

# *HARKERS ISLAND BRIDGE REPLACEMENTS PROJECT*

*CONCURRENCE POINT 4A*

*STIP PROJECT B-4863*

*CARTERET COUNTY, NC*

---

February 2018

**RS&H**



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**List of Acronyms**

AEC	Areas of Environmental Concern
CAMA	Coastal Area Management Act
CE	Categorical Exclusion
DSA	Detailed Study Alternatives
E	Endangered
ESA	Endangered Species Act
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
HNC	Horizontal Navigational Clearance
LEDPA	Least Environmentally Damaging Practicable Alternative
MA-LAA	May Affect – Likely to Adversely Affect
MA-NLAA	May Affect – Not Likely to Adversely Affect
MHW	Mean High Water
NCDCM	North Carolina Division of Coastal Management
NCDMF	North Carolina Division of Marine Fisheries
NCDOT	North Carolina Department of Transportation
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act
NIR	Navigational Impact Report
NLEB	Northern long-eared bat
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
PBO	Programmatic Biological Opinion
PPN	Preliminary Public Notice
PNCD	Preliminary Navigational Clearance Determination
SAV	Submerged Aquatic Vegetation
STIP	State Transportation Improvement Program
T	Threatened
T(S/A)	Threatened Due to Similarity of Appearance
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VNC	Vertical Navigational Clearance

## 1.0 INTRODUCTION

### 1.1 Concurrence Point 4A Meeting Purpose

The North Carolina Department of Transportation (NCDOT) is seeking consensus from the Merger Team for Concurrence Point 4A (Avoidance and Minimization).

This report includes a description of the project, summaries from previous concurrence points, a summary of potential environmental impacts for the Preferred Alternative, and a description of measures taken to avoid and minimize potential environmental impacts.

### 1.2 Project Description

NCDOT proposes to replace Bridge No. 73 (known as the Earl C. Davis Memorial Bridge) and Bridge No. 96 carrying SR 1332/1335 (Harkers Island Road) over The Straits in Carteret County. Together these bridges provide the only vehicular access to Harkers Island. The project location is shown on Figures 1, 2, and 3.

This project is included in NCDOT's current federally approved 2018-2027 *State Transportation Improvement Program* (STIP) as Project B-4863. Right-of-way acquisition and utility relocation are scheduled to begin in Federal Fiscal Year (FFY) 2018 and construction in FFY 2020. This project followed the NEPA/Section 404 Merger Process, and a federal Categorical Exclusion (CE) was approved on October 3, 2017.

The 2014 bridge inspection report for Bridge No. 73 indicates that the bridge is in poor condition with a sufficiency rating of 15 out of 100 and a status of structurally deficient due to the condition of the superstructure and substructure (both having a Federal Highway Administration (FHWA) structural rating of 4 out of 9). The 2015 bridge inspection report for Bridge No. 96 indicates that the bridge is in good condition with a sufficiency rating of 47 out of 100 and has a status of functionally obsolete due to its horizontal width. The Division completed emergency repairs to replace the superstructure of Bridge No. 96 in 2013.



## **2.0 MERGER PROCESS HISTORY AND SCHEDULE**

### **2.1 Concurrence Point 1**

On February 18, 2016, the NEPA/404 Merger Team met to discuss Concurrence Point 1 (Purpose and Need and Study Area Defined) for the referenced project. During the meeting, existing conditions, the project study area, the project's need, and the project's purpose were presented. The NEPA/404 Merger Team reached a consensus that the purpose of and need for the project are defined as follows:

#### **Purpose of Proposed Action**

- Improve bridge structural safety and functionality

#### **Need for Proposed Action**

- Structurally deficient, functionally obsolete bridges

#### **Study Area Defined**

- The study area is as shown on Figure 2.

### **2.2 Concurrence Point 2**

Functional design plans, quantification of impacts based on functional plans, and qualitative cost analyses were prepared for five feasible design alternatives. A summary of these analyses was presented to the Merger Team members on June 15, 2016, at the meeting for Concurrence Point 2 (Detailed Study Alternatives (DSAs) Carried Forward). Based on the information provided, the Merger Team members eliminated Alternative 1 based on low public support, potentially high impacts to community resources, and high cost and selected the following alternatives as the DSAs.

#### **DSAs Carried Forward**

- Alternative 2 (two bridges, high-level/low-level fixed span bridges)
- Alternative 3 (two bridges, high-level/low-level fixed span bridges)
- Alternative 4 (single, high-level fixed span bridge)
- Alternative 5 (single, high-level fixed span bridge)

The following other alternatives which did not meet the purpose of and need for the project were eliminated from further study, in addition to Alternative 1:

- No Build Alternative
- Improve Existing Facility and Rehabilitate Existing Bridges Alternative
- Alternative Modes of Travel
- Traffic Management Alternatives

### **2.3 Concurrence Points 2A and 3**

Planning preliminary roadway designs and impacts were presented to the Merger Team members on June 15, 2017, at the meeting for Concurrence Points 2A and 3 (Bridging Decisions and Alignment Review; and LEDPA). Merger Team members concurred on Bridging Decision and Alignment review of the DSAs carried forward from Concurrence Point 2, as well as the selection of the LEDPA / Preferred Alternative. Alternatives 2, 3, and 4 were not selected. Alternative 5 was selected as the Preferred Alternative based primarily on high public support and lower environmental impacts.

The Merger Team selected Alternative 5 as the LEDPA/Preferred Alternative with the following stipulations, as noted on the Project Commitments (Green Sheet) page in the CE:

- NCDOT will coordinate appropriately with the National Oceanic and Atmospheric Administration (NOAA) – National Marine Fisheries Service (NMFS) regarding the “unresolved” biological conclusion for the green sea turtle, hawksbill sea turtle, Kemp’s ridley sea turtle, loggerhead sea turtle, leatherback sea turtle, and Atlantic sturgeon prior to submittal of the Section 404 permit application, in compliance with Section 7 of the Endangered Species Act.
- Based on coordination with the United States Coast Guard (USCG), a USCG Permit is anticipated. The proposed bridge must provide the following clearances underneath the bridge: a vertical clearance of 45 feet above mean high water (MHW) and a horizontal clearance of 125 feet. NCDOT will coordinate with the USCG upon completion of the structural design to obtain the Advanced Approval for the project.
- NCDOT will coordinate with the North Carolina Division of Marine Fisheries (NCDMF) and NMFS concerning the in-water construction moratorium for protected aquatic species.
- NCDOT will adhere to *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters* for this project.
- NCDOT will coordinate with Carteret County to explore additional parking options for the Straits Island Fishing Pier.
- NCDOT Local Programs Management Office and Division 2 will facilitate a formal municipal agreement between Carteret County and NCDOT regarding the County’s commitment to maintain Bridge No. 96, to remain in-place for non-vehicular access to the Straits Fishing Pier after construction of the replacement bridge.

### **2.4 Project Schedule**

The current project schedule is as follows:

- Concurrence Point 4A (Avoidance and Minimization) – Winter 2017/2018
- Concurrence Point 4B (Hydraulic Review) – March-April 2018
- Right-of-Way – Federal Fiscal Year 2018
- Construction – Federal Fiscal Year 2020

### **3.0 PUBLIC INVOLVEMENT PRIOR TO CONCURRENCE POINT 4A**

Following Concurrence Point 3, a newsletter was sent to the public (August 2017) announcing the selection of Alternative 5 as the Preferred Alternative. It also provided a brief summary of Public Meeting #2 comments and responses and an update on the environmental planning process. No comments in response to the newsletter have been received to date. No additional public meetings have been held since Concurrence Point 3. NCDOT continues to update the project website with pertinent project announcements and documents.

A complete summary of public involvement activities was included in the handout for the Merger meeting for Concurrence Points 2A and 3. Public involvement meetings and newsletters include:

- March 2016 (mailed February 26, 2016) – Newsletter #1
- March 14, 2016 – Local Officials Meeting and Public Meeting #1
- October 2016 (mailed October 11, 2016) – Newsletter #2
- February 2017 (mailed February 17, 2017) – Newsletter #3
- March 2, 2017 – Local Officials Meeting and Public Meeting #2
- August 2017 (mailed August 28, 2017) – Newsletter #4

### **4.0 AVOIDANCE AND MINIMIZATION MEASURES**

Table 1 on the following page includes information about and potential impacts of the Preferred Alternative (Alternative 5). Changes since the meeting for Concurrence Points 2A and 3 and the CE include:

- Total project length for Alternative 5 decreased from 0.86 to 0.85 mile, due to the preliminary roadway design tying into the existing roadway closer to the existing bridge on the mainland side. This allowed avoidance of impacts to one residential property.
- The number of properties impacted across all alternatives decreased by one. One contiguous parcel, divided by the roadway and owned by the same entity, was previously counted as two separate parcels.

**Table 1: Preferred Alternative (Alternative 5) Description and Potential Impacts**

Category	Alt 5
<b>Project Description</b>	
Project Length (miles)	0.85
Bridge Length (Bridge No. 73/96 in feet)	3,200
Proposed Bridge Structure (sf)	112,000
<b>Miscellaneous</b>	
Constructability Concerns	Low
Splash Zone Concerns	Low
Evacuation/Flooding Concerns (potential for issue on center island)	Low
Utility Impacts (no. of poles impacted)	7
<b>Public Feedback</b>	
Public Preference at Public Meeting #2	84%
<b>Costs</b>	
Right-of-Way Costs	\$807,120
Utility Costs ( <i>power pole relocations</i> )	\$214,466
Construction Costs	\$32,900,000
<b>Total Costs (Rounded)</b>	<b>\$34,000,000</b>
<b>Human Environment Impacts<sup>1</sup></b>	
Harkers Island Beach Access <sup>2</sup> – permanent impacts (acres)	0.04
Section 4(f) Determination	<i>De Minimis</i>
Straits Fishing Pier <sup>2</sup> -- permanent impact (acres)	0
Section 4(f) Determination	None
Straits Landing Boat Access Area <sup>2</sup> – permanent impacts (acres)	0.06
Section 4(f) Determination	<i>De Minimis</i>
Properties Impacted (number) -- <i>no anticipated relocations</i>	10
Proposed Right-of-Way (acres)	0.89
Archeological Sites (number) <sup>3</sup>	1
<b>Natural Environment</b>	
Wetlands <sup>4</sup> : CAMA/Riparian Impacts (acres)	0.08 / 0.01
Total Wetland Impacts (acres)	0.09
SAV <sup>5</sup> – permanent impacts (acres, July 2017 survey)	0.48
Surface Water <sup>6</sup> (acres)	0

\* Footnotes – please see next page

Table 1 Notes:

- 1) Community Resource Impacts are areas based on proposed right-of-way and easement boundaries as determined from the preliminary design plans.
- 2) These properties are also considered Public Trust Resources by NCDCM/CAMA.
- 3) Archaeology Site 31CR76 is not eligible for the National Register of Historic Places (NRHP).
- 4) Wetland Impacts are based on preliminary design slope stakes, plus an additional 25 feet outside of each construction limit as determined from the preliminary design plans. Riparian impacts reported here are lower than impacts listed in the Concurrence Point 2A/3 packet and presentation due to a revised wetland boundary in the northwest quadrant.
- 5) Potential SAV Impacts were investigated based on two methodologies: (1) the area of the proposed bridge above the surveyed SAV locations, and (2) accounting for shading with a bridge height/width ratio. Both methodologies resulted in the same impacts. Impacts reported do not account for any credits that may be possible due to existing bridge removal. The direct impacts from the bridge footings will be provided once the structure design is completed. The project team will discuss further details of this estimate, other factors that may reduce the potential impacts, and potential mitigation measures at the meeting for Concurrence Point 4A. SAV surveys were conducted in July and September 2016 and most recently in July 2017. Biologists waded the SAV areas to determine any changes in the original delineation, changes in species composition, and changes to SAV density. The July and September 2016 surveys resulted in findings within 0.01 acre. Survey findings in 2017 were very similar.
- 6) Surface Water Impacts are based on area of fill needed to construct the roadway approach and retaining walls within the existing water surface.

#### **4.1 Section 4(f) and Public Trust Resources**

Harkers Island Beach Access, Straits Fishing Pier Island, and Straits Landing Boat Access Area are protected by Section 4(f) of the US Department of Transportation Act and are also considered Public Trust Resources. The current design has avoided and minimized impacts to these resources in the following ways:

- **Harkers Island Beach Access**
  - Proposed bridge location is on the opposite side of the roadway from the beach access
  - Proposed bridge approach allows for the beach access entrance to remain open
  - Proposed bridge approach does not affect the beach area
  - Impact from the roadway fill has been minimized to 0.04 acre of permanent right-of-way required
  - Section 4(f) determination is “*de minimis*”
  - Carteret County Parks and Recreation Department concurs that the project will not adversely affect the activities, features, and attributes of the beach access.
- **Straits Fishing Pier Island**
  - Proposed bridge location avoids all direct impacts to the island
  - Fishing pier has been avoided and will remain in place for continued use
  - Section 4(f) determination is “None/No Impact”
  - Access to the island for pedestrians will remain via Bridge No. 96 pending a municipal agreement with Carteret County to maintain it as a non-vehicular facility

- **Straits Landing Boat Access Area**

- Proposed bridge location is on the opposite side of the roadway from the boat access area
- Proposed bridge approach allows for the boat access entrance to remain open
- Impact from the roadway fill has been minimized to 0.06 acre of permanent impacts
- Section 4(f) determination is “*de minimis*”
- NC Wildlife Resources Commission (NCWRC) concurs with the *de minimis* finding
- NCDOT continues to coordinate with NCWRC to add more parking spaces to aid both the boat access and the fishing pier island.

#### **4.2 Public Parking**

The NCWRC noted that elimination of vehicular access to the Straits Fishing Pier and center island would likely result in indirect impacts to the Straits Landing Boat Access Area’s parking lot. The parking lot for the Boat Access Area is designated for vehicles with trailers only. NCWRC anticipates that additional parking demand for the Straits Fishing Pier would result in vehicles parked along the shoulders and right-of-way near the Boat Access Area. NCDOT has continued coordination with Carteret County, NCWRC, and NCDOT to explore options for providing additional parking for public resources in the project area, as included on the project’s Green Sheet. A summary of activities and possible solutions discussed to date is included in Appendix B.

Based on the planning preliminary roadway design, Alternative 5 may impact one parking space at the Straits Landing Boat Access Area. However, it is anticipated that there would be no net loss of parking based upon refinement of the roadway design.

No parking impacts to the Harkers Island Beach Access are anticipated.

#### **4.3 Submerged Aquatic Vegetation**

Initial surveys for SAV were conducted in the summer of 2016. An additional SAV survey was completed in the summer of 2017. Areas containing SAVs from the 2017 survey are shown on Figures 2 and 5.

Based on preliminary roadway designs, Alternative 5 could result in up to 0.48 acre of permanent SAV impacts. This estimate is based on the area of the proposed bridge above the surveyed SAV locations. However, the project team is continuing to recalculate this number based on structural design information as it becomes available. Impacts reported do not account for the removal of the existing Bridge No. 73, or reductions for proposed bridge pier locations.

During the surveys, biologists waded the SAV areas to determine any changes in the original delineation, changes in species composition, and changes to SAV density. The July and September 2016 surveys resulted in findings within 0.01 acre. Survey findings in 2017 were very similar.

#### 4.4 Wetlands and CAMA AECs

There are several different types of CAMA Areas of Environmental Concern (AECs) within the project study area: Public Trust Waters, Estuarine Waters, Coastal Shorelines (30- and 75-foot buffers from Mean High Water) and Coastal Wetlands. A CAMA permit from the NC Division of Coastal Management (NCDCM) will be required for all impacts to designated AECs within the study area. The Straits is designated as a Public Trust Water. CAMA coastal marsh is present at twelve different wetland sites. Alternative 5 could impact up to 0.08 acre of CAMA wetland and 0.01 acre of riparian wetland. (See Figure 5.) This calculation is based on the preliminary roadway design slope stakes, plus an additional 25 feet outside for a conservative estimate.

The Concurrence Point 2A/3 packet reported an estimated 0.05 acre impact to riparian wetlands but has since been reduced to 0.01 acre based on a revised wetland boundary in the northwest quadrant (NCDOT wetland file, 2017).

Alternative 5 had the lowest potential overall wetland impacts compared to the former study alternatives as detailed in previous Concurrence packets and the CE. Additional temporary impacts may be possible due to the temporary work platform needed to construct the proposed bridge.

#### 4.5 Federally-Protected Species

Federally protected species currently listed for Carteret County and their biological conclusions are included in Table 2. These species were verified on January 15, 2018, and no new listings have been added.

**Table 2: Federally Protected Species Listed for Carteret County**

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Alligator mississippiensis</i>	American alligator	T (S/A)	Yes	Not required
<i>Chelonia mydas</i>	Green sea turtle	T	Yes	Unresolved
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	E	Yes	Unresolved
<i>Lepidochelys kempii</i>	Kemp's ridley sea turtle	E	Yes	Unresolved
<i>Dermochelys coriacea</i>	Leatherback sea turtle	E	Yes	Unresolved
<i>Caretta caretta</i>	Loggerhead sea turtle	T	Yes	Unresolved
<i>Charadrius melodus</i>	Piping plover	T	No	No Effect
<i>Picoides borealis</i>	Red-cockaded woodpecker	E	No	No Effect
<i>Calidris canutus rufa</i>	Rufa red knot	T	No	No Effect
<i>Sterna dougallii dougallii</i>	Roseate tern	T	No	No Effect
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	E	Yes	No Effect
<i>Trichechus manatus</i>	West Indian manatee	E	Yes	MA-NLAA
<i>Acipenser oxyrinchus</i>	Atlantic sturgeon	E	Yes	MA-NLAA
<i>Lysimachia asperulaefolia</i>	Rough-leaved loosestrife	E	No	No Effect
<i>Amaranthus pumilus</i>	Seabeach amaranth	T	No	No Effect
<i>Myotis septentrionalis</i>	Northern long-eared bat	T	Yes	MA-LAA

E – Endangered; T – Threatened; T(S/A) – Threatened due to similarity of appearance;  
MA-NLAA – May Affect – Not Likely to Adversely Affect; MA-LAA – May Affect – Likely to Adversely Affect

### ***Northern long-eared bat***

The United States Fish and Wildlife Service (USFWS) has developed a programmatic biological opinion (PBO) in conjunction with FHWA, the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is **“May Affect, Likely to Adversely Affect.”** The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Carteret County.

### ***Sea Turtles (Unresolved Biological Conclusions) and Atlantic Sturgeon (May Affect, Not Likely to Adversely Affect)***

The biological conclusions for sea turtles are unresolved. Coordination with NMFS and NCDMF has been ongoing regarding sea turtles. NCDMF assisted in securing signage for the fishing pier to educate and alert anglers on reporting and handling practices for sea turtles. The data collected through voluntary reporting will support decision-making regarding sea turtle interactions at this pier.

NCDOT will continue to coordinate appropriately with NOAA – NMFS regarding the green sea turtle, hawksbill sea turtle, Kemp’s ridley sea turtle, loggerhead sea turtle, leatherback sea turtle, and Atlantic sturgeon prior to submittal of the Section 404 permit application, in compliance with Section 7 of the Endangered Species Act (ESA). This includes a concurrence request (submitted in February 2018) with information on the structural design and currently available construction methodology. Additional information will be provided as it becomes available during the design process.



Sea turtle sign installed August 2016 at the Straits Fishing Pier.

### ***West Indian manatee***

NCDOT's commitment to adhering to the *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters* is documented on the project's Green Sheet in the CE.

### ***Rufa red knot***

The rufa red knot was added to the Carteret County List in January 2015. No habitat for this species is present in the project study area.

#### **4.6 In-Water Work Moratorium**

At the request of regulatory and resource agencies, an in-water work moratorium from April 1 to September 30 will be adhered to.

#### **4.7 US Coast Guard Coordination and Vertical Navigational Clearance**

The Draft Navigational Impact Report (NIR) was submitted to the USCG in December 2016. The following information was included in the Draft NIR:

- The B-4863 Vessel Height Survey was completed in 2014. From the survey, the proposed 45-foot vertical navigational clearance (VNC) and 125-foot horizontal navigational clearance (HNC) accommodates 99.9% of the current boat traffic.
- Local maritime community members and harbormasters were interviewed.
- Waterway data was obtained from the USACE and NOAA.

The USCG received a summary of public input from Public Meeting #1 to aid in their review, along with issuing a Preliminary Public Notice (PPN) to gather vessel information for the area around the Harkers Island Bridges. In March 2017, the USCG issued a Preliminary Navigational Clearance Determination (PNCD) that a 45-foot VNC and 125-foot minimum HNC at the location of Bridge No. 73 would be sufficient for vessel traffic in the area. Alternative 5 includes these minimum navigational clearances. NCDOT is in the process of finalizing the NIR for final USCG review.

#### **4.8 Impacts to the Human Environment**

Alternative 5 results in no business or residential relocations. One archaeological site will be impacted, but it is not eligible for the National Register of Historic Places. The site will be preserved in place. No other human environmental impacts are anticipated.

#### **4.9 Maintenance of Traffic**

Temporary work platforms will be required to construct the proposed structure. To maintain two-way traffic on the existing bridges during construction, temporary pavement and temporary shoring will be required to construct the approach slabs of the bridge ends on the mainland side. The temporary work platform will be designed and constructed by the contractor. Further information will be provided as it becomes available.

#### **4.10 Bridge Length**

The proposed bridge length is approximately 3,200 feet. The bridge length has been optimized, and the bridge ends have been located to minimize impacts to wetlands, surface water, and public

resources. The location of the proposed bridge will provide enough separation to construct the new bridge while keeping the existing structures open to traffic during construction. Retaining walls are proposed for Alternative 5 on both the mainland and island sides to further reduce wetland impacts, as well as minimizing easement and right-of-way acquisitions needed. (Figure 5.)

# APPENDIX A

## FIGURES



**RS&H**

### Harkers Island Bridge Replacements Project

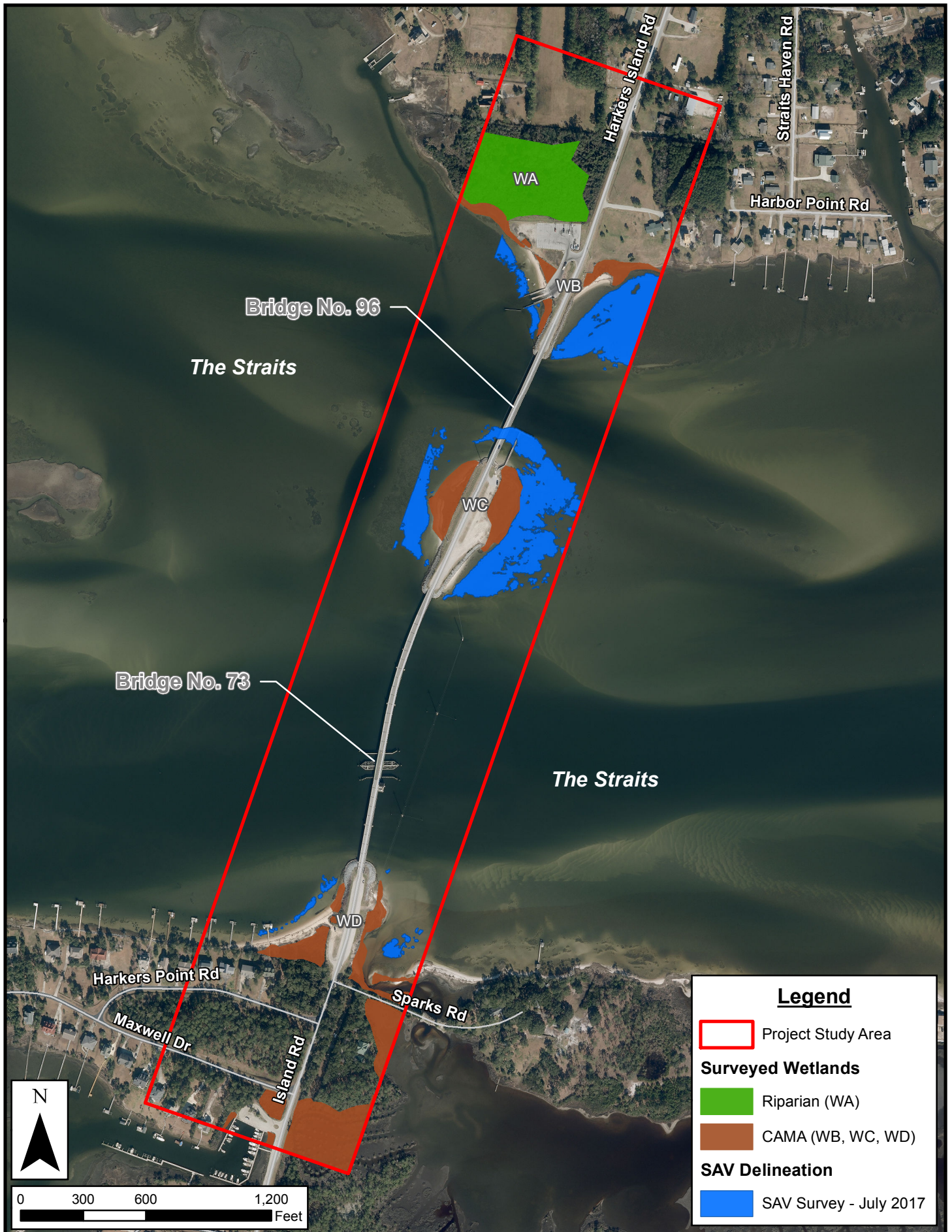
Bridge No. 73 and No. 96 over  
The Straits - SR 1332/1335

TIP No. B-4863

Division: 2

**Figure 1:**  
Vicinity Map

February 2018



**Harkers Island Bridge Replacements Project**  
 Bridge No. 73 and No. 96 over  
 The Straits - SR 1332/1335

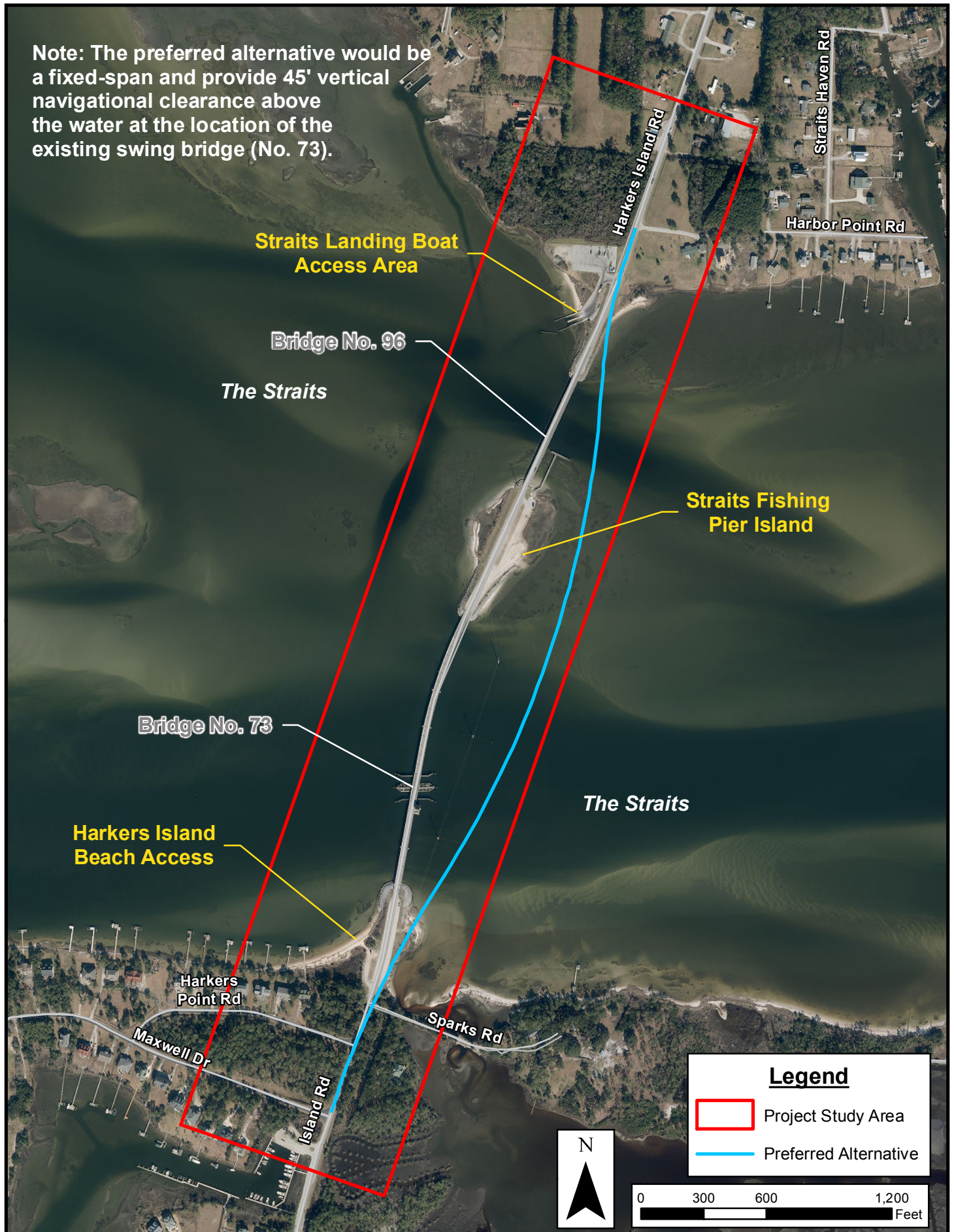
TIP No. B-4863

Division: 2

**Figure 2:**  
 Environmental  
 Features

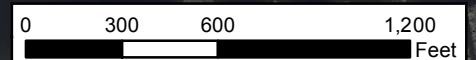
February 2018

Note: The preferred alternative would be a fixed-span and provide 45' vertical navigational clearance above the water at the location of the existing swing bridge (No. 73).



### Legend

- Project Study Area
- Preferred Alternative



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**Harkers Island Bridge Replacements Project**  
 Bridge No. 73 and No. 96 over  
 The Straits - SR 1332/1335

TIP No. B-4863

Division: 2

**Figure 3:**  
 Preferred Alternative

February 2018



**Legend**

- Preferred Alternative
- Right-of-Way
- Transmission Pole
- Transmission Line
- Recreational Resource
- Impacted Area

**Preferred Alternative  
Affected Human Environment**



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Carteret County, Div 2

**Harkers Island Bridge  
Replacements Project**

TIP No: B-4863

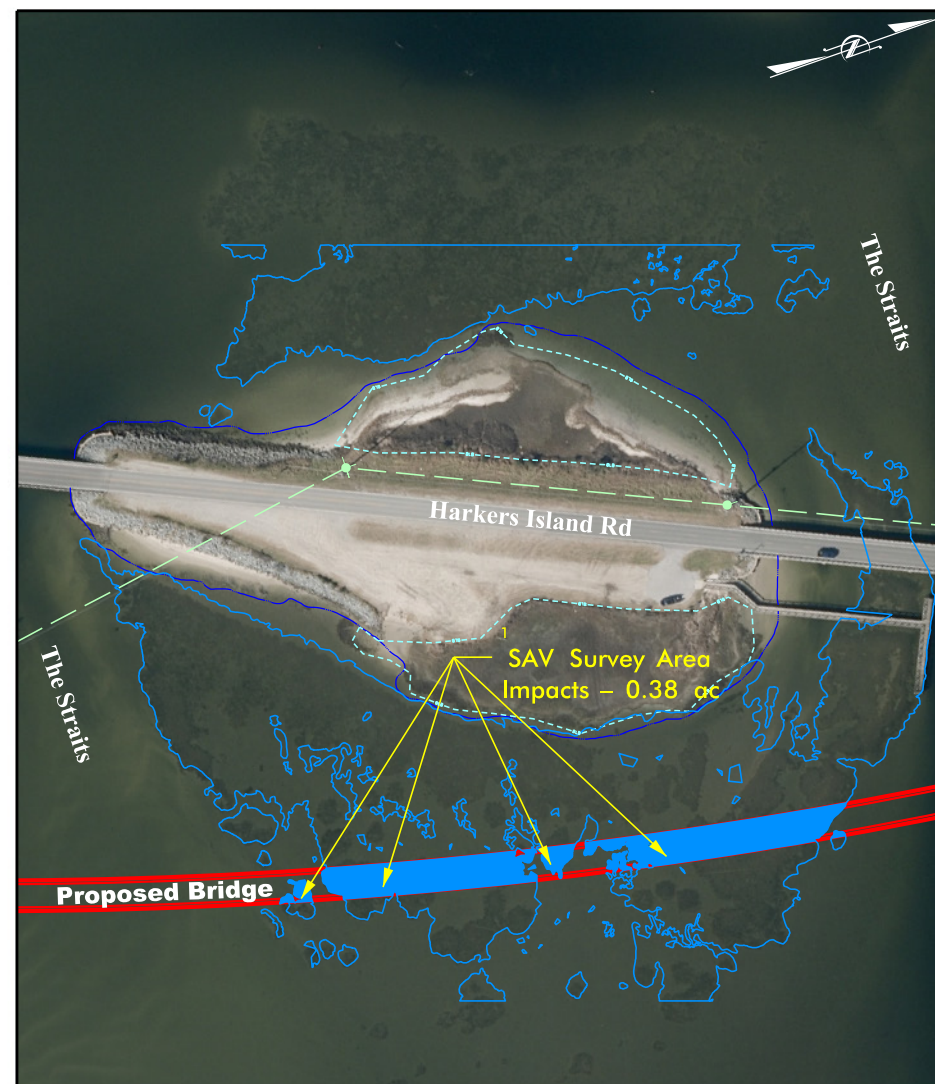
Bridge No. 73 and No. 96 over The Straits - SR 1332/1335

**Figure 4**

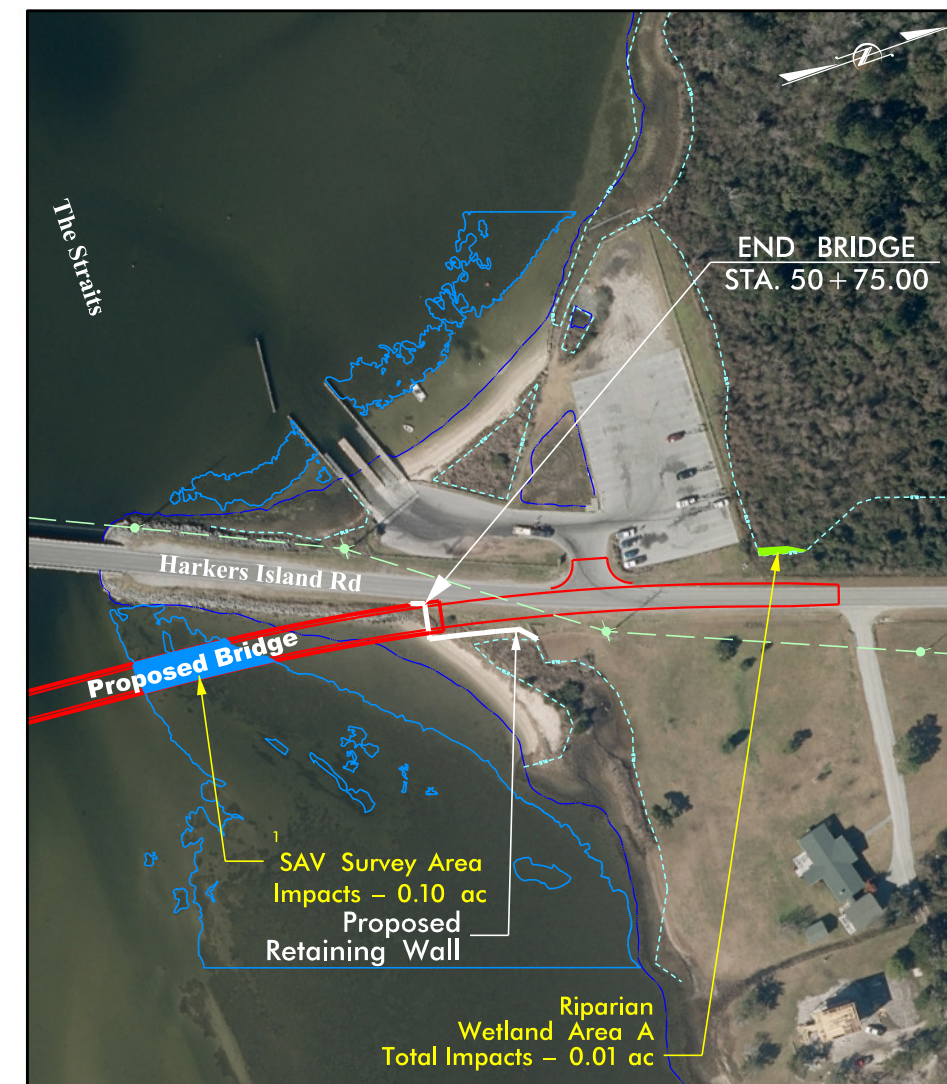
February 2018



**Island**



**Fishing Pier Island**



**Mainland**

Total Riparian Wetland Impacts = 0.01 acres  
 Total CAMA Wetland Impacts = 0.08 acres  
 Total Surface Water Impacts = N/A

<sup>1</sup> Bridge footprint within July 2017 survey areas:  
 Total SAV Survey Area Impacts = 0.48 acres

**Legend**

- |     |                                      |  |                                     |
|-----|--------------------------------------|--|-------------------------------------|
| WLB | Wetland Boundary                     |  | SAV Survey Area Impacts (July 2017) |
|     | SAV Survey Area Boundary (July 2017) |  | Riparian Wetland Impacts            |
|     | Water Boundary                       |  | CAMA Wetland Impacts                |
|     | Roadway Footprint (Slope Stakes)     |  | Surface Water Impacts               |
|     | Overhead Power Distribution Line     |  |                                     |

100' 0' 100' 200'  
 50' SCALE

PRELIMINARY PLANS  
 DO NOT USE FOR CONSTRUCTION

**Preferred Alternative  
 Affected Natural Environment**



Carteret County, Div. 2

**Harkers Island Bridge  
 Replacements Project**

TIP No: B - 4863

Bridge No. 73 and No. 96 over The Straits - SR 1332/1335

**Figure 5**

February 2018

## **APPENDIX B**

### **SUMMARY OF PARKING COORDINATION**

## **B-4863 Harkers Island Bridge Replacements**

### **Green Sheet Commitment**

- NCDOT will coordinate with Carteret County to explore additional parking options for the Straits Island Fishing Pier.

#### **Background**

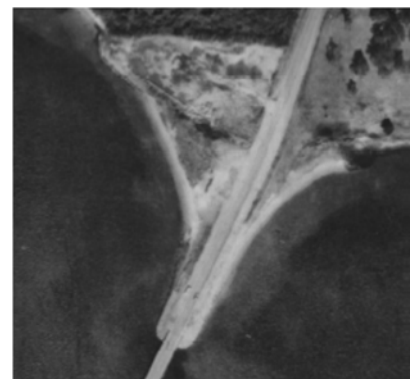
The Harkers Island Bridges will be replaced with a fixed span bridge that bypasses the center island where the Straits Island Fishing Pier is located. The public informally parks on the center island and along the bridge causeway to access the pier. In an April 18, 2016, letter, the Carteret County Board of Commissioners requested “that Bridge Number 96 remain in place and either be turned over to Carteret County or leased to our County for non-vehicular traffic. Our intentions are that this bridge could be used either for fishing and/or recreational purposes, as well as providing access to the island between Bridges 73 and 96.”

During a May 19, 2017 conference call with the North Carolina Wildlife Resources Commission (NCWRC) concern was expressed by NCWRC that eliminating access to parking on the center island would shift parking to the limited spaces available at the Straits Landing Boat Access (north (mainland) end of the bridge). In the June 15, 2017 combined meeting for Concurrence Points 2A and 3, it was noted that the boat landing is open to the public year-round with a parking lot for vehicles with trailers. Overflow (undesignated/non-maintained) parking tends to occur on the center island, along the bridges, and in front of private residences during peak times and seasons. As such, the CP3 concurrence form was signed by Merger team members with the condition that the North Carolina Department of Transportation (NCDOT) will coordinate with Carteret County to explore additional parking for the Straits Island Fishing pier.

The B-4863 federal Categorical Exclusion (CE) states that the NCWRC noted that elimination of vehicular access to the Straits Fishing Pier and center island would likely result in indirect impacts to the Straits Landing Boat Access Area’s parking lot. The parking lot for the Boat Access Area is designated for vehicles with trailers only. NCWRC anticipates additional parking demand for the Straits Fishing Pier would result in vehicles parked along the shoulders and right-of-way near the Boat Access Area. Thus, in the CE, the NCDOT made the formal Green Sheet commitment to coordinate with Carteret County to explore additional parking options for the Straits Island Fishing Pier.

#### **Site History**

In 1940, NCDOT acquired the land at the north end of bridge to build the bridge, act as a maintenance yard for the bridge, and provide a residence for the bridge tender. On January 1, 1941, the original wooden bridge opened. In the 1969, the wooden bridge was removed and the current bridge was constructed. Through the 1970s, the property was used as a NCDOT maintenance yard. By the 1980s, the buildings were razed and the property was vacant. In July 2000, a Memorandum of Agreement between the NCDOT and the NCWRC allowed the NCWRC to utilize the property for a boat access ramp. Shortly thereafter, the NCWRC constructed the existing boat ramps



without paved parking. In 2005, the parking lot was paved to the existing configuration of the site. Currently, during peak usage, the boat access is extremely congested with boat trailers often queuing on or along the road.

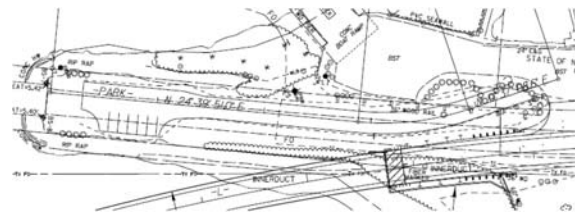
## **Parking Alternatives (Timeline of Coordination/Discussions)**

### *Prior to the design team's involvement*

- Carteret County and the NCWRC have been evaluating options to increase parking for the boat ramp. Travis Wilson, NCWRC, summarized that NCWRC had “looked at every possible means to try and increase [parking] capacity at the [Straits Landing Boat Access] facility.”
- Carteret County had explored options to purchase property directly north of the existing landing to expand the boat access parking. Unfortunately, property acquisition was contingent on obtaining grant monies that were not obtained.

### *October 2017*

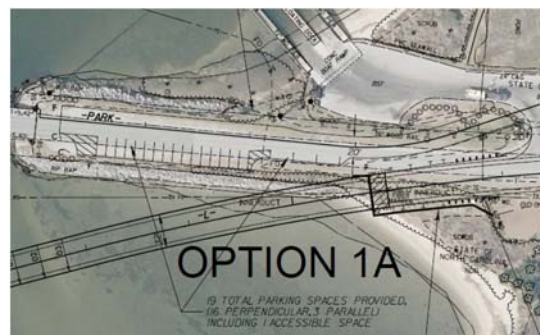
- The design team (RS&H, Louis Berger, and Carolina Ecosystems) began to address the parking situation. Initial considerations included any potential solutions which could help NCWRC with the boat landing access congestion issues.
- On October 31, 2017, RS&H produced two draft proposed parking alignments. Option 1 included five parking spaces on the causeway with a driveway paralleling the boat ramp and intersecting the boat ramp's main driveway. Option 2 included five parking spaces on the causeway with the driveway intersecting the boat ramp turnaround area.



**OPTION 1**

### *November 2017*

- On November 9, 2017, a conference call was held by Division 2 and the design team to review parking options and prepare for upcoming meetings.
- On November 14, 2017, RS&H met with Gene Foxworth, Carteret County Assistant Manager and presented Options 1 and 2. In that meeting, Mr. Foxworth stated the County's desire for as close to 20 parking spaces as possible.
- On November 15, 2017, in response to Mr. Foxworth's request, RS&H produced Option 1A, which has the same driveway alignment as Option 1 but increased the parking to 19 spaces (16 perpendicular and 3 parallel).



**OPTION 1A**

19 TOTAL PARKING SPACES PROVIDED.  
(16 PERPENDICULAR, 3 PARALLEL)  
INCLUDING 1 ACCESSIBLE SPACE

- On November 16, 2017, the design team had a conference call with Travis Wilson, NCWRC. Options 1, 1A, and 2 detailed above and the onsite congestion and traffic flow were discussed. Mr. Wilson pointed out that expanding the existing parking footprint would be difficult because the property was already maxed out on the amount of allowable impervious surface per the existing stormwater permit. Permeable pavers were discussed as an option for pervious surface parking. Mr. Wilson noted that such pavers had been tried on other, similar facilities without favorable results. In the call, it was also noted that the property was within a CAMA Area of Environmental Concern (AEC) which has additional regulations. The meeting determined that the NC Division of Coastal Management (NCDCM) needed to be consulted to better understand constraints and opportunities associated with adding additional parking spaces along the bridge causeway.
- On November 17, 2017, Carolina Ecosystems and Louis Berger met to discuss permitting and stormwater issues for the project, including those associated with the parking Options.
- On November 27, 2017, a conference call was held with Division 2 and the design team. Permeable pavers were discussed, along with the potential of using the causeway to create a circular drive and moving the entrance driveway. This was not put into a formalized option.

#### *December 2017*

- On December 4, 2017, a meeting was held with Carteret County, NCWRC, Division 2, and the design team to discuss parking options. Options 1, 1A, and 2 detailed above were discussed in detail with the pros and cons of each examined. The AEC requirements were examined and permeable pavers were discussed. Maintenance of the additional parking was also discussed. The meeting concluded that there was no other viable option available than using the existing causeway for parking. Furthermore, the mean high water line needed to be delineated to establish the AEC in order to determine if using the causeway for parking was permissible.
- On December 5, 2017, Jay Johnson, NCDOT, visited the site with Stephen Lane, NCDCM, to delineate the mean high water line. From the mean high water line, the 30 foot and 75 foot AEC buffers were determined. The mapping indicated that proposed causeway parking was within the 30 foot AEC where new parking would not be allowed.
- On December 6, 2017, a meeting was held with NCDOT EAU, Division 2, and the design team in which the parking issue versus the AEC concerns was discussed. At that meeting, the possibility of a variance for the AEC rules was discussed based on the already occurring roadside parking within the 30 foot AEC and NCDCM's mandate to provide and protect public use and access to public trust waters and resources. It was determined that a field meeting with Stephen Lane, NCDCM, was necessary.
- On December 7, 2017, a site visit occurred with Carolina Ecosystems and Louis Berger, to more closely examine onsite conditions and verify existing roadside parking prior to requesting a meeting with Stephen Lane, NCDCM.

- On December 11 & 15, 2017, conference calls were held with Division 2 and the design team. In these calls, differentiating the pervious and impervious surfaces was discussed to know available surface for stormwater permitting in regards to the parking. In addition, coordinating schedules for an onsite meeting with Stephen Lane, NCDCM, occurred.

#### *January 2018*

- On January 16, 2018, a meeting was held on site to review the existing conditions on the causeway and discuss how the causeway was already being used for parking with Stephen Lane, NCDCM. He was presented with the 19 space parking space Option 1A and requested to consider a variance to accommodate it. Mr. Lane said he would take his observations back to his office and would discuss the situation internally with NCDCM management. Mr. Lane requested a meeting prior to Concurrence Point 4A to discuss their conclusions.
- On January 26, 2018, the design team had a conference call with Stephen Lane and Cathy Brittingham, NCDCM, prior to Concurrence Point 4A to discuss the variance request to accommodate the Straits Fishing Pier Parking. Mr. Lane noted that the gravel areas that are currently used (informally) for parking should be considered as impervious surfaces. NCDCM makes no official determination regarding permitting variances at this time, and defers to NCDWR regarding stormwater regulations. However, they were in favor of pursuing options to provide 19 +/- additional spaces for access to public resources.



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