exit 165

- 16'3" clearance per google earth
- Wide median, dual piers
- The typical section in this area is 10' inside shoulder with grass median. Median is 90' wide.
- Replace the bridge? Why? What is its rating?
- Are there crashes, queues, any issues with how the interchange is operating that needs to be addressed? Do you need more data to make that determination?
- What potential construction issues exist if we replace the bridge or alter the interchange?
- What RW implications are there if we reconfigure the ramps or replace the bridge to accommodate 8 lanes?
- Will the NEPA document or anticipated permit be affected by replacement or widening?

Cow Castle Creek Dual ML Bridges, MM166

- Replace the bridges? Why? With one bridge or two? What are their ratings?
- Widen the bridges? Are they capable of being widened?
- What issues arise with staging whether replaced or widened?
- What potential construction issues arise for replacement and widening?
- Is there crash data that supports replacement as opposed to widening?
- Will the NEPA document or anticipated permit be affected by replacement or widening?

S1302, Whetsell Pond Road

- It may or may not be affected by the I95/I26 interchange. Was the cost to replace accounted for in the cost estimate for the interchange?
- It is not 16' of clearance
- Wide median, dual piers
- Does it have width for 2 additional lanes?
- What is its rating?
- We tried to close this bridge in RPG1 many a few years ago. Detour/alt route was really long and our project was for pavement, not capacity. Is this worth pursuing again? Very low volume.
- If replacing, is it as simple as pulling it out and replacing or do we have to look at accesses to adjacent landowners.
- Can we replace it staged with a motion sensor single lane traffic light in order to maintain access across the interstate?

Utilities

- Any utility issues on mainline or at the crossings? Especially if we alter the interchange or S1302 crossing.

From: Hinson, Ron E
To: McCall, Betsy D
Cc: Carr, Samantha K.
Subject: RE: I-26 MM165-169 PDT FR Info
Date: Friday, October 29, 2021 1:27:12 PM

Betsy,
Here are some notes for you files/report. Sorry for the delay.

- SC 210
  - The current AADT along SC 210 is low and I wouldn't expect much growth in the area that would necessitate a reconfiguration of the interchange. If the bridge needs to be replaced, I don't see why we wouldn't go back with the diamond configuration.
  - The ramps are all currently on fill with guardrail on every side which will could complicate MOT if the bridge is replaced, both on or off alignment.
  - Off-alignment bridge construction would be preferred but may create more issues in maintaining ramps depending on grade increases (which should be expected due to longer spans caused by a single median pier instead of the current dual pier).
  - On-alignment (close/detour) could be considered (1700ADT) and may allow the ramps to remain open for most of the duration. An SC 210 truck detour may add 10 miles net but there is a local detour that only adds about 2 miles net. Bowman residents can access I-26 at Exit 159 Homestead Rd if the ramps are closed at SC 210.
- Cow Castle Creek
  - Not much difference for MOT for widening/replacement. Existing bridge widths can accommodate a minor traffic shift, installation of temporary concrete barrier, and widening. Existing shoulders in the area will likely need to be replaced if we're shifting traffic onto them (this would be the case throughout the project).
  - Widening or replacement in the median appears feasible. Replacement in the median may require a single structure. Could reduce final footprint and number of construction stages by allowing one direction to be permanently shifted off-alignment, towards the median; i.e. build a structure in the median, move EBL onto it, remove existing EBL structure and widen new structure towards former EBL alignment, move EBL to east side of new structure and move WBL onto new structure and remove old WBL structure (no additional widening towards former WBL alignment). *can swap EBL/WBL if there is a preference to maintain one alignment on existing over the other.
- Whetsell Rd overpass
  - Have to maintain access for property owners. Could consider permanent road from SC 210 to properties instead of replacing bridge though. Some low volume driveway accesses have been allowed on the West Virginia Turnpike (I-77) where conventional access couldn't be provided. With existing overpass at this location it's doubtful FHWA allows us to consider that here (unsure if we would want to either but want to mention it as the accesses could potentially be located only on the ramps instead of the mainline).
  - Existing bridge is only about 20' wide between rails. There doesn't appear to be much benefit to using a one-lane signalized operation. If something can be gained by it

then it could probably be considered here, however with the low volume it could probably just be a stop-controlled one-lane bridge if sight distance is met.

Thanks,
Ron

From: McCall, Betsy D <McCallBD@scdot.org>
Sent: Thursday, September 9, 2021 1:30 PM
To: Hinson, Ron E <HinsonRE@scdot.org>; Taylor, Eugene A. <TaylorEA@scdot.org>; Frierson, Ed W <FriersonEW@scdot.org>; Gordon, Siobhan <GordonSO@scdot.org>; Hood, Michael L. <HoodML@scdot.org>; Humphries, Adam S. <HumphrieAS@scdot.org>; Terry, Jeffrey S <TerryJS@scdot.org>; Riley, Jason T <RileyJT@scdot.org>; Keitt, Cedric C. <KeittCC@scdot.org>; Kelly, Christopher S. <KellyCS@scdot.org>; Scott, Katherine D. <ScottKD@scdot.org>; Lackey, Diane M. <LackeyDM@scdot.org>; Lewis, Christina <LewisC@scdot.org>; Kim, Dahae <KimD@scdot.org>; Pleasant, Mark (FHWA) <mark.pleasant@dot.gov>; Reginald Simmons <rsimmons@centralmidlands.org>; Peterson, Machael M <PetersonMM@scdot.org>; Connolly, Sean <ConnollyMS@scdot.org>; Hadsock, Hugh S. <HadsockHS@scdot.org>; Frate, Douglas W. <FrateDW@scdot.org>; Phillips, Henry <PhillipsMH@scdot.org>; Porter, Erin P. <PorterEP@scdot.org>; Dantzler, Efrem S <DantzlerES@scdot.org>; Baskin, Ems <BaskinEP@scdot.org>; Heape, Brian W. <HeapeBW@scdot.org>; Carr, Samantha K. <CarrSK@scdot.org>; Gerken, Blake - FHWA <blake.gerken@dot.gov>; Cantey, Jeffrey (FHWA) <jeffrey.cantey@dot.gov>; Morris, Yolanda - FHWA <yolanda.morris@dot.gov>; Fisher, Carolyn - FHWA <carolyn.fisher@dot.gov>
Cc: Mattox, Jae <MattoxJH@scdot.org>; McKinney, Ben <McKinneyWB@scdot.org>; McGoldrick, Will <McGoldriWR@scdot.org>
Subject: I-26 MM165-169 PDT FR Info

All,

This section of interstate, as interstates go, is fairly straightforward. No formal FR meetings will be held. However, I do still need some information from the PDT. Below are some questions that different groups will need address. This is not a comprehensive list of questions. Please send risks that need to be identified and accounted for in the cost and schedule whether I ask the question below or not. You can recognize your subject matter risk more so than I or anyone else on the PDT.

The intent is to amend the report for I-26 MM169-187 based on information gathered. Many of you were not involved in that PDT. You can access data from that section of interstate at this location: Feasibility Report Scoping meeting minutes and Final PDT meeting minutes should tell you what you want to know, but you can read the two reports. There is one report for I26 MM169-187 and one for I26/I95 interchange. Let me know if you need any help.

Again, do not feel handcuffed by the questions below. Send me information that you feel is pertinent to the project for consideration and documentation. Please send me this information by October 23.

All,

This section of interstate, as interstates go, is fairly straightforward. No formal FR meetings will be held. However, I do still need some information from the PDT. Below are some questions that different groups will need address. This is not a comprehensive list of questions. Please send risks that need to be identified and accounted for in the cost and schedule whether I ask the question below or not. You can recognize your subject matter risk more so than I or anyone else on the PDT.

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Again, do not feel handcuffed by the questions below. Send me information that you feel is pertinent to the project for consideration and documentation. Please send me this information by October 23.

Thanks,
Betsy

SC210, Exit 165

- 16'3" clearance per google earth
- Wide median, dual piers
- The typical section in this area is 10' inside shoulder with grass median. Median is 90' wide.
- Replace the bridge? Yes Why? 90' median allows for inside widening, Bridge columns would require D.E. for 8'-9' shoulders (to barrier) at columns. What is its rating? 86.1
- Are there crashes, queues, any issues with how the interchange is operating that needs to be addressed? Do you need more data to make that determination?
- What potential construction issues exist if we replace the bridge or alter the interchange?
- What RW implications are there if we reconfigure the ramps or replace the bridge to accommodate 8 lanes? Possible but not significant, 3 gas stations (2 active 1 abandoned per google earth) occupy a quadrant each. The final quadrant appears agricultural. Minor impacts if any.
- Will the NEPA document or anticipated permit be affected by replacement or widening?

Cow Castle Creek Dual ML Bridges, MM166

- Replace the bridges? Yes Why? 3 lanes on existing bridge roadway width of 38' leaves 1' between travel way and parapet wall. With one bridge or two? What are their ratings? WB = 93.2 EB = 94.2
- Widen the bridges? Are they capable of being widened?
- What issues arise with staging whether replaced or widened?
- What potential construction issues arise for replacement and widening?
- Is there crash data that supports replacement as opposed to widening?
- Will the NEPA document or anticipated permit be affected by replacement or widening?

S1302, Whetsell Pond Road

- It may or may not be affected by the I95/I26 interchange. Was the cost to replace accounted for in the cost estimate for the interchange?
- It is not 16' of clearance
- Wide median, dual piers
- Does it have width for 2 additional lanes? Not without a design exception for 6' shoulder width to barrier
- What is its rating? 62.2 Functionally Obsolete
- We tried to close this bridge in RPG1 many a few years ago. Detour/alt route was really long and our project was for pavement, not capacity. Is this worth pursuing again? Yes Very low volume.
- If replacing, is it as simple as pulling it out and replacing or do we have to look at accesses to adjacent landowners. Landowners access appears to be the sole reason it has not been previously closed
- Can we replace it staged with a motion sensor single lane traffic light in order to maintain access across the interstate?

Utilities

- Any utility issues on mainline or at the crossings? Especially if we alter the interchange or S1302 crossing.

PLANNING LEVEL COST ESTIMATE

I-26 WIDENING MM 165 TO 176

PROJECT ID: TBD

PREPARED BY: Ben McKinney

DATE PREPARED: November 9, 2021

PRECONSTRUCTION (PE)	
INTERNAL PE COST	$517,118.05
EXTERNAL PE COST	$2,585,590.25
STIPENDS	$210,920.40
OTHER (UTILITIES AND RAILROAD)	$50,000.00
TOTAL PE COST ESTIMATE	**$3,363,628.71**

RIGHT-OF-WAY (R)	
RIGHT-OF-WAY	$0.00
RIGHT-OF -WAY COST ESTIMATE	**$0.00**

CONSTRUCTION (C)		
CONSTRUCTION COST	$95,856,666.67	
DESIGN COST (8% OF CONSTRUCTION COST)	$7,668,533.33	
RAILROAD	$0.00	
ITS	$725,000.00	Percentage of 165-176
RIGHT-OF-WAY	$300,000.00	Percentage of 165-176
ENVIRONMENTAL MITIGATION	$910,000.00	Percentage of 165-176
DESIGN-BUILD CONTRACT COST (FINAL ENGINEER'S ESTIMATE)	**$105,460,200.00**	
UTILITIES	$2,727,272.73	Percentage of 165-176
ENVIRONMENTAL MITIGATION	$0.00	
CE&I (15% OF DB CONTRACT COST)	$15,819,030.00	
CONTINGENCY (5% of DB CONTRACT COST)	$5,273,010.00	
FINAL TOTAL CONSTRUCTION COST ESTIMATE (2021)	**$129,279,512.73**	
FINAL TOTAL CONSTRUCTION COST ESTIMATE (2024)	*$140,914,668.87*	Ignore
FINAL TOTAL CONSTRUCTION COST ESTIMATE (2026)	*$148,671,439.64*	Ignore

TOTAL PROJECT COST ESTIMATE	**$132,643,141.43**

Interactive Highway Safety Design Model

Crash Prediction Evaluation Report

September 16, 2021

Disclaimer

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1. Report Overview

Report Generated: Sep 16, 2021 2:14 PM
Report Template: User: My CPM Template (mlcpm6, Sep 14, 2020 9:29 AM)

Evaluation Date: Thu Sep 16 14:14:22 EDT 2021
IHSDM Version: v16.0.0 (Sep 30, 2020)
Crash Prediction Module: v11.0.0 (Sep 30, 2020)

User Name: Eugene Taylor
Organization Name: South Carolina Department of Transportation
Phone: 803-737-1103
E-Mail: Taylorea@scdot.org

Project Title: I-26 MPT 139-169
Project Comment: Created using wizard
Project Unit System: U.S. Customary

Highway Title: I-26
Highway Comment: Created using wizard
Highway Version: 1

Evaluation Title: State Calibrated (2.59) 2021 Mainline NEW
Evaluation Comment: Created Thu Sep 16 14:13:30 EDT 2021

Minimum Location: 7339+20.000
Maximum Location: 8923+20.000
Policy for Superelevation: AASHTO 2011 U.S. Customary
Calibration: HSM Configuration
Crash Distribution: HSM Configuration
Model/CMF: HSM Configuration
First Year of Analysis: 2021
Last Year of Analysis: 2021
Empirical-Bayes Analysis: Whole-Project
Highway with Crash History: I-26
Highway with Crash History Comment: Created using wizard
Highway with Crash History Version: 1
First Year of Observed Crashes: 2018
Last Year of Observed Crashes: 2020

1.1 Disclaimer Regarding Crash Prediction Method

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The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58 and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

2. Section Types

2.1 Section 1 Evaluation

Section: Section 1
Evaluation Start Location: 7339+20.000
Evaluation End Location: 8923+20.000
Functional Class: Freeway
Type of Alignment: Divided, Multilane
Model Category: Freeway Segment
Calibration Factor: FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

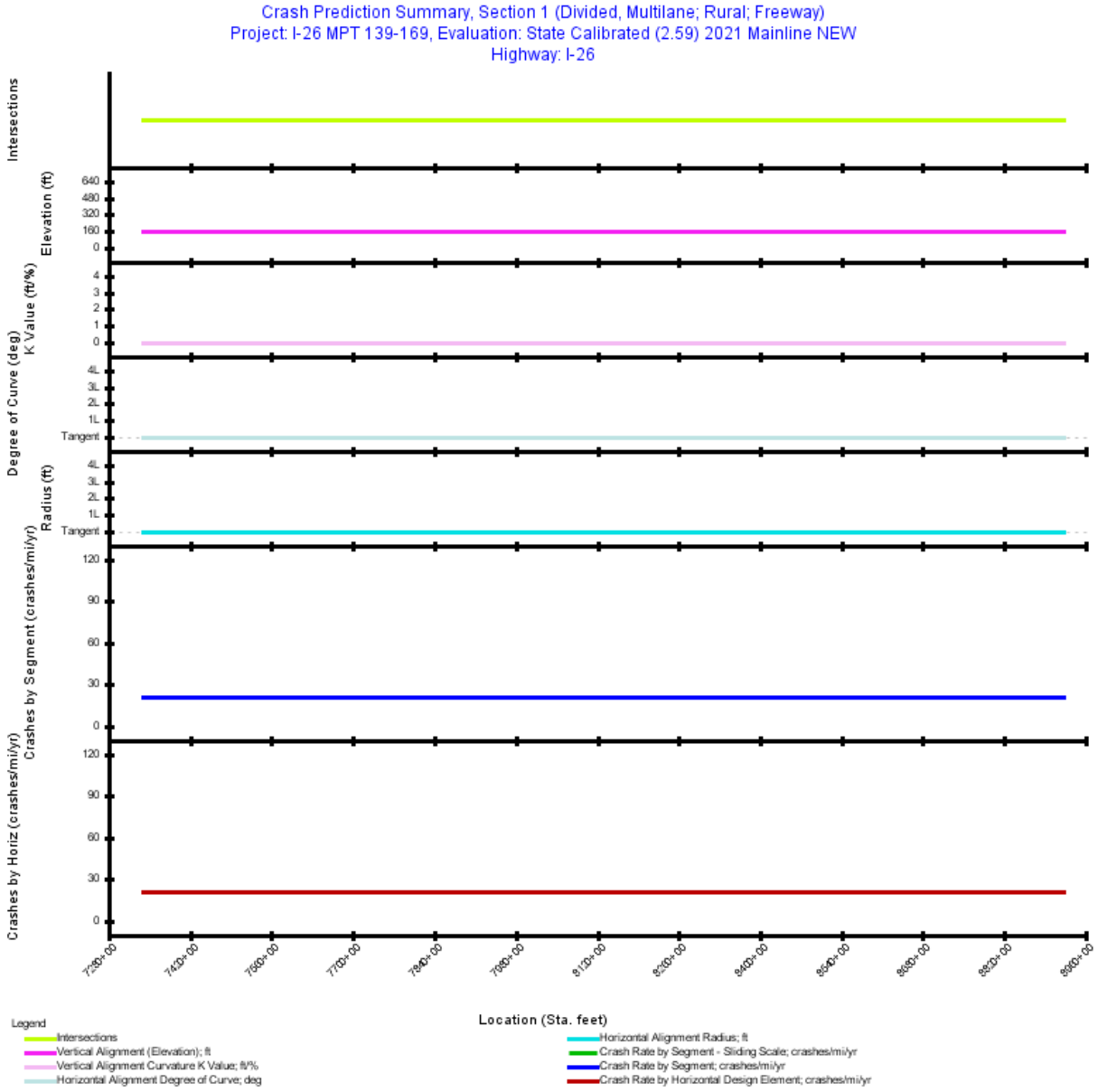


Figure 1. Crash Prediction Summary (Section 1)

Table 1. Observed Crashes Used in the Evaluation (Section 1)

Year	Observed Crashes	Total Crashes Used	FI Crashes	FI no/C Crashes	PDO Crashes
2018	386	386	0	0	0
2019	436	436	0	0	0
2020	386	386	0	0	0
All Years	1,208 [1]	1,208	0	0	0

Footnotes

[1] Note: Observed crash data that does not comply with the associated CPM model requirements may not be used in EB processing.

Table 2. User Defined CMF Used in the Segment CPM Evaluation (Section 1)

Name	Description	Start Loc. (Sta. ft)	End Loc. (Sta. ft)	Start CMF Year	End CMF Year	Severity	CMF Value
State Calibration	R4F Calibration	7339+20.000	8923+20.000	2020	2045	Total	2.5900

Table 3. Evaluation Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	4F	Rural	7339+20.000	8923+20.000	158,400.00	30.0000	2021: 46,500	27.00	Traversable Median	35.00

Table 4. Crash Highway Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	4F	Rural	7339+20.000	8923+20.000	158,400.00	30.0000	2018-2020: 46,500	27.00	Traversable Median	35.00

Table 5. Expected Freeway Crash Rates and Frequencies Summary (Section 1)

First Year of Analysis	**2021**
Last Year of Analysis	**2021**
Effective Length (mi)	**30.0000**
Average Future Road AADT (vpd)	**46,500**
Expected Crashes	
Total Crashes	**626.50**
Fatal and Injury Crashes	**172.87**
Property-Damage-Only Crashes	**453.63**
Percent of Total Expected Crashes	
Percent Fatal and Injury Crashes (%)	**28**
Percent Property-Damage-Only Crashes (%)	**72**
Expected Crash Rate	
Crash Rate (crashes/mi/yr)	**20.8833**
FI Crash Rate (crashes/mi/yr)	**5.7622**
PDO Crash Rate (crashes/mi/yr)	**15.1211**
Expected Travel Crash Rate	
Total Travel (million veh-mi)	**509.18**
Travel Crash Rate (crashes/million veh-mi)	**1.23**
Travel FI Crash Rate (crashes/million veh-mi)	**0.34**
Travel PDO Crash Rate (crashes/million veh-mi)	**0.89**

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
Note: *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 6. Expected Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

Segment Number/Intersection Name/Cross Road	Start Location (Sta. ft)	End Location (Sta. ft)	Effective Length (mi)	Total Expected Crashes for Evaluation Period	Total Predicted Crashes for Evaluation Period	Expected Total Crash Frequency (crashes/yr)	Expected FI Crash Frequency (crashes/yr)	Expected PDO Crash Frequency (crashes/yr)	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	(Expected - Predicted) Total Crash Frequency (crashes/yr)	(Expected - Predicted) FI Crash Frequency (crashes/yr)	(Expected - Predicted) PDO Crash Frequency (crashes/yr)	Expected Crash Rate (crashes/mi/yr)	Expected Travel Crash Rate (crashes/million veh-mi)
1	7339+20.000	8923+20.000	30.0000	626.499	575.008	626.4994	172.8650	453.6344	575.0084	158.6575	416.3509	51.4910	14.2075	37.2835	20.8833	1.23
Total			30.0000	626.499	575.008	626.4994	172.8650	453.6344	575.0084	158.6575	416.3509	51.4910	14.2075	37.2835	20.8833	1.23

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 7. Expected Crash Frequencies and Rates by Horizontal Design Element (Section 1)

Title	Start Location (Sta. ft)	End Location (Sta. ft)	Length (mi)	Total Expected Crashes for Evaluation Period	Total Predicted Crashes for Evaluation Period	Expected Total Crash Frequency (crashes/yr)	Expected FI Crash Frequency (crashes/yr)	Expected PDO Crash Frequency (crashes/yr)	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	(Expected - Predicted) Total Crash Frequency (crashes/yr)	(Expected - Predicted) FI Crash Frequency (crashes/yr)	(Expected - Predicted) PDO Crash Frequency (crashes/yr)	Expected Crash Rate (crashes/mi/yr)	Expected Travel Crash Rate (crashes/million veh-mi)
Tangent	7339+20.000	8923+20.000	30.0000	626.499	575.008	626.4994	172.8650	453.6344	575.0084	158.6575	416.3509	51.4910	14.2075	37.2835	20.8833	1.23

Table 8. Predicted Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2021	575.01	158.66	27.592	416.35	72.408
Total	575.01	158.66	27.592	416.35	72.408
Average	575.01	158.66	27.592	416.35	72.408

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 9. Expected Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2021	626.50	172.87	27.592	453.63	72.408
Total	626.50	172.87	27.592	453.63	72.408
Average	626.50	172.87	27.592	453.63	72.408

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 10. Comparing Predicted and Expected Crashes for the Evaluation Period (Section 1)

Scope	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
Predicted	575.01	158.66	27.592	416.35	72.408
Expected	626.50	172.87	27.592	453.63	72.408
Expected - Predicted	51.49	14.21		37.28	
Percent Difference	8.22	8.22		8.22	

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 11. Expected Crash Severity by Freeway Segment (Section 1)

Seg. No.	Fatal (K) Crashes (crashes)	Incapacitating Injury (A) Crashes (crashes)	Non-Incapacitating Injury (B) Crashes (crashes)	Possible Injury (C) Crashes (crashes)	No Injury (O) Crashes (crashes)
1	6.2545	15.1319	65.7398	85.7388	453.6344

Table 12. Expected Freeway Crash Type Distribution (Section 1)

Element Type	Crash Type	Fatal and Injury		Property Damage Only		Total	
		Crashes	Crashes (%)	Crashes	Crashes (%)	Crashes	Crashes (%)
Highway Segment	Collision with Animal	0.99	0.2	18.87	3.0	19.86	3.2
Highway Segment	Collision with Fixed Object	56.24	9.0	181.41	29.0	237.66	37.9
Highway Segment	Collision with Other Object	3.08	0.5	36.28	5.8	39.36	6.3
Highway Segment	Other Single-vehicle Collision	36.50	5.8	47.02	7.5	83.53	13.3
Highway Segment	Collision with Parked Vehicle	2.38	0.4	6.68	1.1	9.06	1.4
Highway Segment	Total Single Vehicle Crashes	99.19	15.8	290.26	46.3	389.46	62.2
Highway Segment	Right-Angle Collision	4.13	0.7	4.90	0.8	9.03	1.4
Highway Segment	Head-on Collision	1.33	0.2	0.65	0.1	1.98	0.3
Highway Segment	Other Multi-vehicle Collision	4.35	0.7	12.74	2.0	17.09	2.7
Highway Segment	Rear-end Collision	46.41	7.4	82.99	13.2	129.41	20.7
Highway Segment	Sideswipe, Same Direction Collision	17.46	2.8	62.08	9.9	79.54	12.7
Highway Segment	Total Multiple Vehicle Crashes	73.67	11.8	163.37	26.1	237.04	37.8
Highway Segment	Total Highway Segment Crashes	172.87	27.6	453.63	72.4	626.50	100.0
	Total Crashes	172.87	27.6	453.63	72.4	626.50	100.0

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Crash Summary

I- 26 (INTERSTATE 26) from MPT 164.000 to MPT 166.000

ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 2.000 miles

AADT = 46,672

Functional Class = Rural -- Principal Arterial - Interstate

Crashes by Injury Class

Fatality Crashes	1
Injury Crashes	2
PDO Crashes	8
Total Crashes	**11**

Crashes by Manner Of Collision

Rear End	5
Angle	1
Sideswipe	1
Head On	0
Run Off Road	1
Animal	0
Bicycle	0
Pedestrian	0
Other	3
Total Crashes	**11**

Special Contributing Factors

Night	2
Day	9
Wet	1
Dry	10

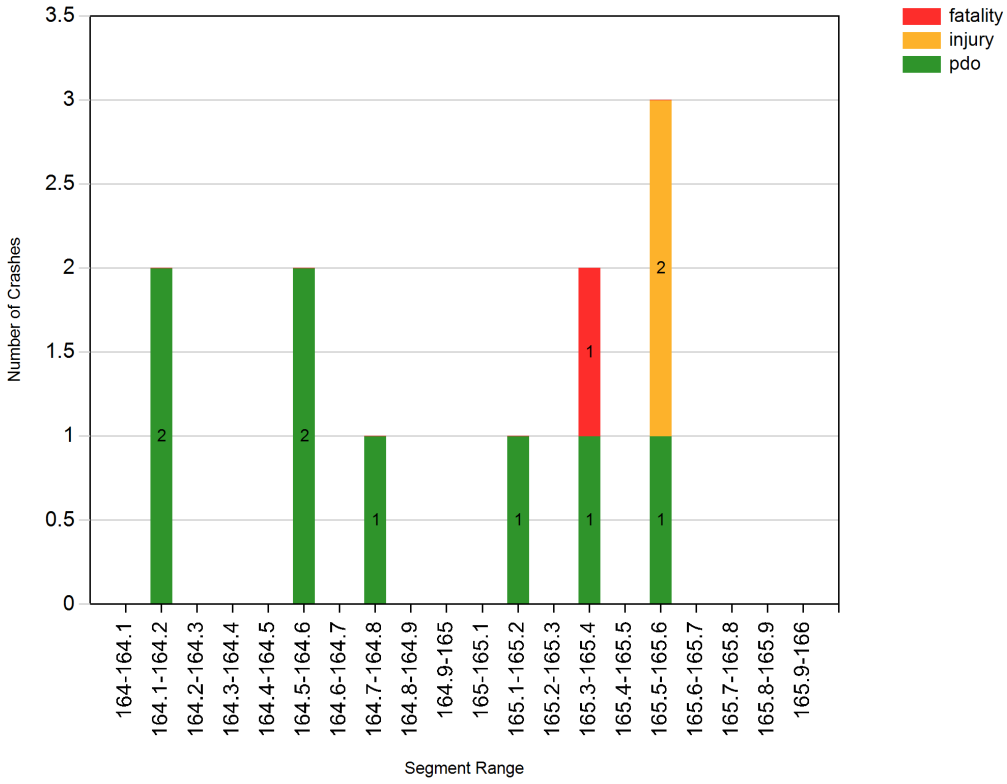
I- 26 (INTERSTATE 26) from MPT 164.000 to MPT 166.000

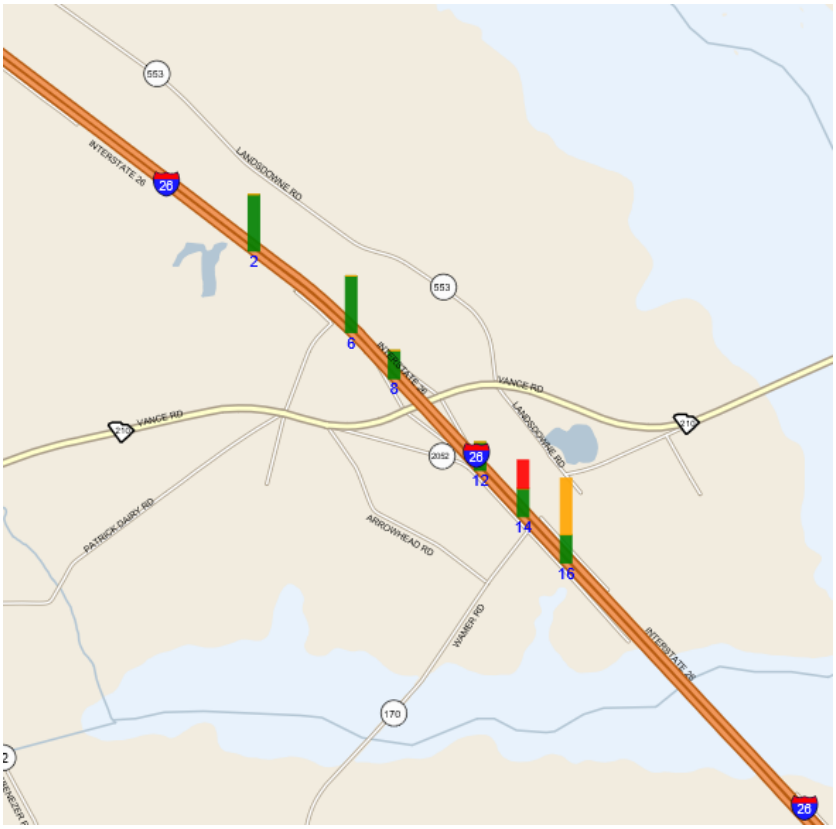
ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 2.000 miles AADT = 46,672

Functional Class = Rural -- Principal Arterial - Interstate





I- 26 (INTERSTATE 26) from MPT 164.000 to MPT 166.000

ORANGEBURG COUNTY

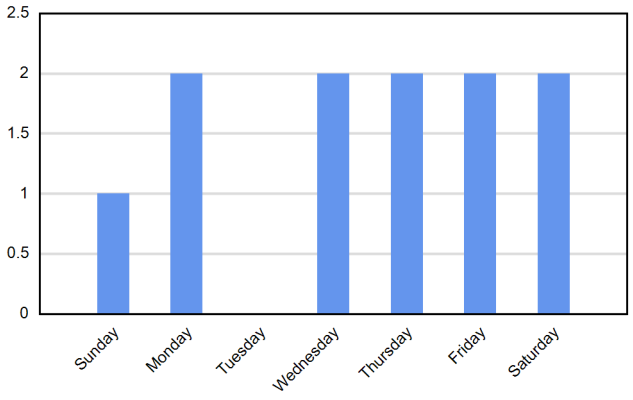
01/01/2018 - 12/31/2020 (3.0 years)

Length = 2.000 miles AADT = 46,672

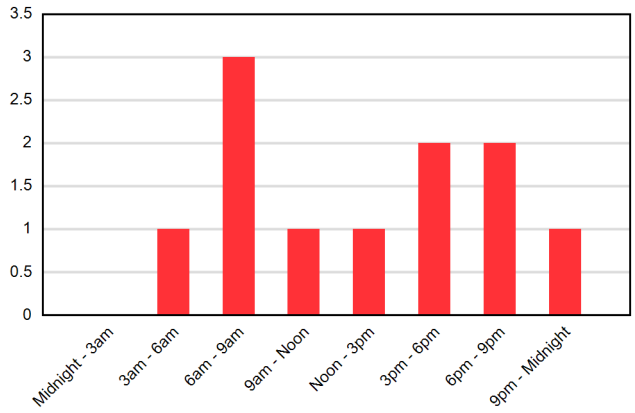
Functional Class = Rural -- Principal Arterial - Interstate

Year	2018	2019	2020	Total
Rear End	3	1	1	5
Angle	0	1	0	1
Sideswipe	0	1	0	1
Head On	0	0	0	0
Run Off Road	0	0	1	1
Animal	0	0	0	0
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	2	0	1	3
	5	3	3	11

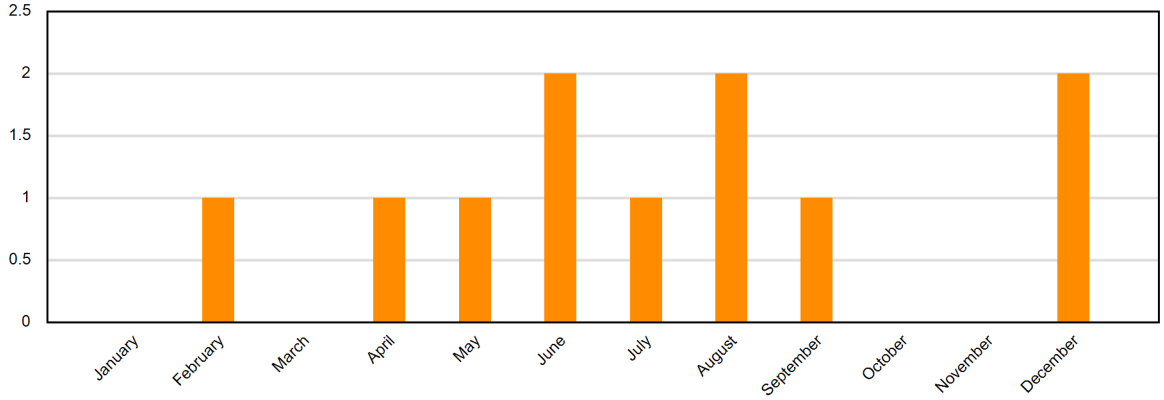
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 164.100 to 164.200 (Stack #2)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 2

1	18551280	164.107	INJ0	DAY	WET	MOTOR VEHICLE (STOPPED)	REAR END
2	19619940	164.198	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 164.500 to 164.600 (Stack #6)

Total Crashes: 2 Light: 1 Dark: 1 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 2

1	18523865	164.527	INJ0	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
2	18597134	164.540	INJ0	DARK	DRY	WORK ZONE MAINT. EQUIPMENT	NO COLLISION W/MV

MPT 164.700 to 164.800 (Stack #8)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18569607	164.791	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 165.100 to 165.200 (Stack #12)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18690759	165.176	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 165.300 to 165.400 (Stack #14)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 2 Wet: 0 Fatalities: 1 Injuries: 0 PDO: 1

1	20248132	165.346	INJ4	DAY	DRY	TREE	NO COLLISION W/MV
2	20248313	165.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 165.500 to 165.600 (Stack #16)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 1

1	19576258	165.571	INJ3	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19630969	165.545	INJ3	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
3	20350890	165.524	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

Interactive Highway Safety Design Model

Crash Prediction Evaluation Report

September 16, 2021

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Report Template: User: My CPM Template (mlcpm6, Sep 14, 2020 9:29 AM)

Evaluation Date: Wed Sep 15 10:02:45 EDT 2021
IHSDM Version: v16.0.0 (Sep 30, 2020)
Crash Prediction Module: v11.0.0 (Sep 30, 2020)

User Name: Eugene Taylor
Organization Name: South Carolina Department of Transportation
Phone: 803-737-1103
E-Mail: Taylorea@scdot.org

Project Title: I-26 MPT 139-169
Project Comment: Created using wizard
Project Unit System: U.S. Customary

Highway Title: I-26
Highway Comment: Created using wizard
Highway Version: 1

Evaluation Title: Non Calibrated
Evaluation Comment: Created Wed Sep 15 10:01:54 EDT 2021

Minimum Location: 7339+20.000
Maximum Location: 8923+20.000
Policy for Superelevation: AASHTO 2011 U.S. Customary
Calibration: HSM Configuration
Crash Distribution: HSM Configuration
Model/CMF: HSM Configuration
First Year of Analysis: 2021
Last Year of Analysis: 2021
Empirical-Bayes Analysis: Whole-Project
Highway with Crash History: I-26
Highway with Crash History Comment: Created using wizard
Highway with Crash History Version: 1
First Year of Observed Crashes: 2018
Last Year of Observed Crashes: 2020

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IMPORTANT NOTICE ABOUT COMPARING RESULTS FROM HIGHWAY SAFETY MANUAL FIRST EDITION (2010) MODELS TO RESULTS FROM NEW MODELS DEVELOPED UNDER NCHRP PROJECTS 17-70 AND 17-58

Since the publication of the Highway Safety Manual - First Edition (HSM-1), in 2010 by the American Association of State Highway and Transportation Officials (AASHTO), multiple research efforts have been undertaken through the National Cooperative Highway Research Program (NCHRP) to develop safety performance models for road segment and intersection facility types that were not initially reflected in the HSM-1, in order to expand the breadth and depth of the HSM in the future.

The IHSDM Crash Prediction Module (CPM) is intended as a faithful implementation of HSM Part C predictive methods. As NCHRP projects to develop new predictive methods for the HSM are completed, FHWA works to incorporate the new methods into IHSDM, sometimes in advance of publication in the HSM. The following new crash predictive methods have been accepted by NCHRP project panels and incorporated into IHSDM, while pending AASHTO's approval for incorporation into a future edition of the HSM:

- Roundabouts: completed in 2018 under NCHRP Project 17-70, the new methods will provide improved outcomes for the safety analysis of roundabouts.
- 6+ lane and one-way urban/suburban arterials (including models for segments and intersections): completed under NCHRP Project 17-58.

However, in the absence of local calibration factors (see HSM-1 Part C, Appendix A for guidance on calibration of the predictive models), it is neither appropriate nor advisable to directly compare the results from new models (from NCHRP Projects 17-58 and 17-70) to results from HSM-1 models, as the models were not calibrated to the same base state data sets, and consequently can produce unexpected results. If local calibration factors are available and applied to both new models and HSM-1 models, then it may be appropriate to directly compare the results.*[Note: Work being performed under NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual) is expected to re-calibrate many of the old (HSM-1) and new (e.g., NCHRP 17-70) models to data from a single (or small number of) states, that would allow results from all models to be directly compared.]*

The models produced for NCHRP Project 17-70 have independent value in terms of informing the design of a roundabout and assessing the effects of different design characteristics on the expected safety performance of a roundabout.

The HSM-1 interim method previously included in IHSDM for evaluating roundabouts on urban/suburban arterials (i.e., evaluating an existing intersection and then applying a Crash Modification Factor for replacing the existing intersection with a roundabout) has been deactivated in IHSDM, to minimize any confusion with the new roundabout methodology.

2. Section Types

2.1 Section 1 Evaluation

Section: Section 1
Evaluation Start Location: 7339+20.000
Evaluation End Location: 8923+20.000
Functional Class: Freeway
Type of Alignment: Divided, Multilane
Model Category: Freeway Segment
Calibration Factor: FI_MV=1.0; FI_SV=1.0; PDO_MV=1.0; PDO_SV=1.0;

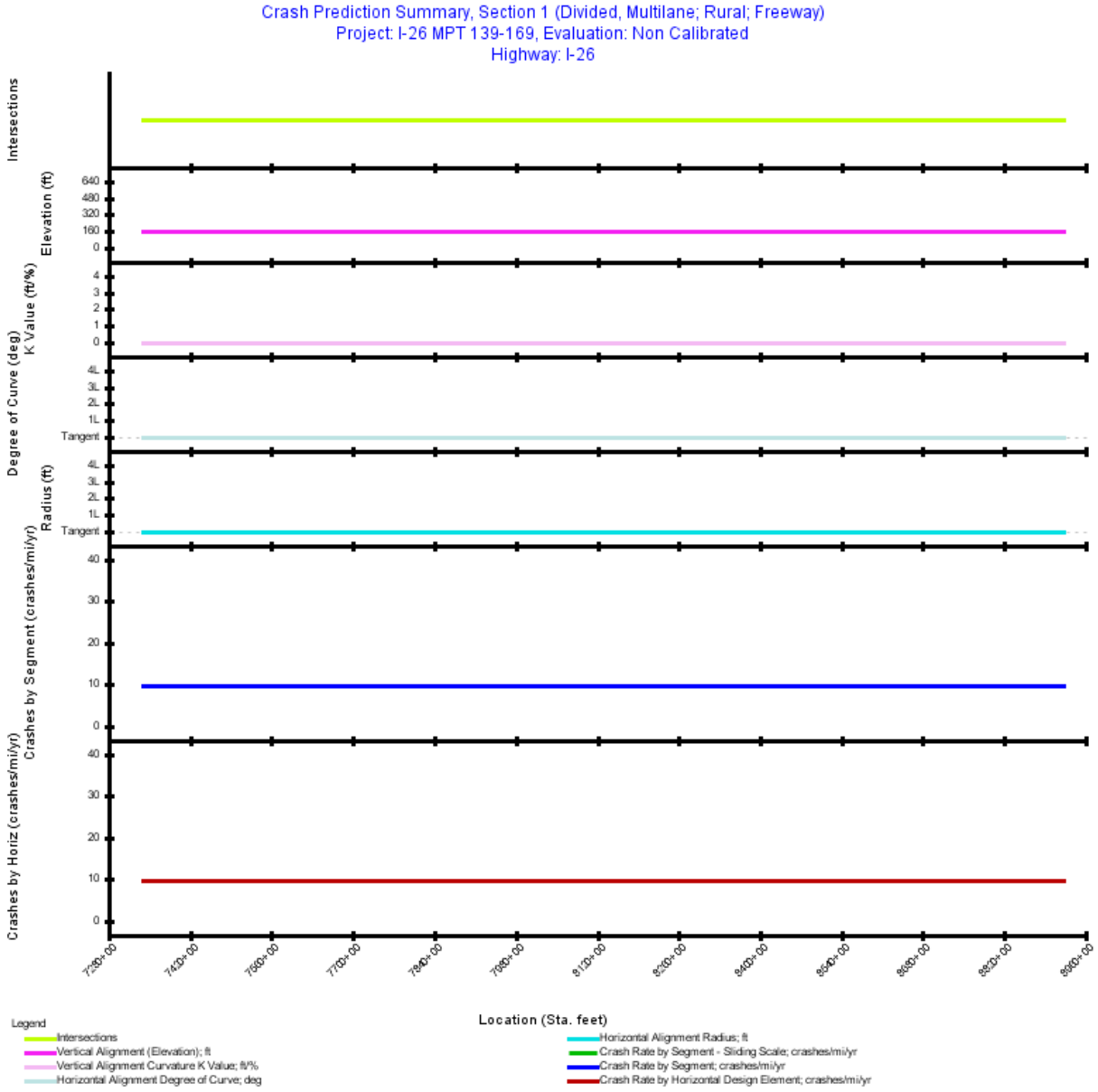


Figure 1. Crash Prediction Summary (Section 1)

Table 1. Observed Crashes Used in the Evaluation (Section 1)

Year	Observed Crashes	Total Crashes Used	FI Crashes	FI no/C Crashes	PDO Crashes
2018	386	386	0	0	0
2019	436	436	0	0	0
2020	386	386	0	0	0
All Years	1,208 [1]	1,208	0	0	0

Footnotes

[1] Note: Observed crash data that does not comply with the associated CPM model requirements may not be used in EB processing.

Table 2. Evaluation Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	4F	Rural	7339+20.000	8923+20.000	158,400.00	30.0000	2021: 46,500	27.00	Traversable Median	35.00

Table 3. Crash Highway Freeway - Homogeneous Segments (Section 1)

Seg. No.	Type	Area Type	Start Location (Sta. ft)	End Location (Sta. ft)	Length (ft)	Length(mi)	AADT	Median Width (ft)	Type	Effective Median Width (ft)
1	4F	Rural	7339+20.000	8923+20.000	158,400.00	30.0000	2018-2020: 46,500	27.00	Traversable Median	35.00

Table 4. Expected Freeway Crash Rates and Frequencies Summary (Section 1)

First Year of Analysis	**2021**
Last Year of Analysis	**2021**
Effective Length (mi)	**30.0000**
Average Future Road AADT (vpd)	**46,500**
Expected Crashes	
Total Crashes	**291.81**
Fatal and Injury Crashes	**80.52**
Property-Damage-Only Crashes	**211.29**
Percent of Total Expected Crashes	
Percent Fatal and Injury Crashes (%)	**28**
Percent Property-Damage-Only Crashes (%)	**72**
Expected Crash Rate	
Crash Rate (crashes/mi/yr)	**9.7269**
FI Crash Rate (crashes/mi/yr)	**2.6839**
PDO Crash Rate (crashes/mi/yr)	**7.0430**
Expected Travel Crash Rate	
Total Travel (million veh-mi)	**509.18**
Travel Crash Rate (crashes/million veh-mi)	**0.57**
Travel FI Crash Rate (crashes/million veh-mi)	**0.16**
Travel PDO Crash Rate (crashes/million veh-mi)	**0.42**

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present.
Note: *Total Travel and Crash Rates/Million Vehicle Miles* for *Speed Change Lanes* reflect AADTs that are **half of the Freeway Segment AADTs** based on the assumption of 50/50 directional distribution.

Table 5. Expected Crash Frequencies and Rates by Freeway Segment/Intersection (Section 1)

Segment Number/Intersection Name/Cross Road	Start Location (Sta. ft)	End Location (Sta. ft)	Effective Length (mi)	Total Expected Crashes for Evaluation Period	Total Predicted Crashes for Evaluation Period	Expected Total Crash Frequency (crashes/yr)	Expected FI Crash Frequency (crashes/yr)	Expected PDO Crash Frequency (crashes/yr)	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	(Expected - Predicted) Total Crash Frequency (crashes/yr)	(Expected - Predicted) FI Crash Frequency (crashes/yr)	(Expected - Predicted) PDO Crash Frequency (crashes/yr)	Expected Crash Rate (crashes/mi/yr)	Expected Travel Crash Rate (crashes/million veh-mi)
1	7339+20.000	8923+20.000	30.0000	291.806	222.011	291.8060	80.5157	211.2903	222.0110	61.2577	160.7532	69.7950	19.2580	50.5370	9.7269	0.57
Total			30.0000	291.806	222.011	291.8060	80.5157	211.2903	222.0110	61.2577	160.7532	69.7950	19.2580	50.5370	9.7269	0.57

Note: *Effective Length* is the *segment length* minus the length of the *speed change lanes* if present. This may create Freeway segments with zero effective length and zero crashes.

Table 6. Expected Crash Frequencies and Rates by Horizontal Design Element (Section 1)

Title	Start Location (Sta. ft)	End Location (Sta. ft)	Length (mi)	Total Expected Crashes for Evaluation Period	Total Predicted Crashes for Evaluation Period	Expected Total Crash Frequency (crashes/yr)	Expected FI Crash Frequency (crashes/yr)	Expected PDO Crash Frequency (crashes/yr)	Predicted Total Crash Frequency (crashes/yr)	Predicted FI Crash Frequency (crashes/yr)	Predicted PDO Crash Frequency (crashes/yr)	(Expected - Predicted) Total Crash Frequency (crashes/yr)	(Expected - Predicted) FI Crash Frequency (crashes/yr)	(Expected - Predicted) PDO Crash Frequency (crashes/yr)	Expected Crash Rate (crashes/mi/yr)	Expected Travel Crash Rate (crashes/million veh-mi)
Tangent	7339+20.000	8923+20.000	30.0000	291.806	222.011	291.8060	80.5157	211.2903	222.0110	61.2577	160.7532	69.7950	19.2580	50.5370	9.7269	0.57

Table 7. Predicted Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2021	222.01	61.26	27.592	160.75	72.408
Total	222.01	61.26	27.592	160.75	72.408
Average	222.01	61.26	27.592	160.75	72.408

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 8. Expected Crash Frequencies by Year (Section 1)

Year	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
2021	291.81	80.52	27.592	211.29	72.408
Total	291.81	80.52	27.592	211.29	72.408
Average	291.81	80.52	27.592	211.29	72.408

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 9. Comparing Predicted and Expected Crashes for the Evaluation Period (Section 1)

Scope	Total Crashes	FI Crashes	Percent FI (%)	PDO Crashes	Percent PDO (%)
Predicted	222.01	61.26	27.592	160.75	72.408
Expected	291.81	80.52	27.592	211.29	72.408
Expected - Predicted	69.80	19.26		50.54	
Percent Difference	23.92	23.92		23.92	

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Table 10. Expected Crash Severity by Freeway Segment (Section 1)

Seg. No.	Fatal (K) Crashes (crashes)	Incapacitating Injury (A) Crashes (crashes)	Non-Incapacitating Injury (B) Crashes (crashes)	Possible Injury (C) Crashes (crashes)	No Injury (O) Crashes (crashes)
1	2.9132	7.0480	30.6198	39.9347	211.2903

Table 11. Expected Freeway Crash Type Distribution (Section 1)

Element Type	Crash Type	Fatal and Injury		Property Damage Only		Total	
		Crashes	Crashes (%)	Crashes	Crashes (%)	Crashes	Crashes (%)
Highway Segment	Collision with Animal	0.46	0.2	8.79	3.0	9.25	3.2
Highway Segment	Collision with Fixed Object	26.20	9.0	84.50	29.0	110.69	37.9
Highway Segment	Collision with Other Object	1.43	0.5	16.90	5.8	18.33	6.3
Highway Segment	Other Single-vehicle Collision	17.00	5.8	21.90	7.5	38.90	13.3
Highway Segment	Collision with Parked Vehicle	1.11	0.4	3.11	1.1	4.22	1.4
Highway Segment	Total Single Vehicle Crashes	46.20	15.8	135.20	46.3	181.40	62.2
Highway Segment	Right-Angle Collision	1.92	0.7	2.28	0.8	4.20	1.4
Highway Segment	Head-on Collision	0.62	0.2	0.30	0.1	0.92	0.3
Highway Segment	Other Multi-vehicle Collision	2.02	0.7	5.93	2.0	7.96	2.7
Highway Segment	Rear-end Collision	21.62	7.4	38.66	13.2	60.27	20.7
Highway Segment	Sideswipe, Same Direction Collision	8.13	2.8	28.92	9.9	37.05	12.7
Highway Segment	Total Multiple Vehicle Crashes	34.31	11.8	76.09	26.1	110.41	37.8
Highway Segment	Total Highway Segment Crashes	80.52	27.6	211.29	72.4	291.81	100.0
	Total Crashes	80.52	27.6	211.29	72.4	291.81	100.0

Note: *Fatal and Injury Crashes* and *Property Damage Only Crashes* do not necessarily sum up to *Total Crashes* because the distribution of these three crashes had been derived independently.

Crash Summary

SC 210 (VANCE RD) from MPT 15.550 to MPT 15.950 (LANDSDOWNE RD)

ORANGEBURG COUNTY

01/01/2018 - 06/30/2021 (3.5 years)

Length = 0.400 miles

AADT = 1,425

Functional Class = Rural -- Major Collector

Crashes by Injury Class

Fatality Crashes	0
Injury Crashes	0
PDO Crashes	1
Total Crashes	**1**

Crashes by Manner Of Collision

Rear End	0
Angle	0
Sideswipe	0
Head On	0
Run Off Road	1
Animal	0
Bicycle	0
Pedestrian	0
Other	0
Total Crashes	**1**

Special Contributing Factors

Night	1
Day	0
Wet	1
Dry	0

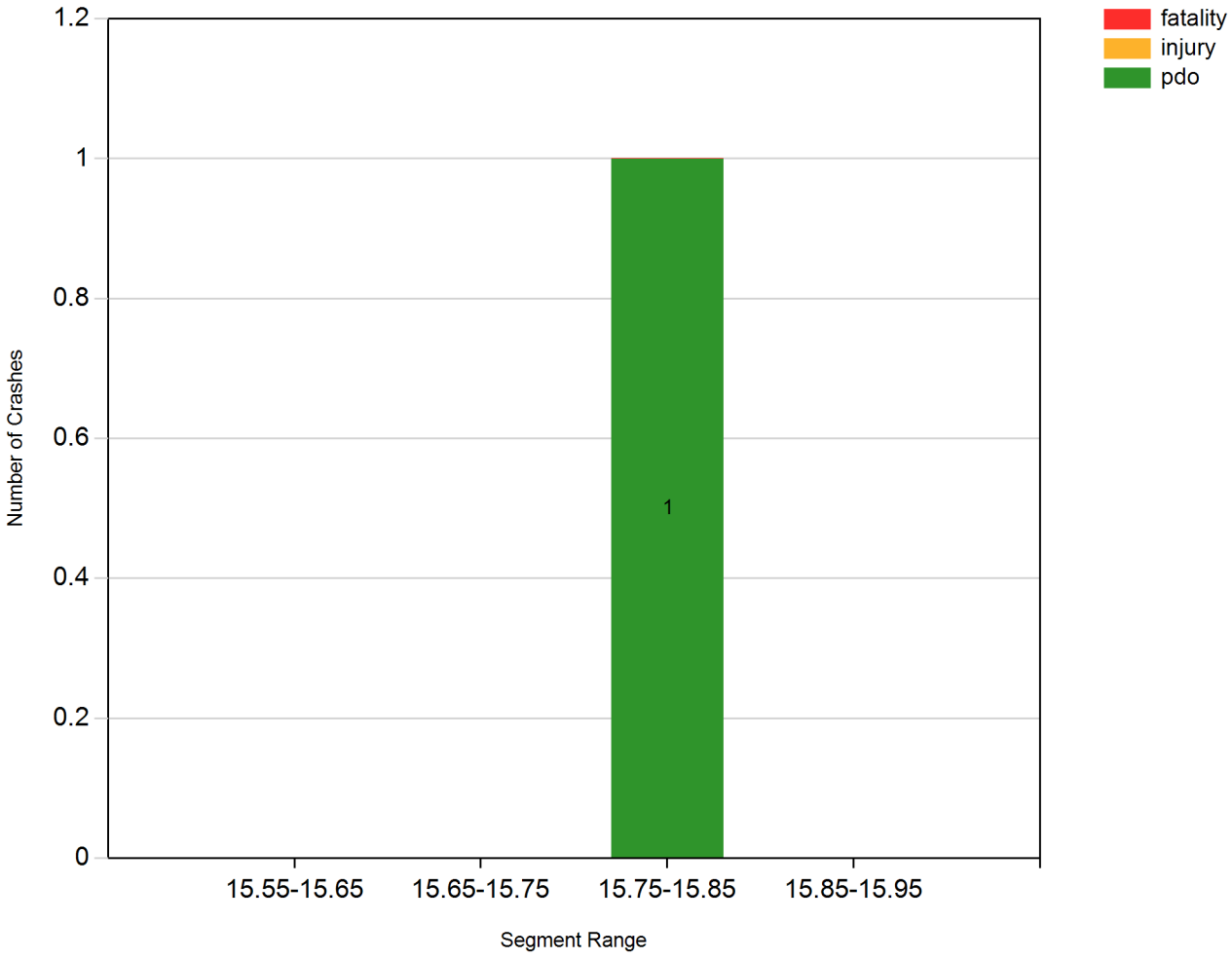
SC 210 (VANCE RD) from MPT 15.550 to MPT 15.950 (LANDSDOWNE RD)

ORANGEBURG COUNTY

01/01/2018 - 06/30/2021 (3.5 years)

Length = 0.400 miles AADT = 1,425

Functional Class = Rural -- Major Collector



SC 210 (VANCE RD) from MPT 15.550 to MPT 15.950 (LANDSDOWNE RD)

ORANGEBURG COUNTY

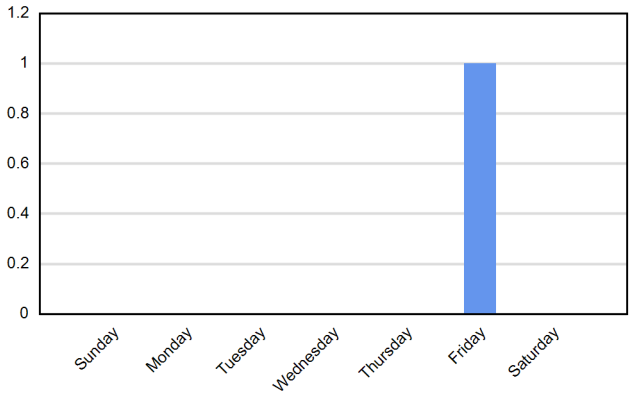
01/01/2018 - 06/30/2021 (3.5 years)

Length = 0.400 miles AADT = 1,425

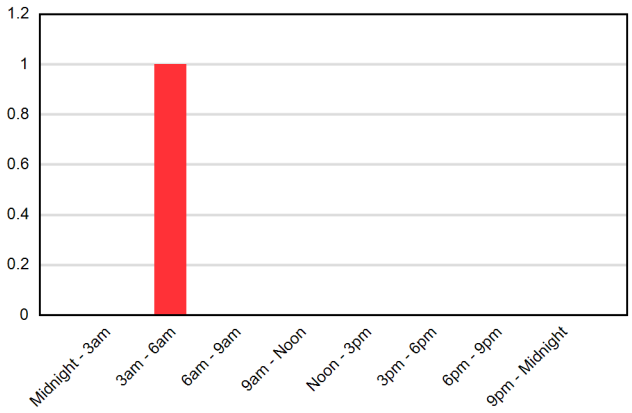
Functional Class = Rural -- Major Collector

Year	2018	2019	2020	2021	Total
Rear End	0	0	0	0	0
Angle	0	0	0	0	0
Sideswipe	0	0	0	0	0
Head On	0	0	0	0	0
Run Off Road	0	1	0	0	1
Animal	0	0	0	0	0
Bicycle	0	0	0	0	0
Pedestrian	0	0	0	0	0
Other	0	0	0	0	0
	0	1	0	0	1

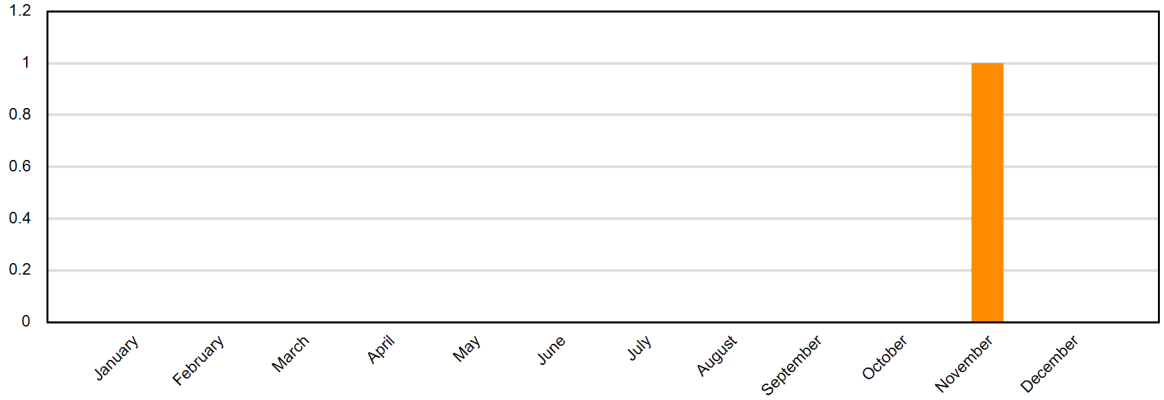
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 15.750 to 15.850 (Stack #3)

Total Crashes: 1 Light: 0 Dark: 1 Dry: 0 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 1

1	19669767	15.750	INJ0	DARK	WET	BRIDGE RAIL		NO COLLISION W/MV

Crash Summary

I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 169.000

ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 4.000 miles

AADT = 45,708

Functional Class = Rural -- Principal Arterial - Interstate

Crashes by Injury Class

Fatality Crashes	4
Injury Crashes	44
PDO Crashes	141
Total Crashes	**189**

Crashes by Manner Of Collision

Rear End	55
Angle	26
Sideswipe	41
Head On	0
Run Off Road	59
Animal	4
Bicycle	0
Pedestrian	0
Other	4
Total Crashes	**189**

Special Contributing Factors

Night	52
Day	137
Wet	34
Dry	155

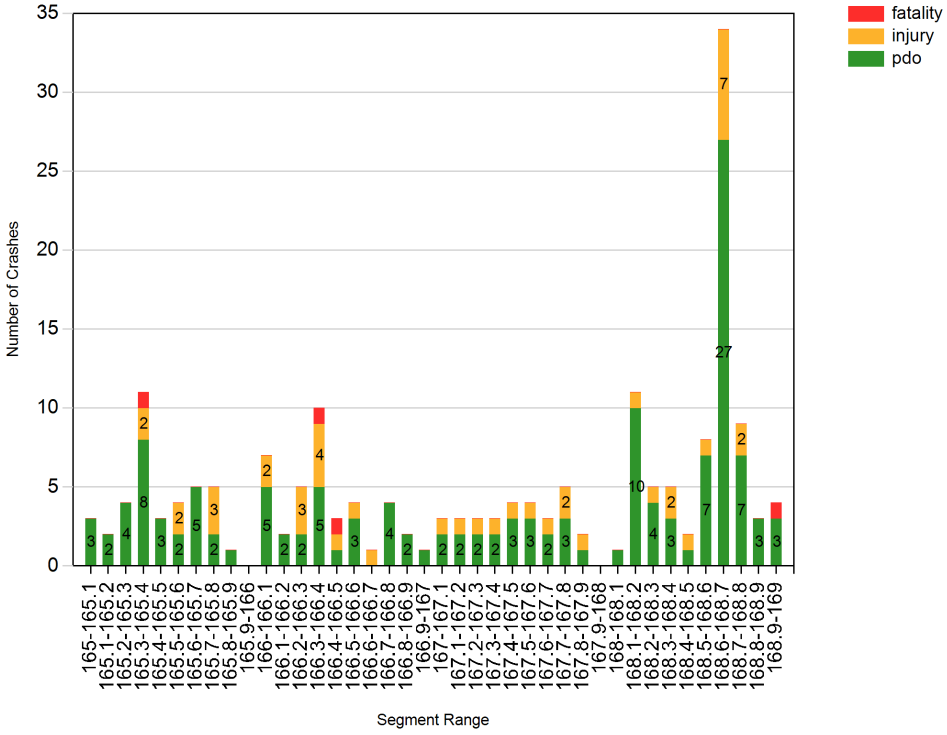
I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 169.000

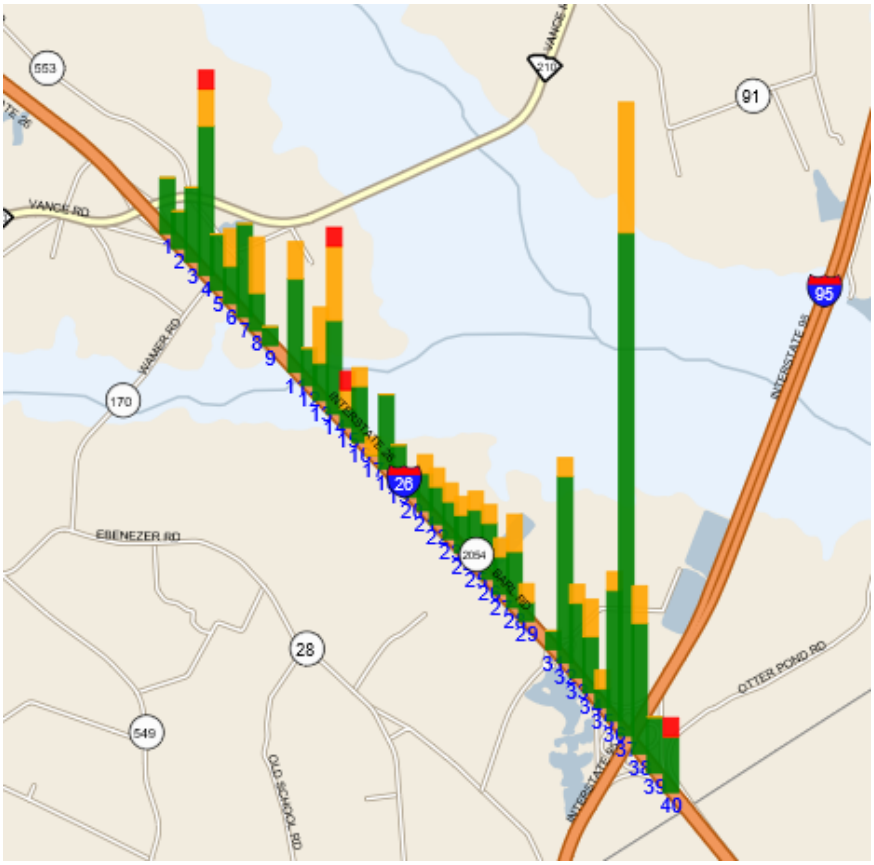
ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 4.000 miles AADT = 45,708

Functional Class = Rural -- Principal Arterial - Interstate





I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 169.000

ORANGEBURG COUNTY

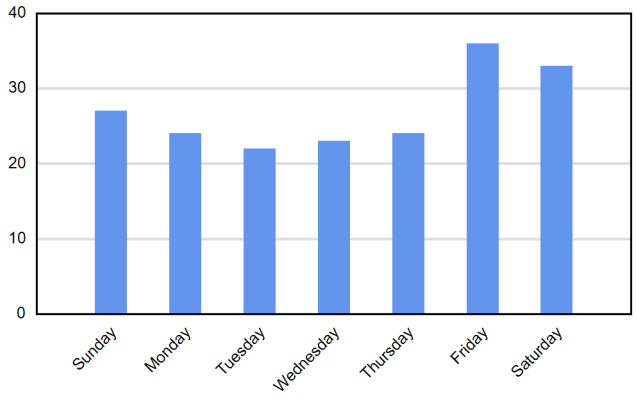
01/01/2018 - 12/31/2020 (3.0 years)

Length = 4.000 miles AADT = 45,708

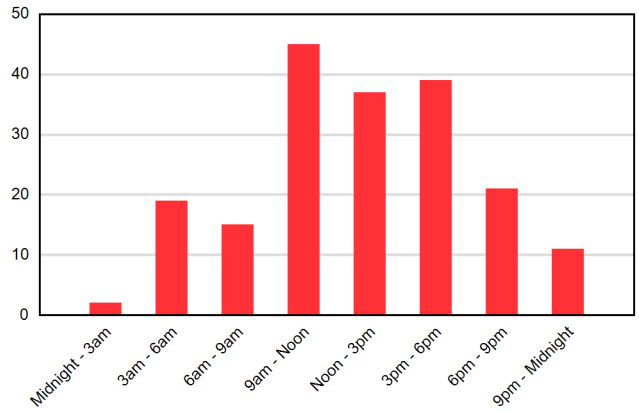
Functional Class = Rural -- Principal Arterial - Interstate

Year	2018	2019	2020	Total
Rear End	16	24	15	55
Angle	7	13	6	26
Sideswipe	11	13	17	41
Head On	0	0	0	0
Run Off Road	16	18	25	59
Animal	1	3	0	4
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	2	1	1	4
	53	72	64	189

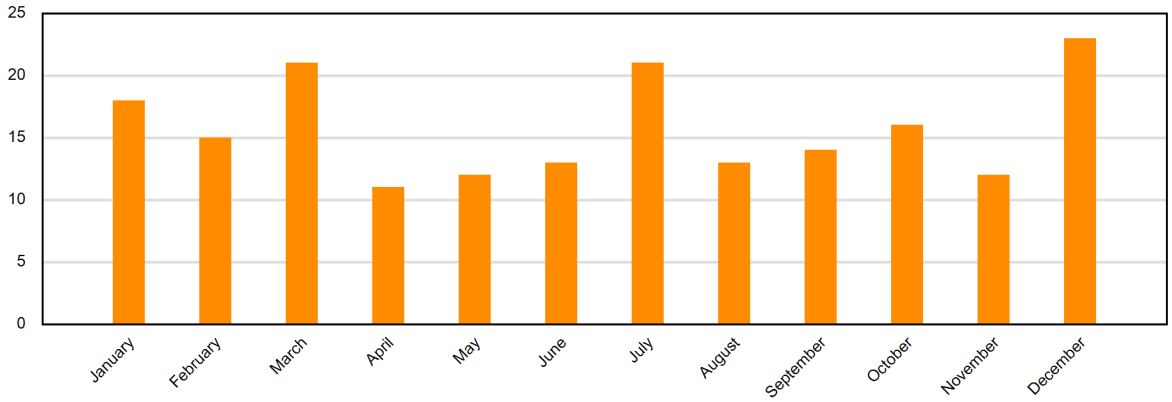
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 165.000 to 165.100 (Stack #1)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 3

1	18528723	165.030	INJ0	DUSK	DRY	MOTOR VEHICLE (PARKED)	ANGLE
2	18609341	165.008	INJ0	DAY	WET	TREE	NO COLLISION W/MV
3	19674798	165.037	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 165.100 to 165.200 (Stack #2)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 2

1	18690759	165.176	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	19680200	165.174	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 165.200 to 165.300 (Stack #3)

Total Crashes: 4 Light: 2 Dark: 2 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 4

1	18504612	165.212	INJ0	DARK	WET	DITCH	NO COLLISION W/MV
2	18601447	165.266	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	18612907	165.203	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	20206624	165.286	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 165.300 to 165.400 (Stack #4)

Total Crashes: 11 Light: 9 Dark: 2 Dry: 10 Wet: 1 Fatalities: 1 Injuries: 2 PDO: 8

1	18594365	165.346	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	19676056	165.396	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
3	20211925	165.346	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	20221931	165.346	INJ1	DAY	DRY	EMBANKMENT	NO COLLISION W/MV
5	20223652	165.363	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	20233990	165.346	INJ0	DAY	DRY	GUARDRAIL END	NO COLLISION W/MV
7	20248132	165.346	INJ4	DAY	DRY	TREE	NO COLLISION W/MV
8	20248313	165.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	20250110	165.346	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
10	20273442	165.345	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
11	20501570	165.389	INJ1	DARK	WET	OTHER NONCOLLISION	NO COLLISION W/MV

MPT 165.400 to 165.500 (Stack #5)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 3

1	18526168	165.482	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	19686217	165.404	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

Section Crashes

3	20261515	165.443	INJ0	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV

MPT 165.500 to 165.600 (Stack #6)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 4 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 2

1	18600764	165.586	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	19576258	165.571	INJ3	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	19630969	165.545	INJ3	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
4	20350890	165.524	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 165.600 to 165.700 (Stack #7)

Total Crashes: 5 Light: 2 Dark: 3 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 5

1	18609321	165.632	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
2	19534102	165.606	INJ0	DAWN	WET	TREE	NO COLLISION W/MV
3	19551544	165.621	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	19554938	165.668	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
5	20337165	165.617	INJ0	DARK	DRY	TREE	NO COLLISION W/MV

MPT 165.700 to 165.800 (Stack #8)

Total Crashes: 5 Light: 3 Dark: 2 Dry: 3 Wet: 2 Fatalities: 0 Injuries: 3 PDO: 2

1	18513533	165.740	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	18570116	165.726	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	19533538	165.788	INJ1	DAWN	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	19595777	165.790	INJ1	DAY	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
5	20206551	165.762	INJ2	DAY	DRY	TREE	NO COLLISION W/MV

MPT 165.800 to 165.900 (Stack #9)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18592971	165.870	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 166.000 to 166.100 (Stack #11)

Total Crashes: 7 Light: 5 Dark: 2 Dry: 7 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 5

1	18617104	166.048	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	18640024	166.003	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
3	19616819	166.001	INJ2	DAY	DRY	TREE	NO COLLISION W/MV
4	19632327	166.066	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
5	19650290	166.060	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	19662695	166.004	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

7	20335331	166.098	INJ1	DUSK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 166.100 to 166.200 (Stack #12)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 2

1	18655895	166.113	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	19586157	166.115	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.200 to 166.300 (Stack #13)

Total Crashes: 5 Light: 5 Dark: 0 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 3 PDO: 2

1	19506710	166.285	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	19541263	166.284	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	19634813	166.291	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19664895	166.213	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	19673539	166.245	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 166.300 to 166.400 (Stack #14)

Total Crashes: 10 Light: 7 Dark: 3 Dry: 7 Wet: 3 Fatalities: 1 Injuries: 4 PDO: 5

1	18523869	166.341	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	18649927	166.360	INJ0	DAY	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
3	18650904	166.367	INJ4	DUSK	WET	EQUIPMENT FAILURE	NO COLLISION W/MV
4	19532678	166.314	INJ0	DAY	WET	TREE	NO COLLISION W/MV
5	19687139	166.301	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	20206562	166.335	INJ1	DAWN	WET	TREE	NO COLLISION W/MV
7	20248140	166.363	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	20273709	166.347	INJ2	DARK	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
9	20339804	166.347	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
10	20340828	166.347	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.400 to 166.500 (Stack #15)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 1 Injuries: 1 PDO: 1

1	19505256	166.428	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19626522	166.438	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	20227836	166.426	INJ4	DAY	DRY	TREE	NO COLLISION W/MV

MPT 166.500 to 166.600 (Stack #16)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 3

1	18540342	166.530	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

2	18564823	166.579	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	18655875	166.517	INJ1	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19535029	166.511	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 166.600 to 166.700 (Stack #17)

Total Crashes: 1 Light: 0 Dark: 1 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 0

1	19531432	166.611	INJ1	DARK	DRY	TREE	NO COLLISION W/MV

MPT 166.700 to 166.800 (Stack #18)

Total Crashes: 4 Light: 1 Dark: 3 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 4

1	19655796	166.717	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
2	19684860	166.742	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	20231672	166.707	INJ0	DAWN	WET	TREE	REAR END
4	20274937	166.716	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 166.800 to 166.900 (Stack #19)

Total Crashes: 2 Light: 1 Dark: 1 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 2

1	20218640	166.847	INJ0	DAWN	WET	TREE	NO COLLISION W/MV
2	20344141	166.858	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.900 to 167.000 (Stack #20)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	19621985	166.955	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 167.000 to 167.100 (Stack #21)

Total Crashes: 3 Light: 1 Dark: 2 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 2

1	18576849	167.066	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	18672196	167.089	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	20249120	167.092	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 167.100 to 167.200 (Stack #22)

Total Crashes: 3 Light: 1 Dark: 2 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 2

1	18569594	167.179	INJ1	DAY	DRY	OVERTURN/ROLLOVER	SIDESWIPE SAME
2	18660124	167.134	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	20254617	167.141	INJ0	DARK	DRY	TREE	NO COLLISION W/MV

Section Crashes

MPT 167.200 to 167.300 (Stack #23)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 2

1	19525443	167.298	INJ0	DAY	WET	TREE	NO COLLISION W/MV
2	19596158	167.290	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	20206498	167.286	INJ2	DARK	DRY	TREE	NO COLLISION W/MV

MPT 167.300 to 167.400 (Stack #24)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 2

1	19519549	167.389	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	20222373	167.308	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
3	20238297	167.347	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 167.400 to 167.500 (Stack #25)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 3

1	18532527	167.414	INJ0	DAY	WET	OTHER MOVABLE OBJECT	NO COLLISION W/MV
2	18624737	167.460	INJ0	DAY	DRY	TREE	SIDESWIPE SAME
3	19513356	167.416	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19644742	167.450	INJ0	DARK	DRY	CARGO/EQUIP LOSS OR SHIFT	NO COLLISION W/MV

MPT 167.500 to 167.600 (Stack #26)

Total Crashes: 4 Light: 2 Dark: 2 Dry: 2 Wet: 2 Fatalities: 0 Injuries: 1 PDO: 3

1	18569608	167.530	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19550280	167.551	INJ0	DARK	WET	MOTOR VEHICLE (PARKED)	ANGLE
3	20229477	167.537	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	20273939	167.571	INJ1	DAY	WET	TREE	NO COLLISION W/MV

MPT 167.600 to 167.700 (Stack #27)

Total Crashes: 3 Light: 3 Dark: 0 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 2

1	19617096	167.603	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
2	19685801	167.601	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	20272990	167.635	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 167.700 to 167.800 (Stack #28)

Total Crashes: 5 Light: 4 Dark: 1 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 2 PDO: 3

1	18518043	167.720	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	18564825	167.713	INJ2	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV

Section Crashes

3	18600763	167.722	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	20206610	167.730	INJ0	DUSK	WET	MOTOR VEHICLE (STOPPED)	REAR END
5	20354427	167.730	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 167.800 to 167.900 (Stack #29)

Total Crashes: 2 Light: 0 Dark: 2 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 1

1	19650296	167.879	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
2	20211930	167.809	INJ1	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 168.000 to 168.100 (Stack #31)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	19603247	168.095	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 168.100 to 168.200 (Stack #32)

Total Crashes: 11 Light: 9 Dark: 2 Dry: 10 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 10

1	18523870	168.152	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	18527007	168.170	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
3	18582194	168.188	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	18584000	168.154	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	18597129	168.192	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
6	18609331	168.118	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
7	19515509	168.188	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
8	19675673	168.162	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
9	20227827	168.154	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
10	20240929	168.137	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
11	20344208	168.179	INJ2	DARK	DRY	TREE	NO COLLISION W/MV

MPT 168.200 to 168.300 (Stack #33)

Total Crashes: 5 Light: 4 Dark: 1 Dry: 5 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 4

1	18549504	168.228	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	19513355	168.239	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	19673381	168.262	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19674185	168.204	INJ1	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	20206518	168.205	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

Section Crashes

MPT 168.300 to 168.400 (Stack #34)

Total Crashes: 5 Light: 4 Dark: 1 Dry: 3 Wet: 2 Fatalities: 0 Injuries: 2 PDO: 3

1	19519155	168.325	INJ1	DARK	WET	MOTOR VEHICLE (STOPPED)	REAR END
2	19677459	168.377	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	20207785	168.353	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	20248308	168.339	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	20341821	168.345	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 168.400 to 168.500 (Stack #35)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 1

1	19562421	168.498	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	20221756	168.470	INJ1	DAY	WET	TREE	NO COLLISION W/MV

MPT 168.500 to 168.600 (Stack #36)

Total Crashes: 8 Light: 6 Dark: 2 Dry: 6 Wet: 2 Fatalities: 0 Injuries: 1 PDO: 7

1	18517469	168.584	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	18526588	168.598	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	18650911	168.585	INJ0	DAY	DRY	CARGO/EQUIP LOSS OR SHIFT	NO COLLISION W/MV
4	19529951	168.518	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	19559446	168.512	INJ0	DAY	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
6	19569007	168.572	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	20238569	168.564	INJ0	DAY	WET	OTHER (POST, POLE, SUPPORT, ETC)	NO COLLISION W/MV
8	20354695	168.596	INJ0	DUSK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 168.600 to 168.700 (Stack #37)

Total Crashes: 34 Light: 29 Dark: 5 Dry: 30 Wet: 4 Fatalities: 0 Injuries: 7 PDO: 27

1	18507608	168.637	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	18517446	168.658	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	18541678	168.624	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	18576837	168.665	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	18594312	168.673	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
6	18608612	168.689	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	18615649	168.623	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	18691173	168.690	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
9	19506634	168.656	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
10	19540106	168.663	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	19552782	168.648	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Section Crashes

12	19552793	168.631	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
13	19562467	168.641	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
14	19591918	168.674	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
15	19600398	168.692	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	19606375	168.690	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
17	19644721	168.679	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
18	19644865	168.639	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
19	19668355	168.654	INJ0	DARK	WET	OTHER (POST, POLE, SUPPORT, ETC)	NO COLLISION W/MV
20	19671982	168.677	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
21	19686506	168.630	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
22	20206184	168.619	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
23	20220476	168.690	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
24	20221930	168.641	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
25	20222380	168.671	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
26	20227826	168.688	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
27	20234325	168.633	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
28	20243007	168.650	INJ2	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
29	20247603	168.647	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
30	20248311	168.689	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
31	20257136	168.643	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
32	20261517	168.679	INJ0	DUSK	DRY	HIGHWAY TRAFFIC SIGN POST	NO COLLISION W/MV
33	20270637	168.664	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	ANGLE
34	20337525	168.613	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 168.700 to 168.800 (Stack #38)

Total Crashes: 9 Light: 6 Dark: 3 Dry: 7 Wet: 2 Fatalities: 0 Injuries: 2 PDO: 7

1	18540314	168.791	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	18570110	168.744	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	18624716	168.761	INJ0	DAY	DRY	OTHER NONCOLLISION	REAR END
4	19581462	168.729	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	19682422	168.734	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
6	19686218	168.708	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	20347061	168.780	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	20347063	168.765	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	20347389	168.711	INJ2	DARK	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV

Section Crashes

MPT 168.800 to 168.900 (Stack #39)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 3

1	19595858	168.884	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
2	19661824	168.819	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	20254623	168.854	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 168.900 to 169.000 (Stack #40)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 3 Wet: 1 Fatalities: 1 Injuries: 0 PDO: 3

1	19535913	168.912	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19664218	168.950	INJ4	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	19673538	168.946	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	20273788	168.919	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

Crash Summary

I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 169.000

ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 4.000 miles

AADT = 45,708

Functional Class = Rural -- Principal Arterial - Interstate

Crashes by Injury Class

Fatality Crashes	2
Injury Crashes	13
PDO Crashes	39
Total Crashes	**54**

Crashes by Manner Of Collision

Rear End	15
Angle	10
Sideswipe	20
Head On	0
Run Off Road	6
Animal	0
Bicycle	0
Pedestrian	0
Other	3
Total Crashes	**54**

Special Contributing Factors

Night	10
Day	44
Wet	7
Dry	47

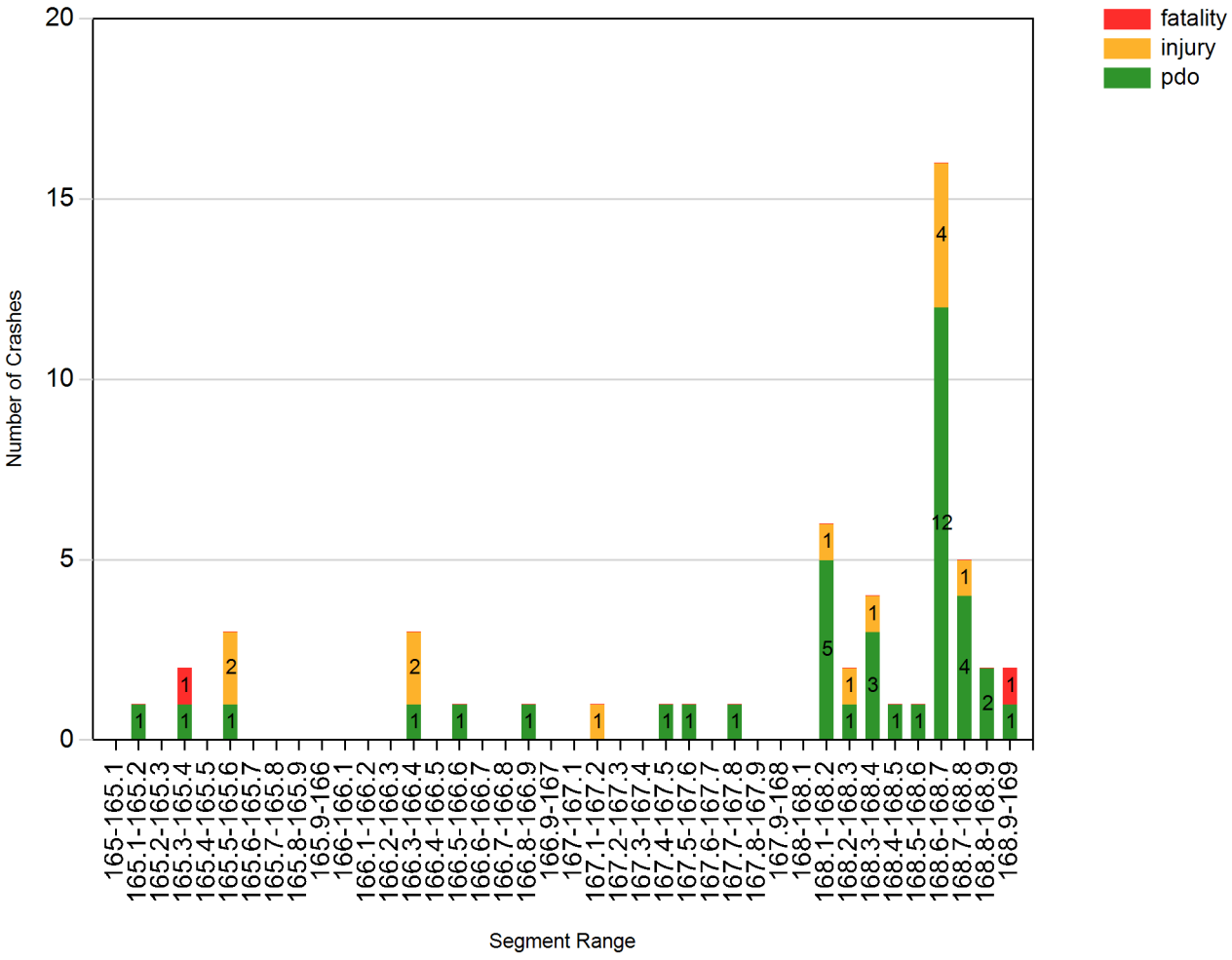
I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 169.000

ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 4.000 miles AADT = 45,708

Functional Class = Rural -- Principal Arterial - Interstate



I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 169.000

ORANGEBURG COUNTY

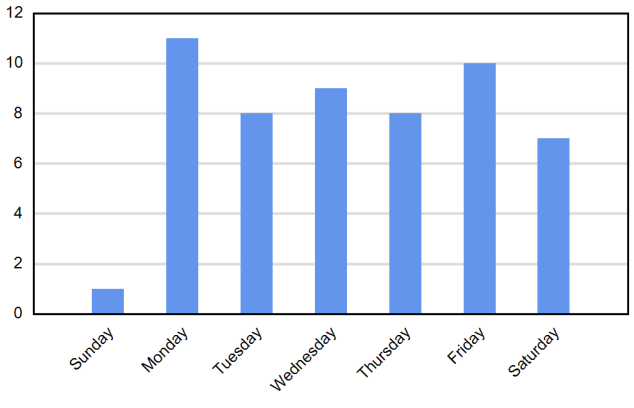
01/01/2018 - 12/31/2020 (3.0 years)

Length = 4.000 miles AADT = 45,708

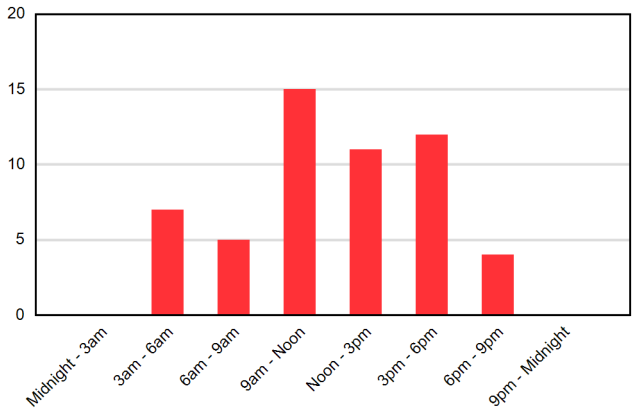
Functional Class = Rural -- Principal Arterial - Interstate

Year	2018	2019	2020	Total
Rear End	4	5	6	15
Angle	1	5	4	10
Sideswipe	4	6	10	20
Head On	0	0	0	0
Run Off Road	1	0	5	6
Animal	0	0	0	0
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	1	1	1	3
	11	17	26	54

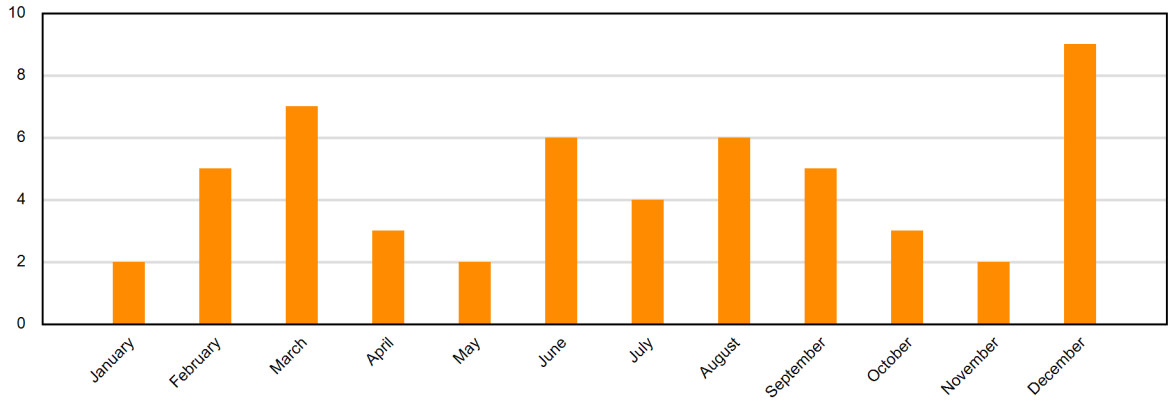
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 165.100 to 165.200 (Stack #2)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18690759	165.176	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 165.300 to 165.400 (Stack #4)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 2 Wet: 0 Fatalities: 1 Injuries: 0 PDO: 1

1	20248132	165.346	INJ4	DAY	DRY	TREE	NO COLLISION W/MV
2	20248313	165.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 165.500 to 165.600 (Stack #6)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 1

1	19576258	165.571	INJ3	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19630969	165.545	INJ3	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
3	20350890	165.524	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 166.300 to 166.400 (Stack #14)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 2 PDO: 1

1	20206562	166.335	INJ1	DAWN	WET	TREE	NO COLLISION W/MV
2	20339804	166.347	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
3	20340828	166.347	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.500 to 166.600 (Stack #16)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18540342	166.530	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 166.800 to 166.900 (Stack #19)

Total Crashes: 1 Light: 0 Dark: 1 Dry: 0 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 1

1	20218640	166.847	INJ0	DAWN	WET	TREE	NO COLLISION W/MV

MPT 167.100 to 167.200 (Stack #22)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 0

1	18569594	167.179	INJ1	DAY	DRY	OVERTURN/ROLLOVER	SIDESWIPE SAME

MPT 167.400 to 167.500 (Stack #25)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18624737	167.460	INJ0	DAY	DRY	TREE	SIDESWIPE SAME

Section Crashes

MPT 167.500 to 167.600 (Stack #26)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18569608	167.530	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 167.700 to 167.800 (Stack #28)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	20354427	167.730	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 168.100 to 168.200 (Stack #32)

Total Crashes: 6 Light: 5 Dark: 1 Dry: 5 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 5

1	18523870	168.152	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	18609331	168.118	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	19675673	168.162	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
4	20227827	168.154	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	20240929	168.137	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
6	20344208	168.179	INJ2	DARK	DRY	TREE	NO COLLISION W/MV

MPT 168.200 to 168.300 (Stack #33)

Total Crashes: 2 Light: 1 Dark: 1 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 1

1	19674185	168.204	INJ1	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	20206518	168.205	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 168.300 to 168.400 (Stack #34)

Total Crashes: 4 Light: 4 Dark: 0 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 3

1	19677459	168.377	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	20207785	168.353	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	20248308	168.339	INJ2	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	20341821	168.345	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

MPT 168.400 to 168.500 (Stack #35)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	19562421	168.498	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 168.500 to 168.600 (Stack #36)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	19569007	168.572	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

Section Crashes

MPT 168.600 to 168.700 (Stack #37)

Total Crashes: 16 Light: 14 Dark: 2 Dry: 14 Wet: 2 Fatalities: 0 Injuries: 4 PDO: 12

1	18517446	168.658	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	18541678	168.624	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	18608612	168.689	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	19506634	168.656	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
5	19552793	168.631	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
6	19606375	168.690	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
7	19644721	168.679	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
8	19671982	168.677	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
9	20206184	168.619	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
10	20221930	168.641	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
11	20222380	168.671	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
12	20227826	168.688	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
13	20243007	168.650	INJ2	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
14	20247603	168.647	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
15	20257136	168.643	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
16	20337525	168.613	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 168.700 to 168.800 (Stack #38)

Total Crashes: 5 Light: 3 Dark: 2 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 4

1	18624716	168.761	INJ0	DAY	DRY	OTHER NONCOLLISION	REAR END
2	19581462	168.729	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	19686218	168.708	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	20347061	168.780	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
5	20347389	168.711	INJ2	DARK	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV

MPT 168.800 to 168.900 (Stack #39)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 2

1	19661824	168.819	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
2	20254623	168.854	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 168.900 to 169.000 (Stack #40)

Total Crashes: 2 Light: 1 Dark: 1 Dry: 2 Wet: 0 Fatalities: 1 Injuries: 0 PDO: 1

1	19535913	168.912	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19664218	168.950	INJ4	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

Crash Summary

I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 168.000

ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 3.000 miles

AADT = 47,000

Functional Class = Rural -- Principal Arterial - Interstate

Crashes by Injury Class

Fatality Crashes	3
Injury Crashes	29
PDO Crashes	75
Total Crashes	**107**

Crashes by Manner Of Collision

Rear End	26
Angle	10
Sideswipe	21
Head On	0
Run Off Road	46
Animal	2
Bicycle	0
Pedestrian	0
Other	2
Total Crashes	**107**

Special Contributing Factors

Night	36
Day	71
Wet	21
Dry	86

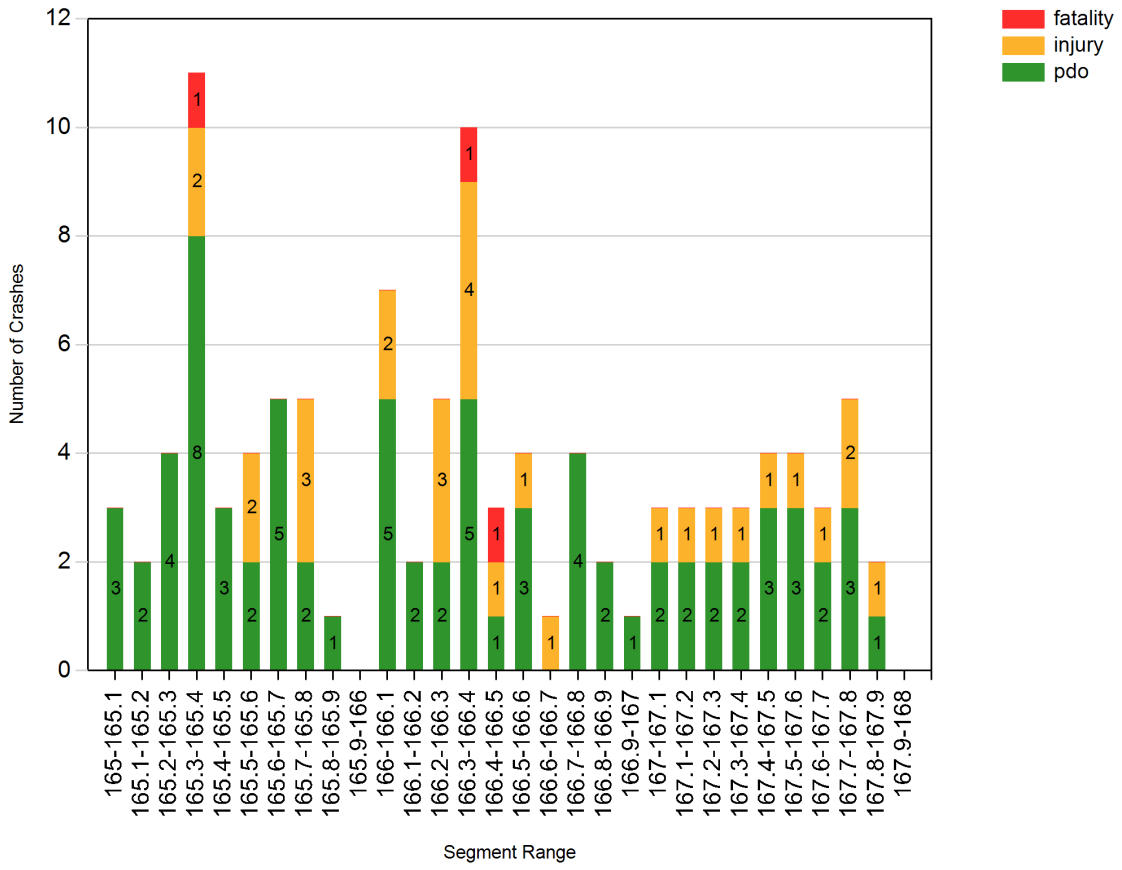
I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 168.000

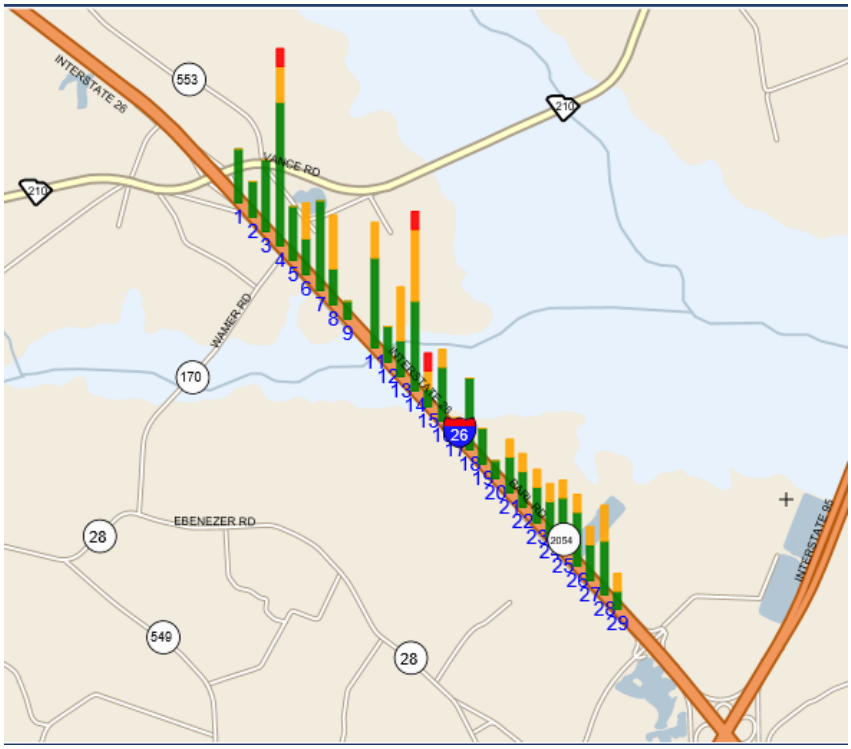
ORANGEBURG COUNTY

01/01/2018 - 12/31/2020 (3.0 years)

Length = 3.000 miles AADT = 47,000

Functional Class = Rural -- Principal Arterial - Interstate





I- 26 (INTERSTATE 26) from MPT 165.000 to MPT 168.000

ORANGEBURG COUNTY

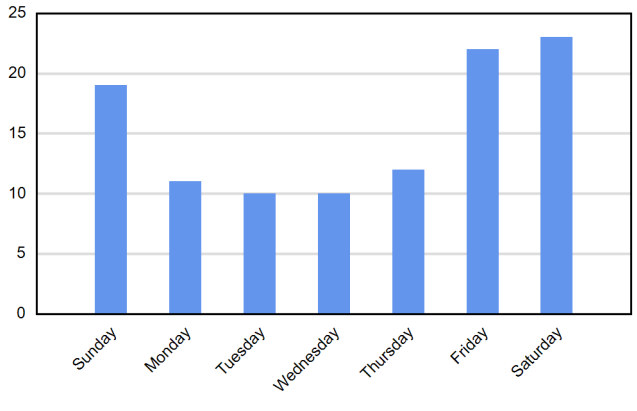
01/01/2018 - 12/31/2020 (3.0 years)

Length = 3.000 miles AADT = 47,000

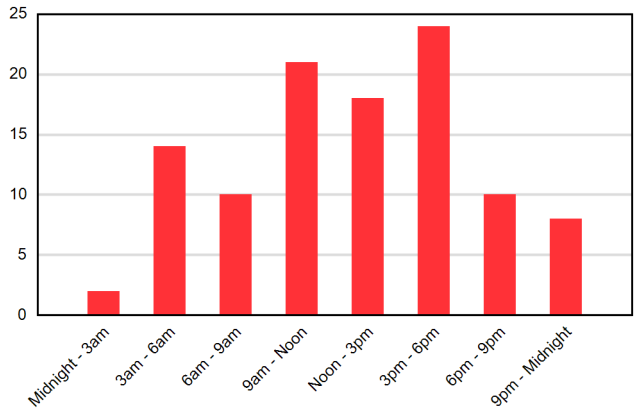
Functional Class = Rural -- Principal Arterial - Interstate

Year	2018	2019	2020	Total
Rear End	9	10	7	26
Angle	4	6	0	10
Sideswipe	6	7	8	21
Head On	0	0	0	0
Run Off Road	11	15	20	46
Animal	1	1	0	2
Bicycle	0	0	0	0
Pedestrian	0	0	0	0
Other	1	0	1	2
	32	39	36	107

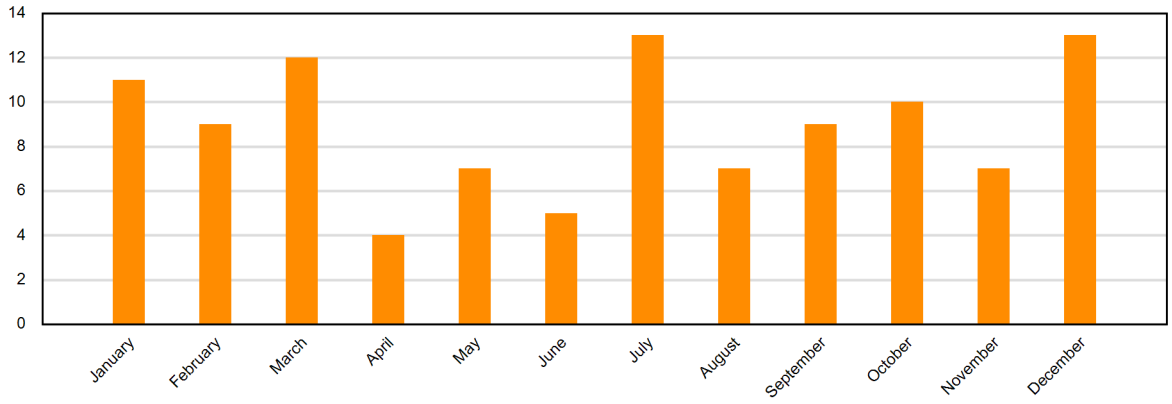
Day of the Week



Time of Day



Month of the Year



Section Crashes

MPT 165.000 to 165.100 (Stack #1)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 3

1	18528723	165.030	INJ0	DUSK	DRY	MOTOR VEHICLE (PARKED)	ANGLE
2	18609341	165.008	INJ0	DAY	WET	TREE	NO COLLISION W/MV
3	19674798	165.037	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 165.100 to 165.200 (Stack #2)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 2

1	18690759	165.176	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	19680200	165.174	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	ANGLE

MPT 165.200 to 165.300 (Stack #3)

Total Crashes: 4 Light: 2 Dark: 2 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 4

1	18504612	165.212	INJ0	DARK	WET	DITCH	NO COLLISION W/MV
2	18601447	165.266	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	18612907	165.203	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
4	20206624	165.286	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 165.300 to 165.400 (Stack #4)

Total Crashes: 11 Light: 9 Dark: 2 Dry: 10 Wet: 1 Fatalities: 1 Injuries: 2 PDO: 8

1	18594365	165.346	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	19676056	165.396	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
3	20211925	165.346	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	20221931	165.346	INJ1	DAY	DRY	EMBANKMENT	NO COLLISION W/MV
5	20223652	165.363	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	20233990	165.346	INJ0	DAY	DRY	GUARDRAIL END	NO COLLISION W/MV
7	20248132	165.346	INJ4	DAY	DRY	TREE	NO COLLISION W/MV
8	20248313	165.360	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
9	20250110	165.346	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
10	20273442	165.345	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
11	20501570	165.389	INJ1	DARK	WET	OTHER NONCOLLISION	NO COLLISION W/MV

MPT 165.400 to 165.500 (Stack #5)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 3

1	18526168	165.482	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	19686217	165.404	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

Section Crashes

3	20261515	165.443	INJ0	DARK	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV

MPT 165.500 to 165.600 (Stack #6)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 4 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 2

1	18600764	165.586	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	19576258	165.571	INJ3	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	19630969	165.545	INJ3	DAY	DRY	MOTOR VEHICLE (STOPPED)	SIDESWIPE SAME
4	20350890	165.524	INJ0	DARK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 165.600 to 165.700 (Stack #7)

Total Crashes: 5 Light: 2 Dark: 3 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 5

1	18609321	165.632	INJ0	DARK	DRY	DITCH	NO COLLISION W/MV
2	19534102	165.606	INJ0	DAWN	WET	TREE	NO COLLISION W/MV
3	19551544	165.621	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	19554938	165.668	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
5	20337165	165.617	INJ0	DARK	DRY	TREE	NO COLLISION W/MV

MPT 165.700 to 165.800 (Stack #8)

Total Crashes: 5 Light: 3 Dark: 2 Dry: 3 Wet: 2 Fatalities: 0 Injuries: 3 PDO: 2

1	18513533	165.740	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	18570116	165.726	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	19533538	165.788	INJ1	DAWN	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
4	19595777	165.790	INJ1	DAY	WET	OVERTURN/ROLLOVER	NO COLLISION W/MV
5	20206551	165.762	INJ2	DAY	DRY	TREE	NO COLLISION W/MV

MPT 165.800 to 165.900 (Stack #9)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	18592971	165.870	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 166.000 to 166.100 (Stack #11)

Total Crashes: 7 Light: 5 Dark: 2 Dry: 7 Wet: 0 Fatalities: 0 Injuries: 2 PDO: 5

1	18617104	166.048	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END
2	18640024	166.003	INJ0	DARK	DRY	GUARDRAIL FACE	NO COLLISION W/MV
3	19616819	166.001	INJ2	DAY	DRY	TREE	NO COLLISION W/MV
4	19632327	166.066	INJ0	DAY	DRY	MEDIAN BARRIER	NO COLLISION W/MV
5	19650290	166.060	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
6	19662695	166.004	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

7	20335331	166.098	INJ1	DUSK	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 166.100 to 166.200 (Stack #12)

Total Crashes: 2 Light: 2 Dark: 0 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 2

1	18655895	166.113	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	19586157	166.115	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.200 to 166.300 (Stack #13)

Total Crashes: 5 Light: 5 Dark: 0 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 3 PDO: 2

1	19506710	166.285	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
2	19541263	166.284	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	19634813	166.291	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19664895	166.213	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
5	19673539	166.245	INJ0	DAY	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 166.300 to 166.400 (Stack #14)

Total Crashes: 10 Light: 7 Dark: 3 Dry: 7 Wet: 3 Fatalities: 1 Injuries: 4 PDO: 5

1	18523869	166.341	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
2	18649927	166.360	INJ0	DAY	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
3	18650904	166.367	INJ4	DUSK	WET	EQUIPMENT FAILURE	NO COLLISION W/MV
4	19532678	166.314	INJ0	DAY	WET	TREE	NO COLLISION W/MV
5	19687139	166.301	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
6	20206562	166.335	INJ1	DAWN	WET	TREE	NO COLLISION W/MV
7	20248140	166.363	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
8	20273709	166.347	INJ2	DARK	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV
9	20339804	166.347	INJ0	DAY	DRY	MOTOR VEHICLE (PARKED)	SIDESWIPE SAME
10	20340828	166.347	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.400 to 166.500 (Stack #15)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 1 Injuries: 1 PDO: 1

1	19505256	166.428	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19626522	166.438	INJ1	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	20227836	166.426	INJ4	DAY	DRY	TREE	NO COLLISION W/MV

MPT 166.500 to 166.600 (Stack #16)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 3

1	18540342	166.530	INJ0	DAY	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Section Crashes

2	18564823	166.579	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
3	18655875	166.517	INJ1	DARK	WET	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19535029	166.511	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 166.600 to 166.700 (Stack #17)

Total Crashes: 1 Light: 0 Dark: 1 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 0

1	19531432	166.611	INJ1	DARK	DRY	TREE	NO COLLISION W/MV

MPT 166.700 to 166.800 (Stack #18)

Total Crashes: 4 Light: 1 Dark: 3 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 4

1	19655796	166.717	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
2	19684860	166.742	INJ0	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
3	20231672	166.707	INJ0	DAWN	WET	TREE	REAR END
4	20274937	166.716	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 166.800 to 166.900 (Stack #19)

Total Crashes: 2 Light: 1 Dark: 1 Dry: 1 Wet: 1 Fatalities: 0 Injuries: 0 PDO: 2

1	20218640	166.847	INJ0	DAWN	WET	TREE	NO COLLISION W/MV
2	20344141	166.858	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 166.900 to 167.000 (Stack #20)

Total Crashes: 1 Light: 1 Dark: 0 Dry: 1 Wet: 0 Fatalities: 0 Injuries: 0 PDO: 1

1	19621985	166.955	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 167.000 to 167.100 (Stack #21)

Total Crashes: 3 Light: 1 Dark: 2 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 2

1	18576849	167.066	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	18672196	167.089	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	20249120	167.092	INJ2	DARK	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END

MPT 167.100 to 167.200 (Stack #22)

Total Crashes: 3 Light: 1 Dark: 2 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 2

1	18569594	167.179	INJ1	DAY	DRY	OVERTURN/ROLLOVER	SIDESWIPE SAME
2	18660124	167.134	INJ0	DARK	WET	TREE	NO COLLISION W/MV
3	20254617	167.141	INJ0	DARK	DRY	TREE	NO COLLISION W/MV

Section Crashes

MPT 167.200 to 167.300 (Stack #23)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 2 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 2

1	19525443	167.298	INJ0	DAY	WET	TREE	NO COLLISION W/MV
2	19596158	167.290	INJ0	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
3	20206498	167.286	INJ2	DARK	DRY	TREE	NO COLLISION W/MV

MPT 167.300 to 167.400 (Stack #24)

Total Crashes: 3 Light: 2 Dark: 1 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 2

1	19519549	167.389	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	20222373	167.308	INJ0	DARK	DRY	TREE	NO COLLISION W/MV
3	20238297	167.347	INJ0	DAY	DRY	TREE	NO COLLISION W/MV

MPT 167.400 to 167.500 (Stack #25)

Total Crashes: 4 Light: 3 Dark: 1 Dry: 3 Wet: 1 Fatalities: 0 Injuries: 1 PDO: 3

1	18532527	167.414	INJ0	DAY	WET	OTHER MOVABLE OBJECT	NO COLLISION W/MV
2	18624737	167.460	INJ0	DAY	DRY	TREE	SIDESWIPE SAME
3	19513356	167.416	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	19644742	167.450	INJ0	DARK	DRY	CARGO/EQUIP LOSS OR SHIFT	NO COLLISION W/MV

MPT 167.500 to 167.600 (Stack #26)

Total Crashes: 4 Light: 2 Dark: 2 Dry: 2 Wet: 2 Fatalities: 0 Injuries: 1 PDO: 3

1	18569608	167.530	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	ANGLE
2	19550280	167.551	INJ0	DARK	WET	MOTOR VEHICLE (PARKED)	ANGLE
3	20229477	167.537	INJ0	DAWN	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME
4	20273939	167.571	INJ1	DAY	WET	TREE	NO COLLISION W/MV

MPT 167.600 to 167.700 (Stack #27)

Total Crashes: 3 Light: 3 Dark: 0 Dry: 3 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 2

1	19617096	167.603	INJ1	DAY	DRY	OVERTURN/ROLLOVER	NO COLLISION W/MV
2	19685801	167.601	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
3	20272990	167.635	INJ0	DAY	DRY	OTHER MOVABLE OBJECT	NO COLLISION W/MV

MPT 167.700 to 167.800 (Stack #28)

Total Crashes: 5 Light: 4 Dark: 1 Dry: 4 Wet: 1 Fatalities: 0 Injuries: 2 PDO: 3

1	18518043	167.720	INJ0	DAY	DRY	TREE	NO COLLISION W/MV
2	18564825	167.713	INJ2	DAY	DRY	EQUIPMENT FAILURE	NO COLLISION W/MV

Section Crashes

3	18600763	167.722	INJ1	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	REAR END
4	20206610	167.730	INJ0	DUSK	WET	MOTOR VEHICLE (STOPPED)	REAR END
5	20354427	167.730	INJ0	DAY	DRY	MOTOR VEHICLE (IN TRANSPORT)	SIDESWIPE SAME

MPT 167.800 to 167.900 (Stack #29)

Total Crashes: 2 Light: 0 Dark: 2 Dry: 2 Wet: 0 Fatalities: 0 Injuries: 1 PDO: 1

1	19650296	167.879	INJ0	DARK	DRY	ANIMAL (DEER ONLY)	NO COLLISION W/MV
2	20211930	167.809	INJ1	DARK	DRY	MOTOR VEHICLE (STOPPED)	REAR END

Transearch Data I26 165-169

Year	ode Num	Mode Description	SumOfTons	SumOfUnits	SumOfValue	% change TONS	% change UNITS	% change VALUE
2016	4	Truck Truckload	21,621,848	1,429,589	$ 63,631,835,915			
2016	5	Truck L-T-L	1,951,025	134,360	$ 9,065,762,544			
2016	6	Truck PVT	11,850,552	770,588	$ 18,756,964,677			
2016	7	Truck NEC	2,153,217	106,846	$ 10,910,970,928			
			37,576,643	**2,441,383**	**102,365,534,063**	**2016 - 2025 % Change**		
2025	4	Truck Truckload	27,775,803	1,832,245	$ 86,577,160,687	28%	28%	36%
2025	5	Truck L-T-L	2,578,787	177,649	$ 12,605,088,591	32%	32%	39%
2025	6	Truck PVT	14,944,277	970,254	$ 25,111,175,887	26%	26%	34%
2025	7	Truck NEC	2,713,272	135,451	$ 14,298,899,300	26%	27%	31%
			48,012,139	**3,115,599**	**$ 138,592,324,465**	**28%**	**28%**	**35%**
						2016 - 2040 % Change		
2040	4	Truck Truckload	42,703,836	2,822,597	$ 151,427,758,804	98%	97%	138%
2040	5	Truck L-T-L	4,196,749	289,826	$ 22,581,617,899	115%	116%	149%
2040	6	Truck PVT	21,948,569	1,437,579	$ 43,464,376,608	85%	87%	132%
2040	7	Truck NEC	3,834,723	193,129	$ 21,560,901,878	78%	81%	98%
			72,683,877	**4,743,133**	**$ 239,034,655,188**	**93%**	**94%**	**134%**

Source: Transearch Database 2016 baseyear, data pulled 9.24.2021

Healthy People Healthly Communities

Watershed and Water Quality Information

General Information

Applicant Name:
Address: 16600 I26 W DR, BOWMAN, SC, 29018
MS4 Designation: Not in designated area
Within Coastal Critical Area: No
Waterbody Name: COW CASTLE CREEK

Permit Type: MS4
Latitude/Longitude: 33.346642 / -80.577169
Monitoring Station: E-112
Water Classification (Provisional): FW
Entered Waterbody Name:

Parameter Description

NH3N	Ammonia	CD	Cadmium	CR	Chromium
CU	Copper	HG	Mercury	NI	Nickel
PB	Lead	ZN	Zinc	DO	Dissolved Oxygen
PH	pH	TURBIDITY	Turbidity	ECOLI	Escherichia coli (Freshwaters)
FC	Fecal Coliform (Shellfish)	BIO	Macroinvertebrates (Bio)	TP	(Lakes) Phosphorus
TN	(Lakes) Nitrogen	CHLA	(Lakes) Chlorophyll a	ENTERO	Enterococcus (Coastal Waters)
HGF	Mercury (Fish Tissue)	PCB	PCB (Fish)		

Impaired Status (downstream sites)

Station	NH3N	CD	CR	CU	HG	NI	PB	ZN	DO	PH	TURBIDITY	ECOLI	FC	BIO	TP	TN	CHLA	ENTERO	HGF	PCB
E-112	X	X	X	X	N	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X
E-100	X	X	X	X	A	X	X	X	A	X	X	InTN	X	X	X	X	X	X	X	X
E-015A	F	F	F	F	A	F	F	F	A	F	F	A	X	X	X	X	X	X	X	X
E-015	A	A	A	A	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X

F = Standards full supported
N = Standards not supported
A = Assessed at upstream station
X = Parameter not assessed at station
WnTN = Within TMDL, parameter not supported
InTN = In TMDL, parameter not supported
WnTF = Within TMDL, parameter full supported
InTF = In TMDL, parameter full supported

Parameters to be addressed (those not supporting standards)

HG - Mercury
ECOLI - Escherichia coli (Freshwaters)
DO - Dissolved Oxygen

Fish Consumption Advisory

Waters of Concern (WOC)

TMDL Information - TMDL Parameters to be addressed

In TMDL Watershed: Yes
TMDL Report No: 020-2020
TMDL Site: E-050
TMDL Parameter: Ecoli
TMDL Document Link: https://scdhec.gov/sites/default/files/media/document/Lower%20Four%20Hole%20Swamp%20and%20Tributaries.pdf

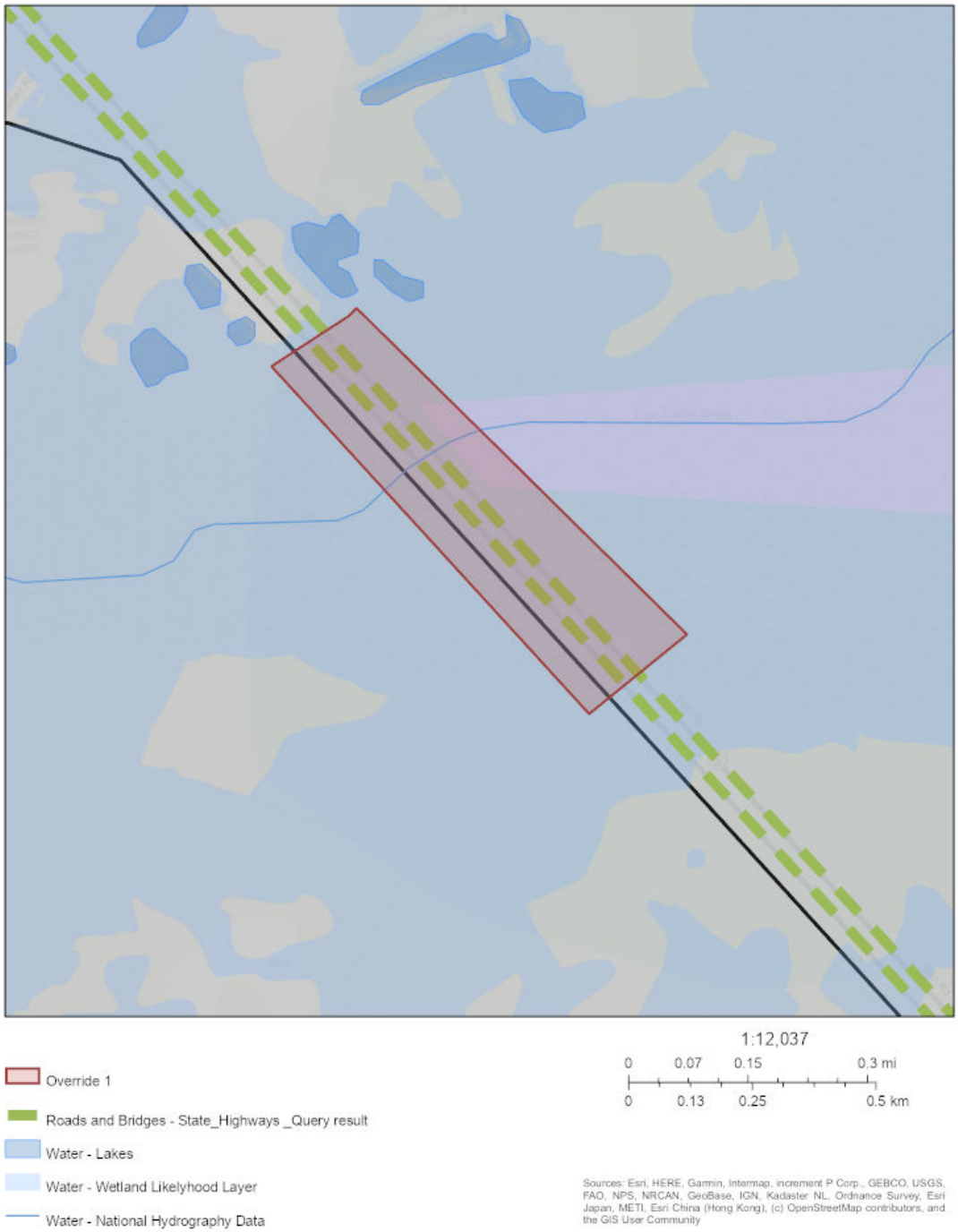
Report Date: October 20, 2021

I-26 mm165-169 Feasibilty Report - Cow Castle Creek

Area of Interest (AOI) Information

Area : 53.31 acres

Oct 20 2021 16:01:45 Eastern Daylight Time



Summary

Name	Count	Area(acres)	Length(ft)
Watershed	1	53.31	N/A
Ecoregion	2	53.31	N/A
Survey Lines	1	N/A	3,097.16
Survey Areas	1	53.31	N/A
NRCS Easments	1	3.63	N/A
Wetlands Likelihood Layer	42	50.32	N/A
USGS Streams	1	N/A	754.00

Watershed

#	Basin	HUC 8	Area(acres)
1	Edisto	03050205	53.31

Ecoregion

#	L4_KEY	L3_KEY	Area(acres)
1	63n Mid-Atlantic Floodplains and Low Terraces	63 Middle Atlantic Coastal Plain	53.23
2	63h Carolina Flatwoods	63 Middle Atlantic Coastal Plain	0.08

Survey Lines

#	Survey_nam	Survey_Dat	Length(ft)
1	Intensive Archaeological and Architectural Survey for Proposed Access	2001	3,097.16

Survey Areas

#	Survey_Nam	Date_	Area(acres)
1	Intensive Architectural Survey & Archaeo. Reconnaissance of the Intersection of I-95 & I-26	2004	53.31

NRCS Easments

#	NEST_EASEM	Area(acres)
1	Permanent Easement	3.63

Wetlands Likelihood Layer

#	ATTRIBUTE	WETLAND_TY	Area(acres)
1	*No Data*	*No Data*	22.31
2	PFO1/2C	Freshwater Forested/Shrub Wetland	13.83
3	PFO1A	Freshwater Forested/Shrub Wetland	8.44
4	PSS1A	Freshwater Forested/Shrub Wetland	2.40
5	PFO1C	Freshwater Forested/Shrub Wetland	1.72
6	R2UBH	Riverine	1.60

USGS Streams

#	NAME	Length(ft)
1	Cow Castle Creek	754.00

The Screening
widget allows you to define an area of interest and analyze below listed layers
for potential impacts.

Boundary: Cities;
COG, Watershed; Ecoregion

Roads &
Bridges: Statewide Bridges; Roads; State Highways

Biological
Resources: T & E Species; Statewide Element Occurence's; T & E
Critical Habitat; Oyster Habitat Corridor; Bald Eagle Nests

Cultural
Resources: Archaeological Point; Civil War Earthworks; Historic Structures;
National Register Points; Restricted National Register Points; Survey Lines; Archaeological
Site; Survey Areas; Historic Areas; National Register Polygon; Restricted
National Register Polygon

Protected
Lands: NWF Wildlife Refuges Area; NRCS Easments; Heritage Preserves; Parks;
US Forest; Wildlife Management Areas

WOTUS: Streams; Lakes; NWI Wetlands; Wetlands
Likelyhood Layer

Coastal
Resources: Shellfish Monitoring Station; Critical Area Boundary; Shellfish
Classification; SCDNR Oyster Habitat; SCDNR Oyster Beds

Water
Quality: Bio Station; TMDL

Land and
Waste: Solid Waste Landfill; Underground Storage Tank; Above Ground Storage Tank; CERCLA; Complience and Enforcement; DryCleaners; Leaking Underground Storage Tank

Others: Soil Classification

I-26 mm165-169 Feasibility Report - Exit 165 interchange

Area of Interest (AOI) Information

Area : 42.79 acres

Oct 20 2021 15:59:27 Eastern Daylight Time

Summary

Name	Count	Area(acres)	Length(ft)
Watershed	1	42.79	N/A
Ecoregion	1	42.79	N/A
T & E Species	1	N/A	N/A
Survey Areas	1	42.79	N/A
Wetlands Likelihood Layer	5	4.25	N/A

Watershed

#	Basin	HUC 8	Area(acres)
1	Edisto	03050205	42.79

Ecoregion

#	L4_KEY	L3_KEY	Area(acres)
1	63h Carolina Flatwoods	63 Middle Atlantic Coastal Plain	42.79

T & E Species

#	SNAME	SCOMNAME	NRANK	DIRECT1	Count
1	QUERCUS SIMILIS	BOTTOM-LAND POST OAK	SC	ONE LARGE TREE FOUND IN MEDIAN STRIP OF I-26, APPROXIMATELY 0.1 MILE EAST OF SC 210 OVERPASS (EXIT 165). TREE CIRCUMFERENCE IS 74". IT IS 74' TALL WITH A CROWN SPREAD OF 48'. COMPETING VEGETATION AND VINES NEED TO BE REMOVED FROM AREA.	1

Survey Areas

#	Survey_Nam	Date_	Area(acres)
1	Intensive Architectural Survey & Archaeo. Reconnaissance of the Intersection of I-95 & I-26	2004	42.79

Wetlands Likelihood Layer

#	ATTRIBUTE	WETLAND_TY	Area(acres)
1	*No Data*	*No Data*	4.25
2	PFO1B	Freshwater Forested/Shrub Wetland	< 0.01

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widget allows you to define an area of interest and analyze below listed layers
for potential impacts.

Boundary: Cities;
COG, Watershed; Ecoregion

Roads &
Bridges: Statewide Bridges; Roads; State Highways

Biological
Resources: T & E Species; Statewide Element Occurence's; T & E Critical Habitat; Oyster Habitat Corridor; Bald Eagle Nests

Cultural
Resources: Archaeological Point; Civil War Earthworks; Historic Structures; National Register Points; Restricted National Register Points; Survey Lines; Archaeological Site; Survey Areas; Historic Areas; National Register Polygon; Restricted National Register Polygon

Protected
Lands: NWF Wildlife Refuges Area; NRCS Easments; Heritage Preserves; Parks; US Forest; Wildlife Management Areas

WOTUS: Streams; Lakes; NWI Wetlands; Wetlands Likelyhood Layer

Coastal
Resources: Shellfish Monitoring Station; Critical Area Boundary; Shellfish Classification; SCDNR Oyster Habitat; SCDNR Oyster Beds

Water
Quality: Bio Station; TMDL

Land and
Waste: Solid Waste Landfill; Underground Storage Tank; Above Ground Storage Tank; CERCLA; Complience and Enforcement; DryCleaners; Leaking Underground Storage Tank

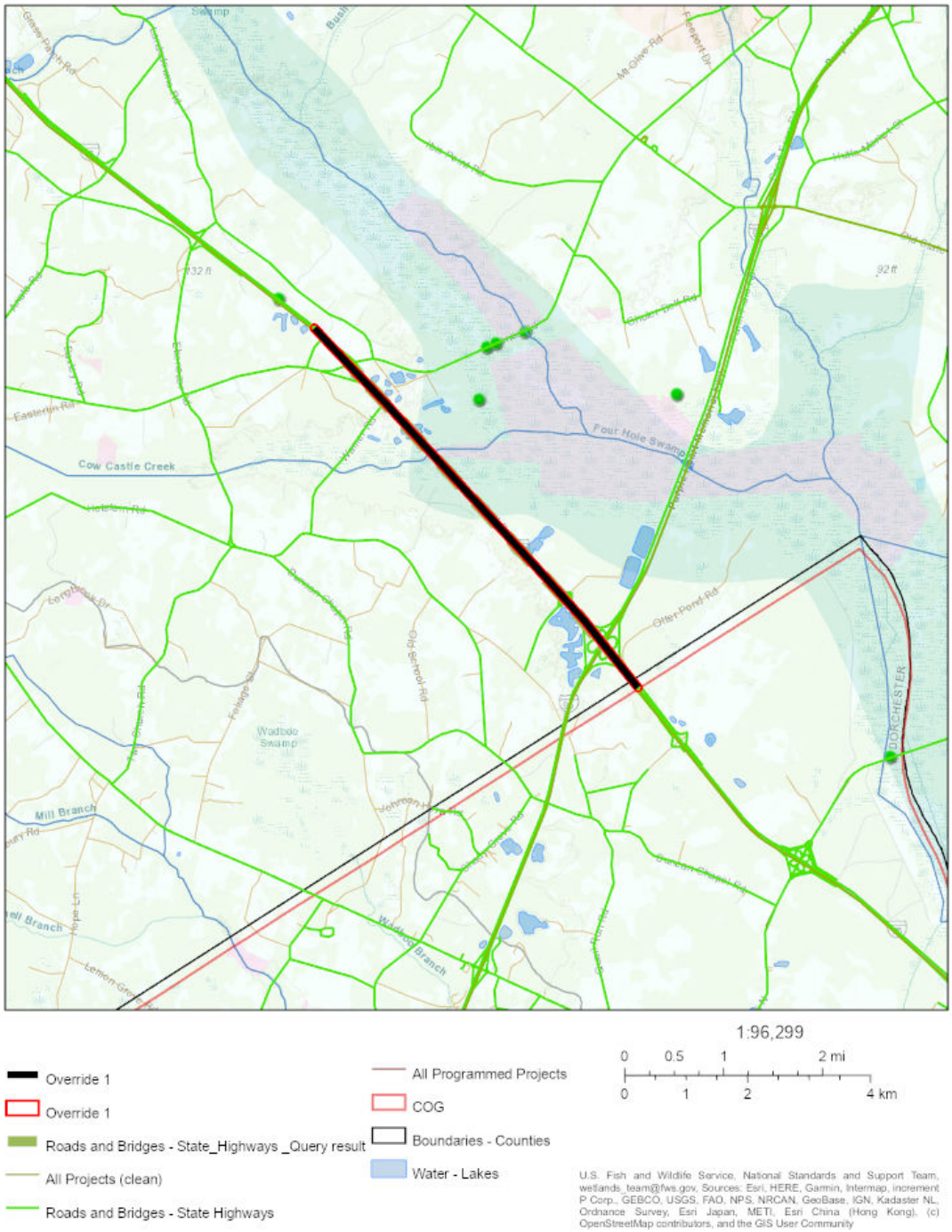
Others: Soil Classification

I-26 mm166-169 mainline - Feasibility Report

Area of Interest (AOI) Information

Area : 239.61 acres

Oct 20 2021 13:42:39 Eastern Daylight Time



Environmental Questions for Feasibility Study - 200ft buffer along mainline
- What is the anticipated NEPA Document Type? non-programmatic CE or EA depending on scope of work
- Is noise analysis required? yes
- EJ Communities - possible, but not likely.
- What is the anticipated Permit Type(s)? IP
- Are there navigable waters in the project area? not definitive, but possibly
- Is the project within an existing Mitigation Bank Service area? Yes, but there are not currently credits available. Will need to coordinate with Vince on the plan for mitigation in this area.
- Has a SCDHEC Water Quality Report been provided? yes

Summary

Name	Count	Area(acres)	Length(ft)
Other Roads	1	N/A	600.95
Watershed	1	239.61	N/A
Ecoregion	2	239.61	N/A
T & E Species	1	N/A	N/A
Survey Lines	2	N/A	9,951.47
Survey Areas	1	234.68	N/A
NRCS Easments	1	0.66	N/A
Wetlands Likelihood Layer	74	72.08	N/A
USGS Streams	1	N/A	408.63

Other Roads

#	STREET_NAM	ROUTE_TYPE	ROUTE_NUMB	Length(ft)
1	OTTER POND RD	L-	1,417	600.95

Watershed

#	Basin	HUC 8	Area(acres)
1	Edisto	03050205	239.61

Ecoregion

#	L4_KEY	L3_KEY	Area(acres)
1	63h Carolina Flatwoods	63 Middle Atlantic Coastal Plain	184.56
2	63n Mid-Atlantic Floodplains and Low Terraces	63 Middle Atlantic Coastal Plain	55.04

T & E Species

#	SNAME	SCOMNAME	NRANK	DIRECT1	Count
1	QUERCUS SIMILIS	BOTTOM-LAND POST OAK	SC	ONE LARGE TREE FOUND IN MEDIAN STRIP OF I-26, APPROXIMATELY 0.1 MILE EAST OF SC 210 OVERPASS (EXIT 165). TREE CIRCUMFERENCE IS 74". IT IS 74' TALL WITH A CROWN SPREAD OF 48'. COMPETING VEGETATION AND VINES NEED TO BE REMOVED FROM AREA.	1

Survey Lines

#	Survey_nam	Survey_Dat	Length(ft)
1	I-26 Median Clearing	3/12/2013	6,928.12
2	Intensive Archaeological and Architectural Survey for Proposed Access	2001	3,023.35

Survey Areas

#	Survey_Nam	Date_	Area(acres)
1	Intensive Architectural Survey & Archaeo. Reconnaissance of the Intersection of I-95 & I-26	2004	234.68

NRCS Easments

#	NEST_EASEM	Area(acres)
1	Permanent Easement	0.66

Wetlands Likelihood Layer

#	ATTRIBUTE	WETLAND_TY	Area(acres)
1	*No Data*	*No Data*	62.25
2	PFO1A	Freshwater Forested/Shrub Wetland	3.79
3	PFO1/2C	Freshwater Forested/Shrub Wetland	3.75
4	R2UBH	Riverine	1.60
5	PUBHx	Freshwater Pond	0.38
6	PFO1C	Freshwater Forested/Shrub Wetland	0.31

USGS Streams

#	NAME	Length(ft)
1	Cow Castle Creek	408.63

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Boundary: Cities;
COG, Watershed; Ecoregion

Roads &
Bridges: Statewide Bridges; Roads; State Highways

Biological
Resources: T & E Species; Statewide Element Occurence's; T & E Critical Habitat; Oyster Habitat Corridor; Bald Eagle Nests

Cultural
Resources: Archaeological Point; Civil War Earthworks; Historic Structures; National Register Points; Restricted National Register Points; Survey Lines; Archaeological Site; Survey Areas; Historic Areas; National Register Polygon; Restricted National Register Polygon

Protected
Lands: NWF Wildlife Refuges Area; NRCS Easments; Heritage Preserves; Parks; US Forest; Wildlife Management Areas

WOTUS: Streams; Lakes; NWI Wetlands; Wetlands Likelyhood Layer

Coastal
Resources: Shellfish Monitoring Station; Critical Area Boundary; Shellfish Classification; SCDNR Oyster Habitat; SCDNR Oyster Beds

Water
Quality: Bio Station; TMDL

Land and
Waste: Solid Waste Landfill; Underground Storage Tank; Above Ground Storage Tank; CERCLA; Complience and Enforcement; DryCleaners; Leaking Underground Storage Tank

Others: Soil Classification

I-26 mm165-169 Feasibilty Report - Whetsell Pond Rd

Area of Interest (AOI) Information

Area : 12.33 acres

Oct 20 2021 16:03:43 Eastern Daylight Time

100ft buffer

Summary

Name	Count	Area(acres)	Length(ft)
Other Roads	1	N/A	550.83
Watershed	1	12.33	N/A
Ecoregion	1	12.33	N/A
Survey Lines	2	N/A	2,344.81
Survey Areas	1	12.33	N/A

Other Roads

#	STREET_NAM	ROUTE_TYPE	ROUTE_NUMB	Length(ft)
1	WHETSELL POND RD	L-	3,887	550.83

Watershed

#	Basin	HUC 8	Area(acres)
1	Edisto	03050205	12.33

Ecoregion

#	L4_KEY	L3_KEY	Area(acres)
1	63h Carolina Flatwoods	63 Middle Atlantic Coastal Plain	12.33

Survey Lines

#	Survey_nam	Survey_Dat	Length(ft)
1	Intensive Archaeological and Architectural Survey for Proposed Access	2001	2,053.82
2	I-26 Median Clearing	3/12/2013	290.99

Survey Areas

#	Survey_Nam	Date_	Area(acres)
1	Intensive Architectural Survey & Archaeo. Reconnaissance of the Intersection of I-95 & I-26	2004	12.33

The Screening
widget allows you to define an area of interest and analyze below listed layers
for potential impacts.

Boundary: Cities;
COG, Watershed; Ecoregion

Roads & Bridges: Statewide Bridges; Roads; State Highways

Biological Resources: T & E Species; Statewide Element Occurence's; T & E Critical Habitat; Oyster Habitat Corridor; Bald Eagle Nests

Cultural Resources: Archaeological Point; Civil War Earthworks; Historic Structures; National Register Points; Restricted National Register Points; Survey Lines; Archaeological Site; Survey Areas; Historic Areas; National Register Polygon; Restricted National Register Polygon

Protected Lands: NWF Wildlife Refuges Area; NRCS Easments; Heritage Preserves; Parks; US Forest; Wildlife Management Areas

WOTUS: Streams; Lakes; NWI Wetlands; Wetlands Likelyhood Layer

Coastal Resources: Shellfish Monitoring Station; Critical Area Boundary; Shellfish Classification; SCDNR Oyster Habitat; SCDNR Oyster Beds

Water Quality: Bio Station; TMDL

Land and Waste: Solid Waste Landfill; Underground Storage Tank; Above Ground Storage Tank; CERCLA; Complience and Enforcement; DryCleaners; Leaking Underground Storage Tank

Others: Soil Classification