



National Park Service
U.S. Department of the Interior
Cape Hatteras National Seashore
North Carolina

FINDING OF NO SIGNIFICANT IMPACT
Bonner Bridge Replacement Project, Phase IIb,
Rodanthe Storm Breaches and Resulting
New Bridge Proposal
Environmental Assessment

Recommended:

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10/11/18
Date

Approved:

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10/4/18
Date

INTRODUCTION

The National Park Service (NPS) has prepared this Finding of No Significant Impact (FONSI) for the purpose of formally adopting the Revised Environmental Assessment and Section 4(f) Evaluation (EA) entitled “NC-12 Rodanthe Breach Long-Term Improvements Bonner Bridge Replacement Project Phase IIb” prepared by the United States Department of Transportation, Federal Highway Administration (FHWA) and North Carolina Department of Transportation (NCDOT) and issued May 13, 2016, and their subsequent record of decision (ROD) dated December 19, 2016. The NCDOT EA is available at:

(<https://www.ncdot.gov/projects/NC12Rodanthe/download/RodantheBreachEAMainBody.pdf>)

The NCDOT EA delineates in detail its selection of the **2014B Bridge on New Location Alternative** for the construction of a new bridge in the Pamlico Sound (project and subsequently referred to in Federal and State contract documents and drawings as “B 2500 Bii”), connecting North Carolina Highway 12 (NC 12) two miles above the Village of Rodanthe (Village) with a new two mile highway in the Sound for a distance of two miles and landing inside the Village at a new location. (Figure 1) Because construction will take place within the Cape Hatteras National Seashore (Seashore) the NPS must issue: 1) a Special Use Permit allowing construction activity to occur on the 150 feet of bridge over the sound which it owns in fee, and 2) a Federal Highway Easement Deed to NCDOT and FHWA for the same area.

The purpose of the new bridge is to by-pass a section of NC 12 located just above the Village known as the “S-Curves”. Frequent hurricanes, nor’easters, and scouring tides from the Wimble Shoals affect the coastline and create erosion and damage to the highway that required numerous repairs and shoring up over the years.

The NPS was a Cooperating Agency, together with the U.S. Coast Guard, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service (FWS) Pea Island National Wildlife Refuge (PINWR) on the NCDOT EA. The NPS has determined, after an independent review, the NCDOT EA has adequately addressed impacts to the Seashore and the comments and suggestions to the lead agency (NCDOT) during the National Environmental Policy (NEPA) compliance process have been satisfied. Because the NPS was a cooperating agency and the NCDOT EA complies with all NEPA-related requirements applicable to the NPS, the NPS is adopting the NCDOT EA without recirculating it (40 CFR 1506.3, 43 CFR 46.320).

This FONSI has been prepared in accordance with the requirements of NEPA, as amended, its implementing regulations (40 CFR 1500-1508), the Department of the Interior NEPA regulations (43 CFR 46), and NPS Director's Order 12, Conservation Planning, Environmental Impact Analysis and Decision-Making and accompanying handbook.

PROJECT HISTORY

This project is a culmination of ongoing and adaptive planning for the long term vehicular transportation needs for residents and visitors to the Outer Banks for Bodie, Pea, Hatteras and Ocracoke Islands. Planning efforts were conducted by a consortium of area state and federal agencies to assess transportation usage and to work together to find the best possible solutions to meet the long term transportation needs of the visitors and island residents of the Cape Hatteras National Seashore and nearby villages.



Figure 1.
2014 Bridge on New Location
Project B 2500 Bii

Loosely organized, the agencies began meeting in the early 1990's and called themselves the "Outer Banks Task Force" (OBTF). Working through funding issues needed to conduct the studies required to make informed decisions, it gradually became a NEPA planning body of Cooperating Agencies, formalized in name as the "Merger Team" (circa 2004). Participants included the United States Federal Highway Administration (FHWA), NCDOT, North Carolina Department of Environment, Health and Natural Resources (NCDNR), United States Army Corps of Engineers (USACE), NPS, United States Fish and Wildlife Service (FWS), and Dare and Hyde County Governments, as their respective interest appeared, from time to time.

Over the next ten years, at the request of and under the direction of the Merger Team, NCDOT funded or authored a number of environmental studies regarding the construction of a new bridge to replace the aging Bonner Bridge over Oregon Inlet. One of the earliest proposals evaluated a seventeen mile long bridge from the terminus of Bodie Island to the Village of Rodanthe, bypassing two hot spots. Following further studies, the seventeen mile bridge was ultimately withdrawn and then replaced with more modest proposals. The list of NEPA deliberative documents developed by the OBTF and subsequently the Merger Team leading to the final approval of the Bonner replacement bridge included four Environmental Impact Statements and one Environmental Assessment issued over 14 years, between 1996 and 2010. However, all of those studies have a common thread, the need to deal with the "hot spots" below the bridge, i.e., areas of frequent overwash or ocean inlets into the Pamlico Sound.

As detailed in the Seashore's earlier Record of Decision issued September 11, 2015, adopting the selected alternative from a NCDOT Final Environmental Impact Statement (FEIS) dated September 17, 2008 and a NCDOT Environmental Assessment (NCDOT EA) updating the NCDOT FEIS issued May 7, 2010, the Merger Team considered eight Alternatives. The team concluded that the Parallel Bridge Corridor with NC 12 Transportation Management Plan (PBC/TMP) was the preferred and selected alternative. This alternative provided for the construction of a new bridge in the parallel corridor of the existing bridge to be built as soon as possible, followed by interagency collaboration with appropriate public coordination to develop

a NC 12 Transportation Plan across or around Pea Island to Rodanthe, implementing adaptive management as coastal conditions warranted.

NCDOT began taking steps to construct the new bridge. On July 1, 2011, the Defenders of Wildlife and The National Wildlife Association filed suit against NCDOT and others, alleging violation of NEPA and Section 4(f) of the Department of Transportation Act. A settlement of the case was accomplished April 30, 2015. Shortly thereafter, contracts were let for construction of the new Bridge within the Parallel Corridor and the Merger Team began its work on a new NC 12 Transportation Plan for points south of the new bridge.

However, during the almost four year hiatus between the filing of the lawsuit (July 2011) and the consummation of its settlement (April 2015), a number of environmental events greatly impacted the study area of the NC 12 Transportation Plan, with which the Merger Team was now forced to evaluate:

- On August 27, 2011, Hurricane Irene came ashore along the Pamlico Sound just south of Ocracoke Island and proceeded due north up the sound onto the U.S. midland. The impact and damage to the Outer Banks communities and its inhabitants was significant.
 - A former inlet hotspot reopened at “New” Inlet (originally opened in the 1950’s, but reclosed of its own accord shortly thereafter) five miles above Rodanthe.
 - At the S curves, NC 12 buckled and was washed away by the intensity of the wind and water.
- NCDOT was able restore the highway at “New” Inlet by building a temporary military steel bridge across the inlet and reopen Hwy 12 by filling in the breach at the S Curves with large sandbags laid along the highway and covered with sand to create an artificial dune buffer against the Ocean.
- This same area was revisited again on October 27, 2012 by Hurricane Sandy which virtually followed the same route as Hurricane Irene onto land, up the sound, but then returned to the ocean above Kitty Hawk, NC. Again, Hwy 12 was breached at the S Curves and again temporary repairs were made to the highway with additional sand bags and sand, but a series of Winter Nor’easters followed, overwaking the S Curves and closing Hwy 12 for days at a time
- On March 19, 2013, the Governor of the State declared a State of Emergency at the site and NCDOT began making emergency plans and to take steps to nourish the ocean beach for a mile above and below the S Curves with 1.7 million cubic yards of compatible sand dredged from dredge sites in the ocean near Wimble Shoals off the shores of Rodanthe. Emergency permits were issued as needed and the project was completed in 2014.

The current project under consideration is mostly situated on PINWR. The Seashore only involvement in the project at hand is by virtue of a land grant in the form of a deed issue by the Governor of the State of North Carolina, in 1958, granting 150 ft. of land and water as extended from the mean low water line of Pea Island west into the Pamlico Sound. Thus the Seashore’s land interest is very a small. The land and water interest totaling 15,000 sq. ft. is 0.344 acres

(Ac.), and being 100 ft. in width of shoreline x 150 ft. length of Pamlico Sound waters. (Figure 2.)

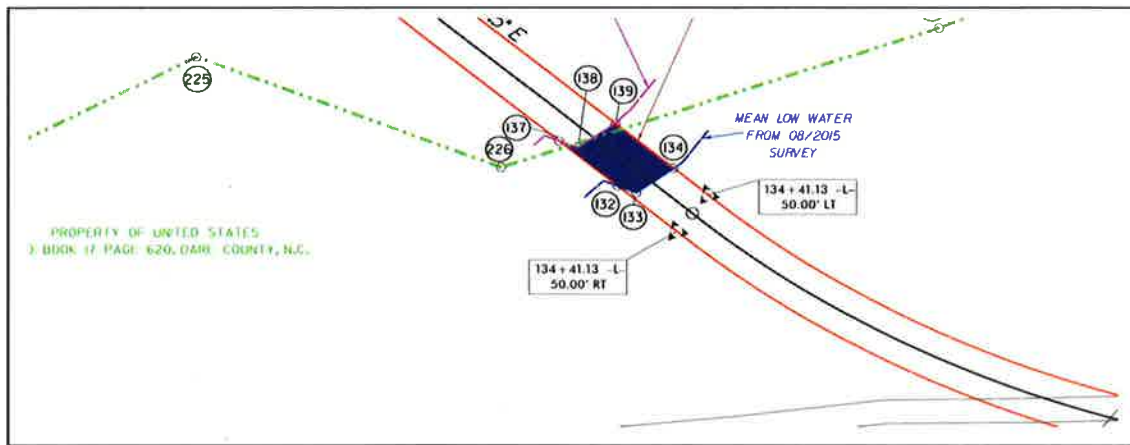


Figure 2.
Seashore's Bridge Tract
Project B 2500 Bii

PURPOSE AND NEED FOR ACTION

The purpose of this FONSI is to review and adopt the NCDOT EA selection of a preferred alternative from a number of reviewed alternatives for the proposed construction of a new bridge on Seashore land and water thereby relocating existing NC 12 from its precarious Atlantic Oceanside location to a safer and more maintainable Pamlico Sound location.

SELECTED ALTERNATIVE

Of the alternatives considered, the 2014B Bridge on New Location Alternative, the preferred alternative and the least environmentally damaging practicable alternative, is adopted by the NPS as our preferred alternative.

ALTERNATIVES CONSIDERED

Four alternatives were considered for the Phase IIb project area that would extend from within the PINWR south to the intersection of NC 12 and Myrna Peters Road (SR 1492) in Rodanthe. They were:

- Beach Nourishment Alternative
- Bridge within Existing NC 12 Easement Alternatives
- Bridge within Existing NC 12 Easement and Beach Nourishment Alternative
- Bridge on New Location Alternative

In light of the storm and hurricane impacts to the area over the past four years, the first three alternatives were eliminated because of the uncertainty of locating suitable sand for a sustainable future of 50 years, their inability to adequately protect Hwy 12 from future breaches, and their failure to allow nature processes to occur.

The Bridge on New Location Alternative was selected as a detailed study alternative by the Merger Team in 2012, and three alignments within the Bridge on New Location Alternative corridor were developed and assessed in the NCDOT EA. They were:

- 2013 Bridge on New Location Alternative
- 2014A Bridge on New Location Alternative
- 2014B Bridge on New Location Alternative

They differ in their location within Pamlico Sound. The 2013 alignment was the original alignment assessed in the 2013 Phase IIb EA. The other two alignments were developed in 2014 in order to minimize impacts to dense submerged aquatic vegetation (SAV) beds in response to comments from federal and state environmental resource and regulatory agencies. SAV beds are part of Essential Fish Habitat (EFH) and provide spaces and natural resources for fish to spawn, breed, feed and grow to maturity.

RATIONALE AND BASIS FOR THE DECISION

The rationale providing the basis for selection included

- It minimizes impacts and harm to the PINWR and the Seashore.
- It bypasses the eroding shoreline, including hot spots, and bypasses the entire area considered geologically susceptible to breaches in the Rodanthe/ Mirlo Beach area.
- It maximizes the long-term reliability (defined as 50 years) of NC 12 in the project area.
- It avoids notable community impacts along NC 12.
- It provides more reliable accessibility on NC 12 that would benefit Hatteras Island, Ocracoke Island, Dare County, and the entirety of North Carolina.
- It would minimize impacts to dense beds of SAV.
- It takes into consideration public review comments, including comments by residents, business owners, and property owners in the section of Rodanthe affected.
- It takes into consideration consultation with: the State Historic Preservation Office (SHPO) under the National Historic Preservation Act of 1966; the FWS and National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act; the NMFS the Fisheries Management Council/Commissions (FMC) under the Magnuson-Stevens Fishery Conservation and Management Act; and other state and federal environmental resource and regulatory agencies.

MITIGATION MEASURES

The NPS places strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, the following protection measures will be implemented as part of the selected alternative, particularly those impacting the Seashore's interest as the owner of

100 ft. of soundside shoreline extending into the water for 150 ft. To allow construction of this project to begin, the Seashore will issue: 1) a Special Use Permit (SUP) allowing construction activity to occur on 150 ft. of Seashore property, and 2) a Federal Highway Easement Deed (HED) to NCDOT and FHWA for the same area. The Seashore has the obligations to protect and require mitigation to the fullest practicable extent for resource impacts and disturbances. The area is in a remote section reachable by four wheel vehicle and has seen no significant human activity until it was selected for the location of the new bridge into Rodanthe.

The project's proposed location and bridge design has been developed to minimize environmental concerns of the coordinating federal and state agencies for the adverse impacts to the Pamlico Sound's seabed, shores and beaches. The project design utilizes an Advancing Rail System (platform) on temporary rail pilings rising above the ground from NC 12 and reaching a full height of 18 ft. above surface within the span of seven bents. (Figure 3.) ("Bents" are substructures that support the bridge, in this case three concrete 54" hollow pilings.) Accordingly, the platform will be well above the land as it first approaches the Seashore's tract. The entire 2.3 mile bridge structure will utilize 110 bents.) All construction will occur on the platform at its takeoff from NC 12 in PINWR until it touches down in the village of Rodanthe.

This elevated construction platform limits the permanent impacts to the Seashore land and water to only 2 bents of three 54" concrete pilings each. Temporary impacts and disturbances consist of 48, 24" hollow metal pilings and temporary containment areas around each set of permanent pilings to capture water jetting spoils used to insert the piling into the ground, all which will be removed as the platform advances past the site. All staging and transportation of workers, supplies and materials will occur on the advancing platform and the bridge constructed behind it or at designated staging sites at the beginning and end of the project, either on Hwy 12 or in the Village of Rodanthe. The temporary impacts to waters within the Seashore will be the temporary installation of 48 rail pilings which will be driven into the Sound's subsurface by the leading platform cranes and then removed by the trailing truck cranes as the project advances forward. Six permanent pilings for the bridge itself will be installed by water jetting. Prior to each bent installation, a temporary containment system will be placed within the water to capture sediment spoil from the jetting process. Once the bents are installed, the spoils will be suctioned out of the containment system and either used to fill the temporary pilings holes or disposed offsite.

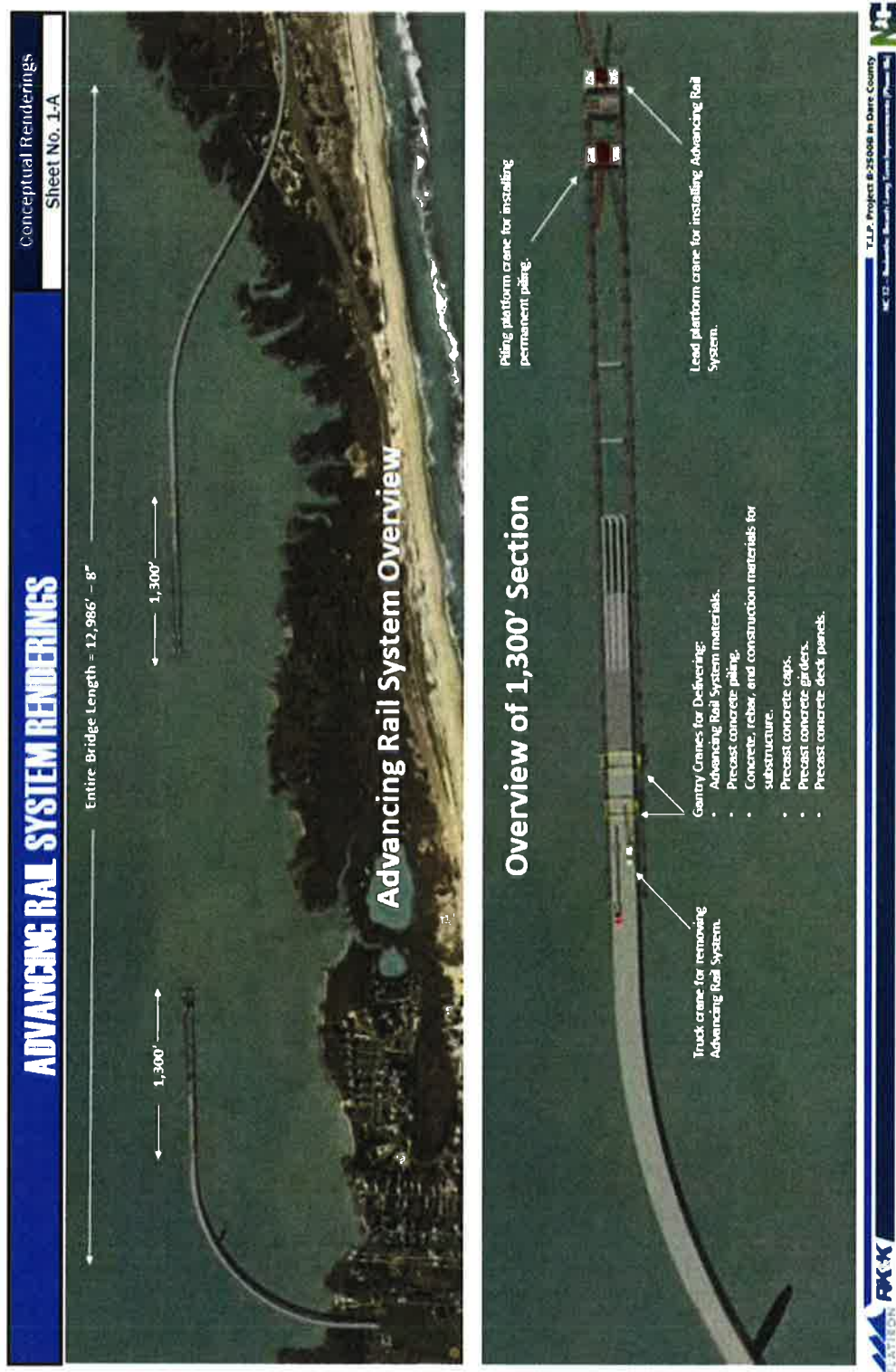


Figure 3.
Advancing Rail System for Construction
Project B-2500 Bii

FINDING OF NO SIGNIFICANT IMPACT

-Biotic Communities, Intertidal Beach and Mudflats (Wetlands)

The NCDOT EA at p. 4-8 (Section 4.1.5) discusses at length the biotic communities found within the project area of PINWR covering approximately two and one-half miles of Pea Island and the much smaller intertidal beach and wetlands of the Seashore. Seashore lands and water extend from the MLW line 150 ft. into the sound. The Seashore's jurisdictional wetlands in this area extend from the land between the MLW and the mean low low water line (MLLW), constituting intertidal beach and mudflats, and are estimated to be 0.0023 Ac. Dominant wetland vegetation includes mixtures of smooth cordgrass (*Spartina alterniflora*), black needlerush (*Juncus roemerianus*) and saltmeadow cordgrass (*Spartina patens*). Anticipating that some human disturbance to the area will occur with workers retrieving debris (soda cans and paper trash blown off of the bridge), or accessing the removal of the jetting spoil to a pump out truck on the bridge deck, safeguards are required to minimize, if not wholly prevent any adverse impacts to the Seashore's intertidal beach and mudflats. Seashore permitting will require that not less than three feet east of the Sound's MLW at the construction site, a four foot high orange construction plastic fence be erected along the width of the right-of-way (100 ft.) The purpose of the barrier is to construct a center pathway channeling any potential foot traffic across a temporary foot bridge over the intertidal beach and mudflats and into the sound, to be maintained until the Advancing Rail System advances passes the Seashore's construction site, estimated to take between five to eight months. Accordingly, the Seashore believes that there will be limited and only minor impacts to the biotic communities, intertidal beach, mudflats constituting the Seashores jurisdictional wetlands.

As an additional precaution, the Seashore requires and NCDOT has agreed to fully comply with NPS Procedural Manual #77-1 Wetland Protection Append 2: *Best Management Practices and Conditions for Proposed Action with the Potential to Have Adverse Impacts on Wetlands* which will also have the long-term laudatory effect of protecting water quality by reducing turbidity.

-Submerged Aquatic Vegetation (SAV) and Essential Fish Habitat (EFH)

In general, in the Phase IIb project area, waters less than 6 ft. in the Sound are considered potential SAV habitat. The North Carolina Marine Fisheries Commission defines SAV habitat as an area that is currently vegetated with one or more appropriate (native) SAV species, or an area that has been vegetated by one or more appropriate species within the past 10 annual growing seasons and meets the average growing conditions need (water depth of 6 feet or less, average light availability [Secchi depth of 1 foot or more], and limited wave exposure). The primary SAV vegetation for the project area is eelgrass (*Zostera marina*), widgeon grass (*Ruppia maritima*) and shoal grass (*Halodule wrightii*). Within the Sound itself, areas of SAV vary between patchy to developed beds, depending on location and water depth. The Seashore's waters beneath the bridge contain several small beds with the remaining area containing patchy or no SAV coverage. In part, because of the salinity of the Sound at 20 ppt. compared with the Ocean at 35 ppt., and the presence of SAVs, it is considered EFH. The SAV beds make up a large part of the Seashore's EFH, providing cover and moderating wave action for large numbers

of native organisms, shell fish, blue crabs, spotted seatrout, menhaden, herring, shad, spot, croaker, weakfish, red drum, striped bass and perch. SAV absorb overabundance of nitrogen and phosphorus from upstream human activities, and improve water quality by reducing suspended particles on the sound floor.

Impacts to EFH and SAV will be minimized through the use of the Advancing Rail System to reduce sound floor disturbances and by containing pile jetting spoil. The pile jetting process will temporarily increase water turbidity and the burial of organisms. The mitigation proposed requires the contractor to minimize turbidity and water quality degradation by containing the jetting spoil. Turbidity curtains and/or containment areas shall be required around each supporting piling that is placed into the ground utilizing water jetting to reach its supporting depth. Plastic geogrid matting will be placed on the existing submerged surface to delineate between the sound bottom and sand spoil. Turbidity curtains will be deployed around each bridge bent as the bent's piling are being jetting into the ground. Spoils from the jetting shall then be removed from the site for disposition at appropriate sites outside the project area or utilized within holes created by temporary rail pilings if needed. All silt fencing, turbidity curtains and containment areas will be maintained until the spoil has been removed and the Advancing Rail System has moved past the area.

Potential SAV impact from the spoil will vary based on the depth of cover and the length of time covered and the time of year the spoils will be in place (in or out of growing season). Accordingly, NCDOT will monitor the SAV after removal of the spoils to determine the amount of permanent impact. Temporary impacts to SAV beds from the spoils containment system are calculated to be 4,566 sq. ft., and 150.89 sq. ft. from the supporting pilings for the Advancing Rail System, totaling 0.10 Ac. Of that, the Seashore calculates that the only permanent impact will be 0.0002 Ac. due to the use of the six permanent pilings. Over all, the impact to SAV from the new bridge will be minimal due to the height of the bridge (18 ft.) thereby reducing shading, the low density of existing SAV beds due to the shallowness of the water and the natural wave action along the shore.

The NCDOT EA (p. 4-49) indicated that compensatory mitigation would occur as part of permitting process with NPS and the other cooperating agencies. NCDOT's proposal for SAV mitigation is to remove and replant all SAVs growing within the footprint of the supporting pilings and to provide for compensatory mitigation at a 2:1 ratio for the impacts to SAVs within the primary containment areas. The location of the plantings will be determined in coordination with the appropriate agency representatives.

-Water Quality and Turbidity

In addition to adopting NPS's Best Management Practices as noted above, NCDOT has affirmed it will apply its best management practices for high quality waters for erosion and sediment control for bridge surfaces and surrounding soil, which will be employed from the very beginning of construction and incorporated into all of the design work for the project. Permit conditions will require NCDOT and/or its contractors to develop a spill prevention and pollution control plan to minimize impacts to wetlands, seagrasses, and the waters of Pamlico Sound which must be approved by the Seashore. Construction materials must be chosen to minimize

adverse impacts to the site, using untreated wood and biodegradable or recyclable materials where possible. Refueling of any type must be done on concrete or asphalt or a spill containment box and pad. Equipment must be clean of mud and debris, free of fluid leaks upon arriving at the work platform and must be inspected daily for leaks. All equipment and vehicle repairs must occur off site unless impractical to do so and then a spill containment area must be used for such repairs.

-Endangered and Threatened Species

NCDOT will implement nondiscretionary measures for the *rufa* red knot (*Calidris canutus rufa*) included within the terms and conditions outlined in a 2015 Addendum to the Biological and Conference Opinions. To avoid construction impacts to protected sea turtles, Atlantic sturgeon, and shortnose sturgeon. NCDOT will comply with NMFS' March 23, 2006, Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006) that restrict inwater construction-related activities when these protected species are observed in the project area. NCDOT will also implement the nondiscretionary measures for the piping plover (*Charadrius melodus*), and sea turtles (green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), and loggerhead sea turtle (*Caretta caretta*) included in the terms and conditions outlined in a 2008 Biological and Conference Opinions and subsequent amendments. This includes the use of a 36-inch high bridge rail parapet. Likewise, in accordance with the Biological and Conference Opinion, a foot survey of the project area for seabeach amaranth (*Amaranthus pumilius*), a "threatened" species, was accomplished August 24, 2017, by four field scientists and engineers and no species were located within the area. All watercraft servicing the bridge or otherwise providing a support function for the project will be regularly briefed on the possible presence of the West Indian manatees (*Trichechus manatus*) in the sound and accordingly must be watchful for their presence and avoid approaching them under all circumstances.

-Cultural Resources

No cultural resources within the Seashore will be affected by the Phase IIb Selected Alternative. Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470f), affords consideration of properties that are listed, or eligible for listing, on the NRHP. To further minimize and mitigate impacts on these historic cultural resources, FHWA, SHPO, the Advisory Council on Historic Preservation (ACHP), and NCDOT participated in the Section 106 consultation process. The process culminated in the developed a Programmatic Agreement (NCDOT EA p.viii) which stipulates the measures that NCDOT and FHWA will carry out during the design and construction of the Phase IIb Selected Alternative to mitigate adverse impacts to the historic cultural resources. In the Phase IIb agency coordination, SHPO, USFWS, and NCDOT agreed on a bridge rail design for the Selected Alternative consisting of a 36-inch concrete parapet with two bar metal railing. The consultations and Programmatic Agreement have adequately identified the historical cultural resources and provided for their protection.

Construction of the Phase IIb Selected Alternative will be governed by:

- NCDOT's *Standard Specifications for Roads and Structures* (NCDOT, January 2012, or as current at the time of construction)

- American Association of State Highway and Transportation Officials' (AASHTO) *LRFD Bridge Design Specifications* (AASHTO, 2014), or as current at the time of construction)

CONCLUSION

As described briefly above and in detail in Chapter 4 of the EA (pages 4-8 through 4-13), the selected alternative has the potential to cause short term and long term adverse impacts to submerged aquatic vegetation, essential fish habitat, water quality and turbidity. However, through the planned mitigation techniques and measures outlined herein, no significant adverse impacts were identified.

The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2) (C) of NEPA. Therefore, an EIS is not required for this project and will not be prepared.
