

# I-95 Planning and Design Resiliency Planning Grant

BRIDGE INVESTMENT PROGRAM PLANNING GRANT

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## FY 2022 BRIDGE INVESTMENT PROGRAM (BIP) PLANNING PROJECTS APPLICATION TEMPLATE

### BASIC PROJECT INFORMATION

#### Project Name

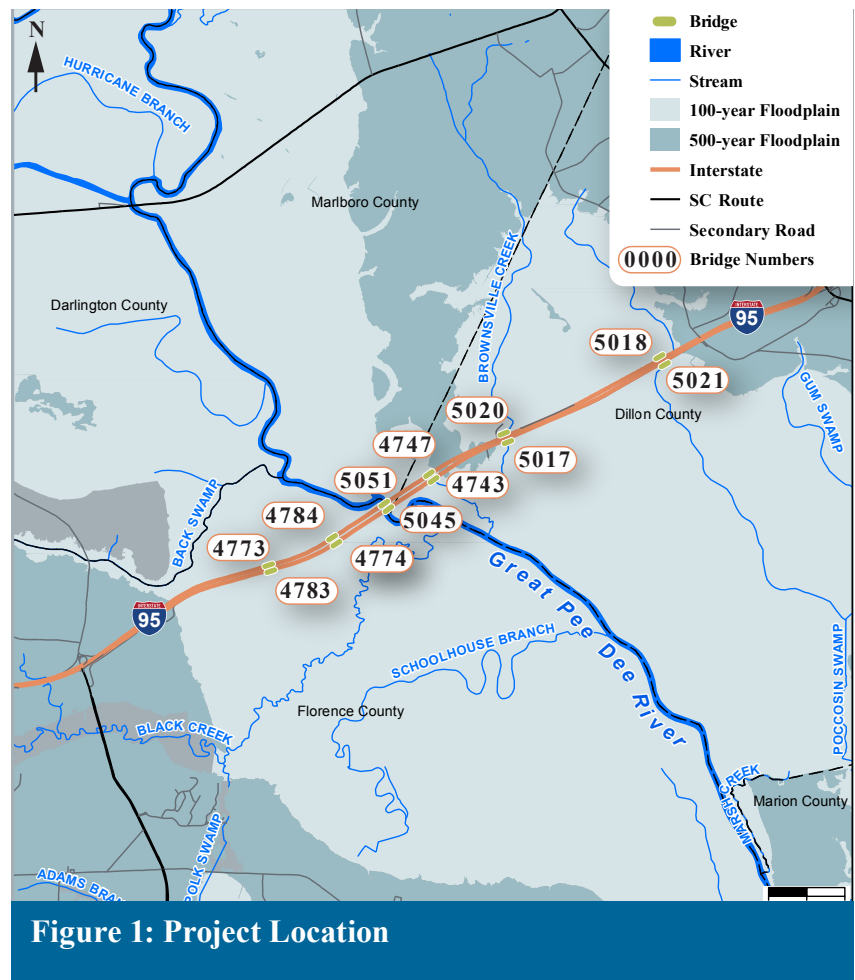
The I-95 Bridges Over the Great Pee Dee River Planning Grant  
(I-95 P.D. River Bridges)

#### Summary Description

The I-95 Bridges Over the Great Pee Dee River Planning Grant will determine how best to replace or rehabilitate 12 rural bridges on the National Bridge Inventory that are in poor and/or scour-critical condition.

These bridges in the northeast corner of South Carolina (Figure 1) are currently threatened by age, outdated design standards and extreme weather events. These factors pose significant risks to the safety, efficiency and reliability of the nationally important I-95 freight and tourism corridor as it is carried across the Great Pee Dee River floodplain.

#### Project Description



### **Transportation Challenges**

Nearly 50,000 vehicles daily cross the I-95 bridges as they travel up and down the East Coast's main north-south Interstate. More than 22% of these vehicles are freight trucks moving produce, commodities and manufactured goods to and from regional, national and global markets.

Yet the I-95 bridges over the Great Pee Dee River floodplain that this important national corridor relies on are at the end of their design life, in poor condition (see [National Bridge Inventory](#) data) and at threat due to hurricane-generated flooding.

### ***Age-Related Issues***

All of the bridges in the floodplain were constructed between 1966 and 1967. They do not meet current highway design standards, specifically with regard to narrow roadway shoulders that do not allow drivers to safely pull off of the interstate if needed for repairs, refuge or to allow for traffic speed enforcement. Existing left and right shoulders on the 0.6-mile Great Pee Dee River bridge are only 3 feet 6 inches (see page 21, Figure 5). Current interstate standards for long bridges (over 200 feet in length) are minimum 4-foot left and right shoulders. It should be noted that South Carolina has the highest roadway fatality rate in the nation.

The estimated construction lifespan of these structures was 50 years, which means that these structures have passed their estimated useful life. This has translated into more than a decade of the South Carolina Department of Transportation (SCDOT) having to regularly rely on detours and lane closures to address the increasing number of issues with the I-95 bridges.



**Figure 2: Expansion Joints in Need of Repair**



### ***Poor Condition Impacts***

As a result, the need for repairs has increased in frequency. In the past 5 years alone, SCDOT has spent more than \$15 million on the Pee Dee River structures for repairs, detracting from the agency's ability to address other transportation priorities. In addition to multiple periodic lane closures, major repairs have included:

- 2017 - I-95 SB \$3.59M: Rehab patching structural overlay with expansion joint and bearing rehabilitation, painting of structural steel (Figure 2);
- 2018 - I-95 NB \$4.25M: Rehab patching and structural overlay
- 2019 & 2020 - I-95 NB \$4.04M: Emergency repairs to include installation of two permanent crutch bents; and
- 2021 & 2022 - I-95 NB \$3.16M: Emergency bridge maintenance on crutch bents at Piers H, I, J and K.



**Figure 3: East Face, Crutch Bent with Timber Debris Buildup**

*Source: SCDOT Bridge Inspection Report, CONSOR Engineers, May 2021*

### ***Extreme Weather Dangers***

The bridges are at further risk due to the ongoing impact of extreme weather events (Figure 3). Interstate I-95 is a major hurricane evacuation route. Hurricanes such as 2018's Hurricane Florence created high flows in the river nearly reaching the bridge decks and causing significant scour issues around the bridge foundations. This has created the need to install crutch bents to strengthen the integrity of the I-95 bridges until a more permanent solution can be found. Timber buildup is common on the Pee Dee River bridges. Timber obstructions can restrict water flow and increase scour and structural damage, especially during high flow events such as those experienced during storms.

### Addressing the Transportation Challenges

The I-95 P.D. River Bridges planning initiative will:

- Update the current condition assessment of each of the 12 bridges;
- Engage with potentially affected local and national users and communities through electronic and face-to-face means to identify current and future safety, mobility, environmental and equity needs and opportunities;
- Identify potential innovative design and delivery strategies that can help further right size solutions and produce significant time and money savings;
- Evaluate and select the appropriate replacement or rehabilitation option for each of the facilities in the floodplain;
- Complete sufficient preliminary engineering and Categorical Exclusion activities to enable bridge work to advance in a timely fashion to a Large Bridge Project grant application and construction within applicable statutory timeframes.

With BIP Planning funds, SCDOT will develop a complete, actionable plan leading to a large bridge bundle project that advances important BIP goals.

### Context of South Carolina Infrastructure Investments

SCDOT owns and maintains the 4th largest state highway system and serves the 10th fastest growing population in the United States. SCDOT has identified a bridge improvement need of nearly \$2 billion to address 2,042 bridges in need of repair or replacement. The State's 10-Year Plan (2017 - 2027) addresses the replacement or rehabilitation of 500 bridges. Excellent progress has been made to date, with 224 bridges being improved. With successful advancement of the I-95 P.D. River Bridges project through construction, the reduced cost burden would allow the state to address the needs of approximately 63 additional bridges.

State(s) in which project is located	South Carolina
Does the project serve an urban or rural community?	Rural
Total Project Costs (Estimated to include planning and construction costs)	\$359,436,521.60
Who is the project sponsor?	South Carolina - 1. A State or a group of States
List all Project Co-Applicants	None

<b>Identify the Lead Applicant (who will be also the applicant responsible for administration of BIP funds if application is selected and point of contact for the application.)</b>	South Carolina Department of Transportation (SCDOT)
<b>Was an application for USDOT discretionary grant funding for this project previously submitted?</b>	No
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000005051 (SB)
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	041 – Florence County
Item 6 – Feature Intersected	GREAT PEE DEE RIVER
Item 7 – Facility Carried	I-95 SB
Item 16 – Latitude	34.29987
Item 17 – Longitude	-79.63529
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway
<b>CONDITION</b>	
Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	5 – Fair Condition
Item 61 – Channel and Channel Protection	4 – Channel remediation severely damaged

Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	3020
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	5 – Foundations Stable
<b>INSPECTIONS</b>	
Item 90 – Inspection date	April 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	000000000005045 (NB)
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	041 – Florence County
Item 6 – Feature Intersected	GREAT PEE DEE RIVER
Item 7 – Facility Carried	I-95 NB
Item 16 – Latitude	34.29908
Item 17 – Longitude	-79.63434
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	5 – Over Waterway
<b>CONDITION</b>	



Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	6 – Satisfactory Condition
Item 61 – Channel and Channel Protection	5 – Channel remediation in poor condition
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	3020
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A - Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	3- Scour Critical; Foundations Unstable
<b>INSPECTIONS</b>	
Item 90 – Inspection date	April 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000004773 (NB)
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	041 – Florence County
Item 6 – Feature Intersected	GREAT PEE DEE SWAMP & F-RD
Item 7 – Facility Carried	I-95 NB
Item 16 – Latitude	34.28766
Item 17 – Longitude	-79.66032
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes

Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	6 – Satisfactory Condition
Item 61 – Channel and Channel Protection	6 – Channel remediation in fair condition
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	3- Scour Critical; Foundations Unstable
<b>INSPECTIONS</b>	
Item 90 – Inspection date	April 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	000000000004774 (SB)
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	041 – Florence County
Item 6 – Feature Intersected	GREAT PEE DEE SWAMP & F-RD
Item 7 – Facility Carried	I-95 NB
Item 16 – Latitude	34.29301
Item 17 – Longitude	-79.64530

Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	6 – Satisfactory Condition
Item 61 – Channel and Channel Protection	6 – Channel remediation in fair condition
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	8 – Foundations Stable Foundations
<b>INSPECTIONS</b>	
Item 90 – Inspection date	April 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	000000000004783
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	041 – Florence County

Item 6 – Feature Intersected	GREAT PEE DEE SWAMP & F-RD
Item 7 – Facility Carried	I-95 NB
Item 16 – Latitude	34.28846
Item 17 – Longitude	-79.66059
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	6 – Satisfactory Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	3- Scour Critical; Foundations Unstable
<b>INSPECTIONS</b>	
Item 90 – Inspection date	April 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	

Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000004784
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	041 – Florence County
Item 6 – Feature Intersected	GREAT PEE DEE SWAMP & F-RD
Item 7 – Facility Carried	I-95 SB
Item 16 – Latitude	34.29393
Item 17 – Longitude	-79.64605
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	6 – Satisfactory Condition
Item 61 – Channel and Channel Protection	7 – Channel remediation is in satisfactory condition
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	3- Scour Critical; Foundations Unstable



<b>INSPECTIONS</b>	
Item 90 – Inspection date	April 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000005021
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	033 – Dillon County
Item 6 – Feature Intersected	POCCOSIN SWAMP
Item 7 – Facility Carried	I-95 SB
Item 16 – Latitude	34.32809
Item 17 – Longitude	-79.57140
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	7 – Good Condition
Item 59 – Superstructure Condition	7 – Good Condition
Item 60 – Substructure Condition	7 – Good Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	149.9
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads

Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	3- Scour Critical; Foundations Unstable
<b>INSPECTIONS</b>	
Item 90 – Inspection date	February 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000005020
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	033 – Dillon County
Item 6 – Feature Intersected	BROWNSVILLE CREEK & FRTG
Item 7 – Facility Carried	I-95 SB
Item 16 – Latitude	34.31324
Item 17 – Longitude	-79.60693
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	7 – Good Condition
Item 59 – Superstructure Condition	7 – Good Condition
Item 60 – Substructure Condition	7 – Good Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert

## GEOMETRIC DATA

Item 49 – Structure Length	240.2
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## LOAD RATING AND POSTING

Item 70 – Bridge Posting	5 – Equal to or above legal loads
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Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
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## APPRAISAL

Item 113 – Scour Critical Bridges	9- Foundations above flood elevations
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## INSPECTIONS

Item 90 – Inspection date	February 2020
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## NATIONAL BRIDGE INVENTORY DATA

### IDENTIFICATION

Item 1 – State Code & Name	45 – South Carolina
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Item 8 – Structure Number	0000000000005018
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Item 5A – Record Type	1 – On structure
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Item 3 – County Code & Name	033 – Dillon County
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Item 6 – Feature Intersected	POCCOSIN SWAMP
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Item 7 – Facility Carried	I-95 NB
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Item 16 – Latitude	34.32758
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Item 17 – Longitude	-79.57105
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Item 98 – Border Bridge	N/A
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Item 99 – Border Bridge Structure Number	N/A
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### CLASSIFICATION

Item 112 – NBIS Bridge Length	Y- Yes
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Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
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Item 22 – Owner	1 -State Highway Agency – SCDOT
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### AGE AND SERVICE

Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
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### CONDITION

Item 58 – Deck Condition	6 – Satisfactory Condition
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Item 59 – Superstructure Condition	6 – Satisfactory Condition
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Item 60 – Substructure Condition	7 – Good Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	151.9
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	3- Scour Critical; Foundations Unstable
<b>INSPECTIONS</b>	
Item 90 – Inspection date	February 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000005017
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	033 – Dillon County
Item 6 – Feature Intersected	BROWNSVILLE CREEK & FRTG
Item 7 – Facility Carried	I-95 NB
Item 16 – Latitude	34.31274
Item 17 – Longitude	-79.60684
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT

Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	7 – Good Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	7 – Good Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	9 - Foundations above flood elevations
<b>INSPECTIONS</b>	
Item 90 – Inspection date	February 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	000000000004743
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	033 – Dillon County
Item 6 – Feature Intersected	GREAT PEE DEE SWAMP
Item 7 – Facility Carried	I-95 NB
Item 16 – Latitude	34.30520
Item 17 – Longitude	-79.62321
Item 98 – Border Bridge	N/A



Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 9 – Over Relief for Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	7 – Good Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	7 – Good Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	8 - Foundations stable; Scour above top of footing
<b>INSPECTIONS</b>	
Item 90 – Inspection date	February 2020
<b>NATIONAL BRIDGE INVENTORY DATA</b>	
<b>IDENTIFICATION</b>	
Item 1 – State Code & Name	45 – South Carolina
Item 8 – Structure Number	0000000000004747
Item 5A – Record Type	1 – On structure
Item 3 – County Code & Name	033 – Dillon County

Item 6 – Feature Intersected	GREAT PEE DEE SWAMP
Item 7 – Facility Carried	I-95 SB
Item 16 – Latitude	34.30614
Item 17 – Longitude	
Item 98 – Border Bridge	N/A
Item 99 – Border Bridge Structure Number	N/A
<b>CLASSIFICATION</b>	
Item 112 – NBIS Bridge Length	Y- Yes
Item 21 – Maintenance Responsibility	1 -State Highway Agency – SCDOT
Item 22 – Owner	1 -State Highway Agency – SCDOT
<b>AGE AND SERVICE</b>	
Item 42 – Type of Service	1 – On Highway; 5 – Over Waterway
<b>CONDITION</b>	
Item 58 – Deck Condition	6 – Satisfactory Condition
Item 59 – Superstructure Condition	6 – Satisfactory Condition
Item 60 – Substructure Condition	7 – Good Condition
Item 61 – Channel and Channel Protection	8 – Channel protection is stable
Item 62 – Culverts	N – Not a culvert
<b>GEOMETRIC DATA</b>	
Item 49 – Structure Length	240.2
<b>LOAD RATING AND POSTING</b>	
Item 70 – Bridge Posting	5 – Equal to or above legal loads
Item 41 – Structure Open, Posted, or Closed to Traffic	A – Open
<b>APPRAISAL</b>	
Item 113 – Scour Critical Bridges	8 - Foundations stable; Scour above top of footing
<b>INSPECTIONS</b>	
Item 90 – Inspection date	February 2020

PROJECT COSTS	
BIP Request Amount	\$720,000 (exact amount in year-of-expenditure dollars)
Estimated Total of Other Federal funding (excluding BIP Request)	\$0
Estimated Other Federal funding (excluding BIP) further detail	N/A
Estimated non- Federal funding	Source: SCDOT Amount: \$180,000
Total Planning Project Cost	\$900,000 (estimated in year-of-expenditure dollars)

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## PROJECT OUTCOME CRITERIA

### CRITERIA #1: BIP PROGRAM GOALS

The I-95 P.D. River Bridges planning project is envisioned to lead to a Large Bridge Project that would achieve each of the 3 BIP program goals.

**BIP Goal #1: Improve the safety, efficiency, and reliability of the movement of people and freight over bridges.**

#### SAFETY

The I-95 bridges are unsafe due to outdated design. Approximately 29% of all crashes involved bridge rail, guard rail, and/or stopped or parked vehicles. Existing left and right shoulders on the 0.6-mile bridges over the Great Pee Dee River bridge do not meet current interstate standards for long bridges. Figure 4 displays crash locations and prevalence in the project area.

Stretches of the I-95 bridges do not meet the current federal standard of a minimum of 4-foot left and right shoulders, as shown in Figure 5. The lack of shoulders is a safety issue because it creates little to no opportunity for:

- Disabled vehicles to stop safely along the roadside.
- Areas for law enforcement officers to provide traffic enforcement. Speeding is a contributing factor to more than half of the crashes along this section of I-95.
- Emergency vehicles to safely use the shoulder to access crash sites, provide aid to motorists, and clear crashes.

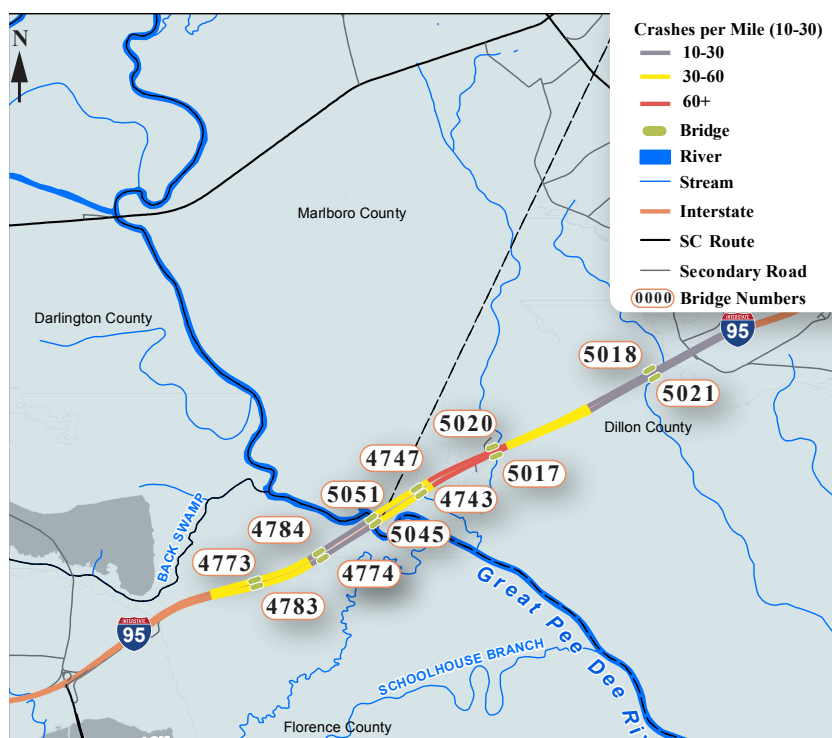


Figure 4: Crash location

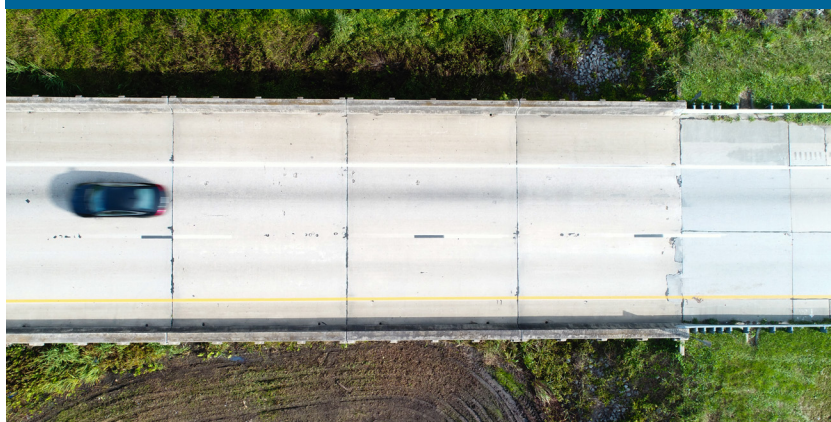


Figure 5: Current bridge shoulder widths

The I-95 P.D. River Bridges planning project would identify opportunities on this high-speed, high-volume highway to improve safety by:

- Increasing shoulder widths to current design standards;
- Addressing the lack of law enforcement and emergency services pull-off areas; and
- Upgrading bridge railing to current [FHWA design standards and guidance](#).



The actions identified by the planning effort would align with the guiding principles of the [USDOT National Roadway Safety Strategy](#) and help address conditions that contribute to South Carolina having the highest roadway fatality rate in the nation.

## **EFFICIENCY**

Efficiency is the foundation of I-95's critical importance as a key component of the nation's freight infrastructure. The total value of freight moved along the corridor in 2019 was \$90.5 billion, and the value is expected to reach \$183 billion by 2050.

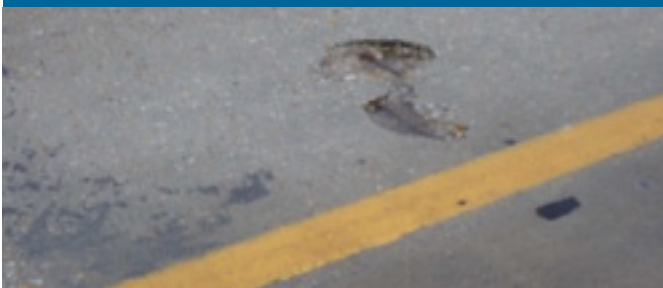
The interstate's efficiency is threatened by ongoing problems with these structures. For example, large potholes in the concrete on the bridge decks caused by high volumes of traffic have to be repaired frequently. These 50-plus year-old structures were not designed to carry current traffic counts, which are steadily increasing. Repairs require lane closures, which decrease traffic flow tremendously, which in turn negatively impacts the efficient movement of people and goods. Figures 6- 11 below illustrate some of the ongoing structural defects that have been identified during SCDOT bridge inspections.



**Figure 6: Concrete Spall/Delamination at Beam 2-6**



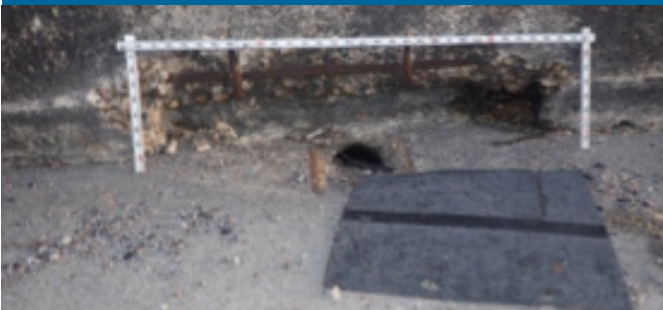
**Figure 7: Concrete Spall/Delamination on Roadway Deck at Span 1**



**Figure 8: Concrete Spall/Delamination on Roadway Deck w/ Exposed Rebar at Span 5**

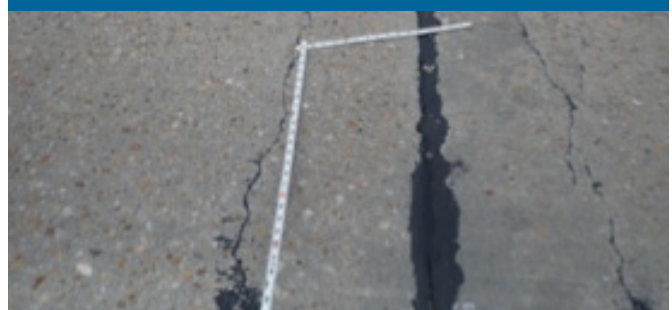


**Figure 9: Concrete Spall/Delamination on Roadway Deck w/ Exposed Rebar at Span 3**



**Figure 10: Concrete Spall of South Bridge Rail Deck Drain w/ Exposed Rebar**

*Source: SCDOT Bridge Inspection Report, CONSOR Engineers, April 2022*



**Figure 11: Map Cracking at all Spans Adjacent to Joints**

*Source: SCDOT Bridge Inspection Report, CONSOR Engineers, April 2022*



In order to keep traffic moving safely on this vital section of I-95, lane closures are required to conduct repairs. Closing one lane causes traffic to back up for several miles and the only detour requires an additional 40 miles of travel through rural areas not suitable for sustained heavy truck and tourist traffic and includes several stoplights (Figure 12).

This project, and the subsequent Large Bridge Grant, will help to ensure the continuing efficient operation of this corridor by eliminating a freight bottleneck in alignment with efforts of the [Supply Chain Disruption Task Force](#) and ongoing USDOT initiatives.

Enhancing the efficiency of this portion of I-95 also is critical to local, regional, and national economic development. SCDOT is in the process of updating the Statewide Freight Plan and is projecting that the entire I-95 corridor, and in particular this segment along the Great Pee Dee River, has and is projected to have one of the highest tonnage values in the state as a result of significantly increased truck traffic. Tonnage along this segment of I-95 is projected to almost double by 2050 placing a strain on bridges within the corridor.

The South Carolina State Ports Authority operates an inland port in Dillon, SC (Figure 13). The facility is a 3,400-acre industrial site located approximately 11 miles from the project area. Due to proximity of the I-95 corridor to the inland port facility, trucks utilize this stretch of I-95 to receive and deliver port and rail containers to the facility.

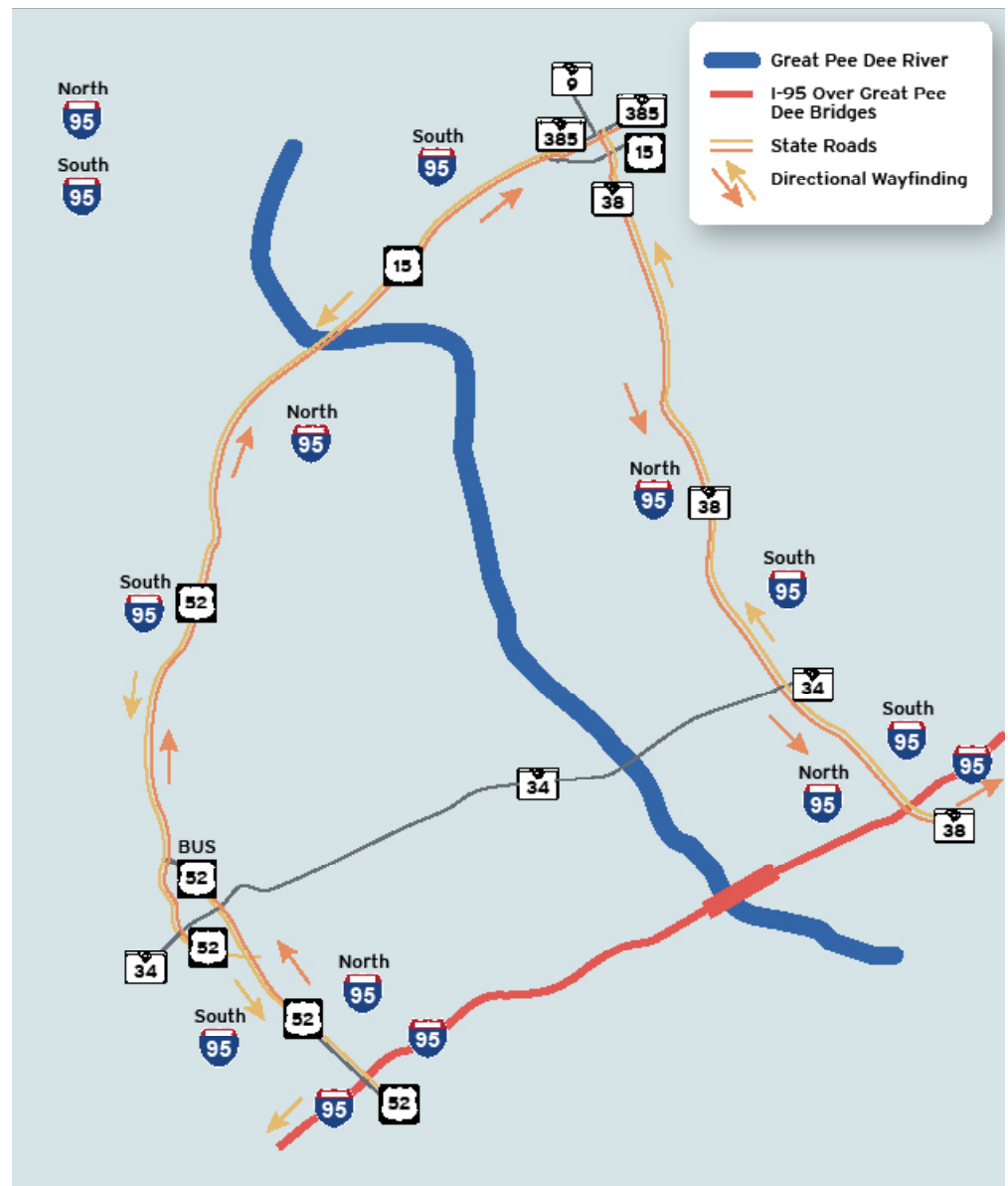
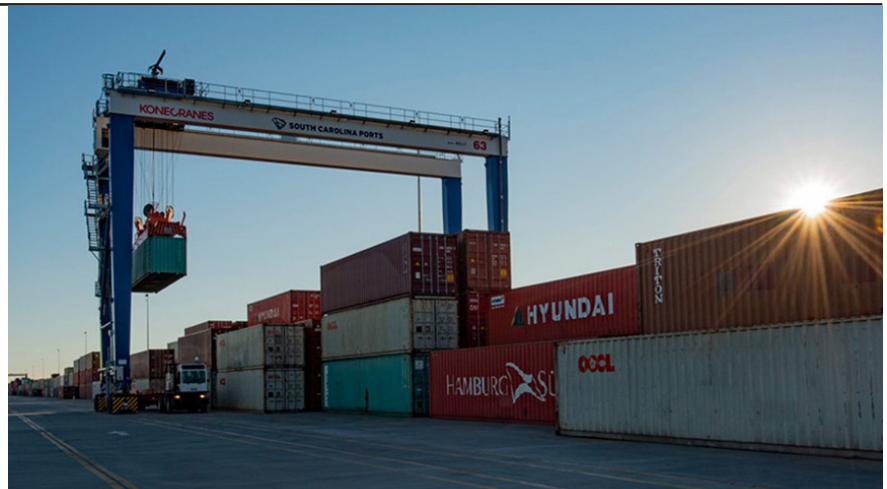


Figure 12: Detour map

The Inland Port Dillon:

- Provides \$63.4 Billion in economic impact
- Offers one-day rail to Inland Port Greer
- Serves 100 foreign ports directly
- Allows two-way truck turnaround times of under 60 minutes.

The freight viability of the I-95 corridor will be a key to full development of Inland Port Dillon. The ability to fully integrate rail, highway, and port resources will be an important economic driver for the community, state, and nation.



**Figure 13: Inland Port Dillon**

Source: transystems.com

**INCOME AND EDUCATIONAL ATTAINMENT**

County	Census Tract	Low Income	No High School Degree	No Higher Education
Marlboro	45069960600	73rd	19%	73rd
Dillon	45033970600	87th	19%	87th
Florence	45041000400	67th	12%	67th

Supporting economic drivers are particularly important in this area of South Carolina. The entire project area has been designated as either an Area of Persistent Poverty (APP) or a Historically Disadvantaged Community (HDC) on either the county or census tract level.

**AREA OF PERSISTENT POVERTY (APP) OR A HISTORICALLY DISADVANTAGED COMMUNITY (HDC)**

County	Census Tract	APP Criteria Met	HDC Criteria Met
Dillon	45033970600	Both County and Tract	Yes
Florence	45041000400	Census Tract Meets Criteria	Yes
Marlboro	45069960600	County Meets Criteria	No

As a result of the robust engagement process envisioned for this project, the I-95 P.D. River planning project will reflect these communities' needs and preferences in its recommendations and, at construction, deliver good-paying construction jobs and longer-term economic opportunities.



## **RELIABILITY**

For nearly a decade, SCDOT has regularly turned to detours and lane closures to remedy issues caused by years of flood events and high volumes of traffic. Flooding of the Great Pee Dee River, especially those experienced during storm events such as Hurricane Florence (2018) shown in Figure 14, have created scour around the bridge foundations requiring the installation of crutch bents to strengthen the integrity of the bridges until a more permanent solution can be funded. Figures 15-17 show crutch bents that have been installed as well as scour and erosion issues that have been identified in SCDOT bridge inspection reports. Major repair efforts described earlier create weeks of congestion (six weeks during one 2015 effort), delay and increased motorist and worker safety risks due to the lack of reasonable alternative routes.

The I-95 P.D. River Bridges planning project will help determine broad design approaches that will eliminate or minimize delays during construction. Unless planning recommends a different approach, it is anticipated that construction will be undertaken as a Design-Build project. This will allow for expedited construction initiation and potentially reduce construction timelines.



**Figure 14: Flooding during Hurricane Florence eroded the land around the Great Pee Dee River Bridge piers**

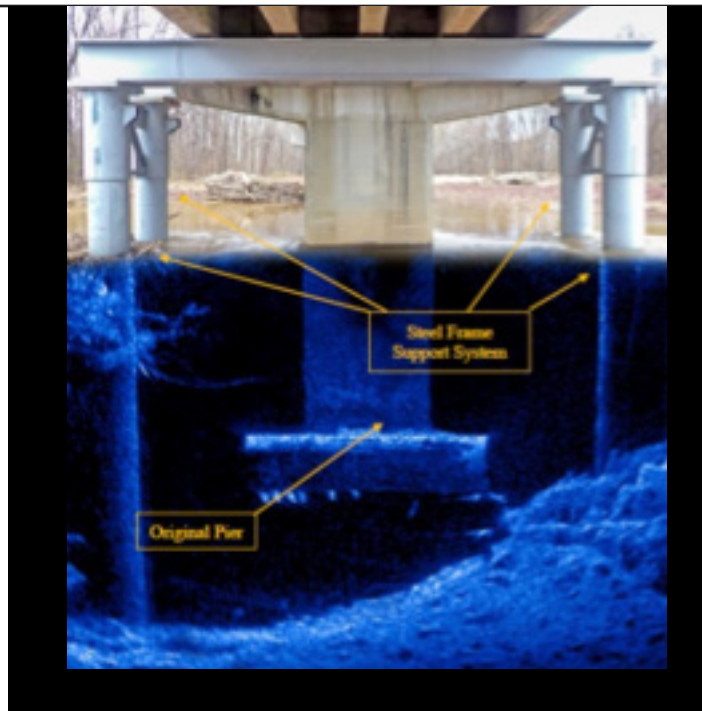


**Figure 15: East Embankment, Crutch Bent with Eroding Bank in Background**

*Source: SCDOT Bridge Inspection Report, CONSOR Engineers, May 2021*



**Figure 16: Timber Debris Eroding into Channel**



**Figure 17: Crutch Bent at Bent 26**

*Source: SCDOT Bridge Inspection Report, CONSOR Engineers, May 2021*

## **BIP Goal #2: Improve the condition of bridges in the United States.**

The I-95 P.D. River Bridges planning project will develop the approach for replacing or rehabilitating 12 bridges.

As previously noted, this planning effort would position South Carolina to immediately apply for a Large Bridge grant that, upon award, would enable SCDOT to reallocate funds to improve approximately 63 more state NHS bridges.

Together, these will improve the condition of bridges in the United States by:

- Reducing the number of bridges in poor condition or in fair condition and at risk of falling into poor condition within the next 3 years,
- Reducing the total person miles traveled over bridges in poor condition, or in fair condition and at risk of falling into poor condition within the next 3 years,
- Reducing the number of bridges that do not meet current geometric design standards, or cannot meet the load and traffic requirements typical of the regional transportation network, and
- Reducing the total person miles traveled over bridges that do not meet current geometric design standards, or cannot meet the load and traffic requirements typical of the regional transportation network.

## **BIP Goal #3: Provide financial assistance that leverages and encourages non-Federal contributions from sponsors and stakeholders involved in the planning, design, and construction of eligible projects.**

SCDOT will contribute 20% (\$180,000) of the planning costs to ensure that the I-95 P.D. River Bridges planning project can begin immediately upon award rather than waiting until a grant agreement can be developed and signed. This helps accelerate achieving a solution to the I-95 bridge issues.

## CRITERIA #2: PROJECT DESCRIPTION

This planning project will evaluate a bridge project that will fully meet the evaluation criteria for a Large Bridge Project. It is the intent of SCDOT to use this planning project funding to:

- Focus on making informed, data-driven recommendations and decisions on the operation, maintenance, preservation, replacement, and improvement of the affected bridges.
- Examine national and regional transportation network demands and make preliminary engineering recommendations that integrate those needs with current geometric design standards to help future-proof the design of the new and rehabilitated bridges.
- Develop a comprehensive approach to replacing or rehabilitating the bridges in a logical, cost-effective manner. It also will address how to integrate plans with the [SCDOT asset management plan](#) to ensure the maximum effective useful life of the bridges.
- Develop an improved scour protection to improve the bridges' long-term resiliency by taking into account meteorological, hydrological and other trend data and assessments to develop protection recommendations and will seek further strategies from design build teams during construction procurement (Figures 18-19).
- Refine SCDOT's understanding of the number and types of accidents including serious injuries and fatalities on or affected by the bridges. It will develop strategies and approaches for targeting known, documented safety problems with the bridges, within the project area or wider transportation network.
- Utilize the FHWA Safe System Approach as the framework for identifying where improvements are needed and how to incorporate features such as wider shoulders, break-down, law enforcement and emergency responder turn-outs, warning signals and pavement markings.
- Determine the status and causes of the bridges' condition and prioritize recommendations for addressing those causes and others that can be anticipated in design and construction. While all of the bridges are functionally obsolete, the following structures are at increased risk of falling into poor condition within the next three years due to scour-critical conditions or fair/poor channel remediation.

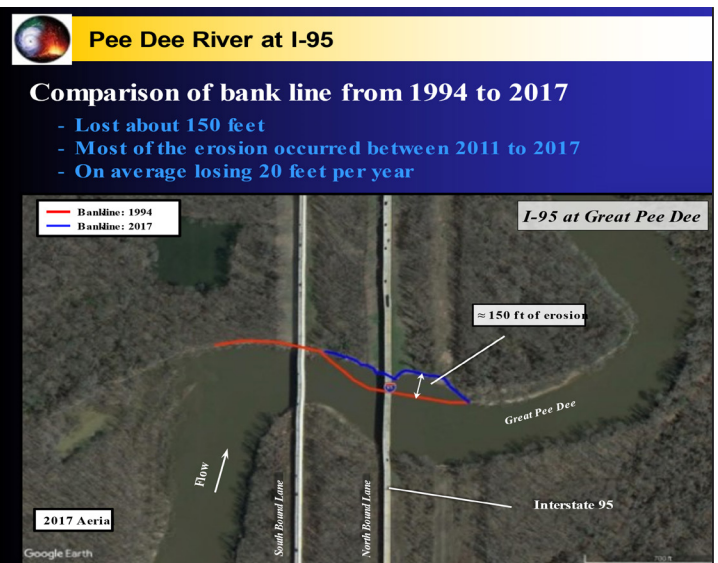
### I-95 P.D. RIVER BRIDGE STRUCTURES WITH INCREASED RISK

BRIDGE ID	LOCATION	ISSUE NOTED
5021	Southbound I-95 over Pocosin Swamp	Scour critical; foundations unstable
5018	Northbound I-95 over Pocosin Swamp	Scour critical; foundations unstable
5051	Southbound I-95 over Great Pee Dee River	Channel remediation severely damaged
5045	Northbound I-95 over Great Pee Dee River	Channel remediation in poor condition; Scour critical; foundations unstable
4784	Southbound I-95 over Great Pee Dee Swamp and Frontage Road	Scour critical; foundations unstable
4783	Southbound I-95 over Great Pee Dee Swamp and Frontage Road	Scour critical; foundations unstable
4773	Northbound I-95 over Great Pee Dee Swamp and Frontage Road	Channel remediation in fair condition Scour critical; foundations unstable
4774	Southbound I-95 over Great Pee Dee Swamp and Frontage Road	Channel remediation in fair condition





**Figure 18: Recent Bank Failures, SCDOT, June 2018**



**Figure 19: Comparison of Bank Line, SCDOT, June 2018**

The planning study will provide:

- i. Design options for each structure
- ii. Constructability reviews
- iii. Construction and right of way cost estimates
- iv. Risk assessment
- v. Project development and construction timelines using innovative financing
- vi. Benefit Cost Ratios consistent with March 2022 BCA guidelines

This planning project will develop a bridge project that will fully meet the evaluation criteria for a Large Bridge Project.

## CRITERIA #3: PROJECT SCHEDULE

The proposed I-95 P. D. River Bridges Project planning and post-planning schedule is summarized below. The feasibility study would determine appropriate replacement recommendations for each structure. SCDOT's preliminary screening process has indicated that a Non-Programmatic Categorical Exclusion would be the required level of environmental documentation for the proposed project. SCDOT has completed preliminary 2D modeling of the Great Pee Dee River to ensure that any engineered solution will meet current and anticipated hydrologic conditions.

The environmental document would cover all twelve structures. SCDOT is prepared to advance the planning initiative quickly and with the completion of the planning study, SCDOT will be in position to provide the necessary data for a successful Large Bridge Project grant followed by final design and construction completed by 2030.

### PROJECT SCHEDULE

ID	Task Name	Duration	Finish	23	24	25	26	27	28	29	30
0	I-95 over the Great Pee Dee River Bridges – Planning to Construction Completion	1941 days	9/18/30								
1	Announcement of Project Award	0 days	1/30/23								
2	Initiate Feasibility Study	0 days	3/1/23								
3	Public Input Forum	0 days	5/20/23								
4	Draft Feasibility Study for Public Input	250 days	2/1/24								
5	Final Feasibility Study	53 days	3/25/24								
6	Initiate Categorical Exclusion Work	78 days	6/12/24								
7	Draft Large Bridge Projects Grant Application	60 days	8/12/24								
8	Announcement of Project Award	0 days	1/5/25								
9	Draft Non-Programmatic Categorical Exclusion	305 days	6/19/25								
10	Finalize Design-Build Preparation Work	305 days	6/19/25								
11	Begin Design-Build Procurement	305 days	6/19/25								
12	Letting of Design-Build Contract	190 days	12/31/25								
13	Approval of Plans, Specifications, and Estimates	220 days	8/11/26								
14	Begin Construction	40 days	9/21/26								
15	Complete Construction	1430 days	9/18/30								

CRITERIA #4: PROJECT BUDGET

SCDOT will partner with USDOT in making this planning project possible by contributing \$180,000 in state funding (20% of project costs). This not only demonstrates the state’s commitment to the project, it also enables work on the feasibility study to start immediately upon USDOT award while the funding agreement is finalized.

PROJECT BUDGET				
Activity	State Funds	BIP Funds	Other Federal Funds	Total
Feasibility Study Initiation	\$100,000	\$0	\$0	\$100,000
Feasibility Study Development	\$80,000	\$720,000	\$0	\$800,000
Total	\$180,000	\$720,000	\$0	\$900,000

## PLANNING PRIORITY CONSIDERATIONS

The I-95 P.D. River Bridges planning grant application supports the following BIP priority considerations:

- South Carolina currently has identified approximately 2,000 bridges in the state that are in urgent need of replacement. Current funding levels available to SCDOT only allow for approximately 500 of these bridges to be addressed. In the absence of a BIP Planning grant, SCDOT will be unable to begin and complete the planning process required to position the project for the BIP Large Bridge Project. The State is not currently in a position to fund this project, without federal assistance to initiate the study and complete it in a timely fashion for moving directly into applying for a Large Bridge Grant award.
- With Federal aid, however, SCDOT is confident that it can use the planning process to complete sufficient preliminary engineering and environmental activities to develop a Large Bridge construction project that, coupled with using Design-Build delivery, can begin within two years of completion of the planning process.
  - o Design-build allows designers and contractors to introduce innovative design/construction alternatives that allows for a greater degree of customization, leading to a reduction in errors, faster project delivery and lowered project costs.
  - o It also allows contractors to utilize specialized means and methods. Design-build allows the overlap of design and construction activities, often resulting in schedule savings. The design is often broken into packages or segments, allowing construction to begin on portions of the project while other elements are still being designed.
  - o SCDOT has extensive experience in Design-Build contracting, having enacted enabling legislation in 2005 and publishing Version 1.0 of its Design Build Procurement Manual in 2017. This experience includes completion of 30 Design-Build roadway projects totaling \$1.0 billion with another \$1.7 billion underway.

## CONCLUSION

The I-95 P.D. River Bridges planning project will develop the approach for replacing or rehabilitating 12 bridges in a key component of the nation's freight infrastructure along this segment of I-95. As previously noted, this planning effort would position South Carolina to immediately apply for a Large Bridge grant that, upon award, will help to ensure the continuing operation of this vital corridor.