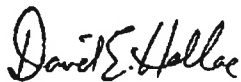


REPLACEMENT AND DEMOLITION OF THE HERBERT C. BONNER  
BRIDGE, NORTH CAROLINA DOT FINAL ENVIROMENTAL IMPACT  
STATEMENT (2008) / ENVIROMENTAL ASSESSMENT (2010)

NATIONAL PARK SERVICE RECORD OF DECISION

Recommended:

Date:



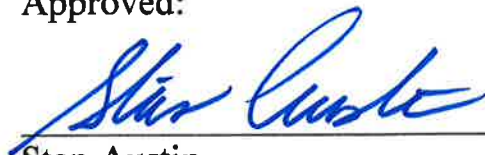
9/3/2015

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David E. Hallac  
Superintendent  
Outer Banks Group

Approved:

Date:



9/11/15

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Stan Austin  
Southeast Regional Director  
National Park service

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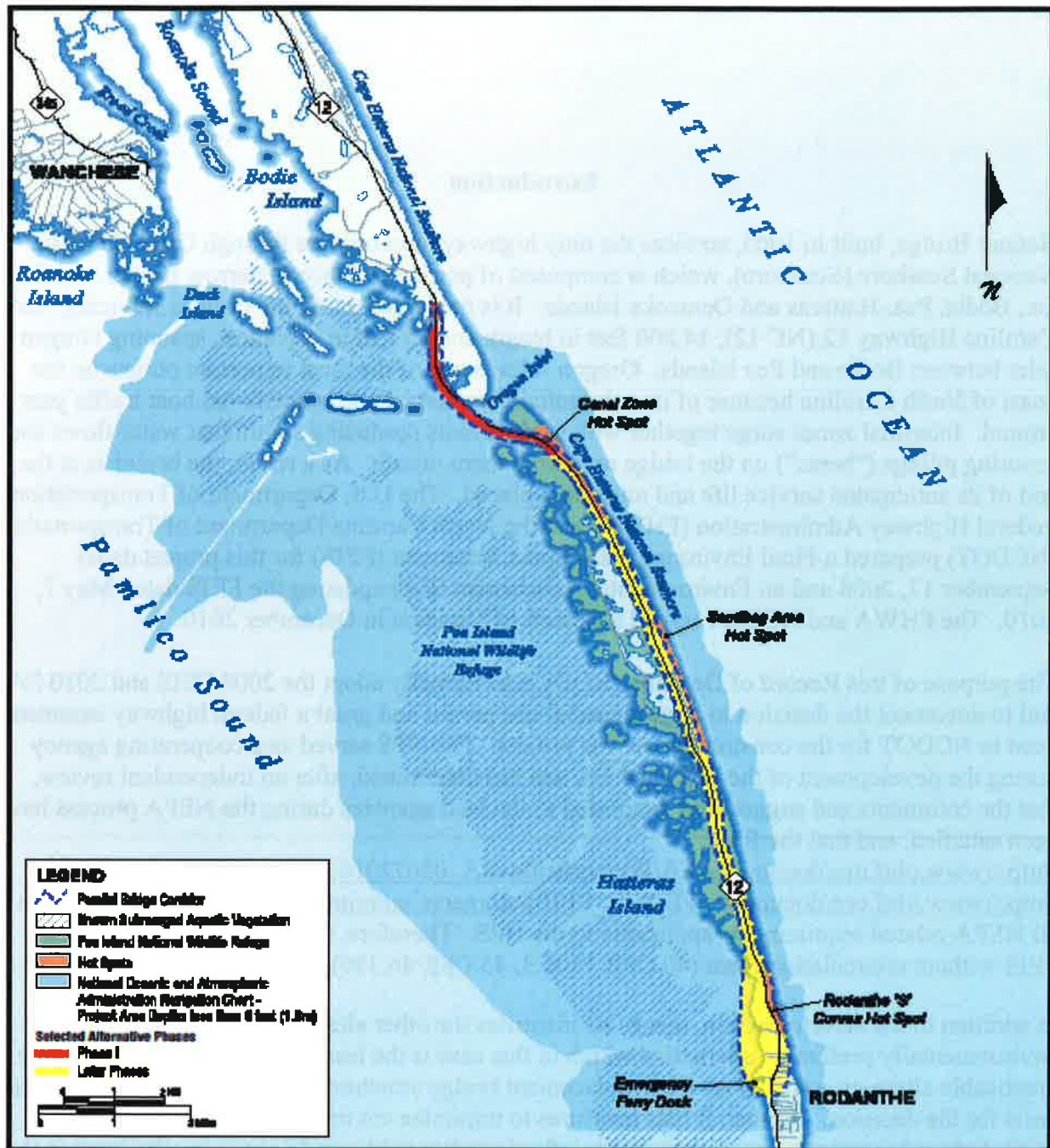
## **Introduction**

Bonner Bridge, built in 1963, services the only highway thoroughfare through Cape Hatteras National Seashore (Seashore), which is composed of portions of several narrow barrier islands, i.e., Bodie, Pea, Hatteras and Ocracoke Islands. It is the largest of all the bridges servicing North Carolina Highway 12 (NC 12), 14,800 feet in length and 95 feet in elevation, spanning Oregon Inlet between Bodie and Pea Islands. Oregon Inlet is one of the most important outlets on the coast of North Carolina because of its substantial commercial and recreational boat traffic year around. Intertidal zones surge together with storm events producing significant water flows and scouring pilings (“bents”) on the bridge rendering them unsafe. As a result, the bridge is at the end of its anticipated service life and must be replaced. The U.S. Department of Transportation, Federal Highway Administration (FHWA) and the North Carolina Department of Transportation (NCDOT) prepared a Final Environmental Impact Statement (FEIS) for this project dated September 17, 2008 and an Environmental Assessment (EA) updating the FEIS dated May 7, 2010. The FHWA and NCDOT issued a Record of Decision in December 2010.

The purpose of this Record of Decision (ROD) is to formally adopt the 2008 FEIS and 2010 EA and to document the decision to issue a special use permit and grant a federal highway easement deed to NCDOT for the construction of this project. The NPS served as a cooperating agency during the development of the FEIS and EA and has determined, after an independent review, that the comments and suggestions submitted to the lead agencies during the NEPA process have been satisfied, and that the EA

([http://www.obtf.org/documents/EA/BonnerBridgeEA\\_05072010.pdf](http://www.obtf.org/documents/EA/BonnerBridgeEA_05072010.pdf)) and FEIS ([http://www.obtf.org/documents/FEIS/02\\_FEISSummaryCommitmentsTOC.pdf](http://www.obtf.org/documents/FEIS/02_FEISSummaryCommitmentsTOC.pdf)) comply with all NEPA-related requirements applicable to the NPS. Therefore, the NPS adopts the EA and FEIS without recirculating them (40 CFR 1506.3, 43 CFR 46.320).

In addition to the selected action, this ROD identifies the other alternatives considered and environmentally preferable alternative which in this case is the least environmentally damaging practicable alternative (LEDPA) for a replacement bridge structure in an estuarine setting and the basis for the decision. Further, it lists measures to minimize environmental harm, discusses mitigation and monitoring measures, and briefly describes public and agency involvement in the decision-making process. This document contains a map (Figure 1) of the project discussed herein and designated “Phase One” and subsequent phases which will be developed in the coming months after additional interagency collaboration and appropriate public coordination occurs. Attached to this ROD is the NPS “Non-impairment Determination” for the selected action.



**SELECTED ALTERNATIVE**

**Figure  
1**

## **Purpose and Need**

As recited in Section 1.2 of the 2008 FEIS, the purposes of the project are to:

- Provide a new means of access from Bodie Island to Hatteras Island for its residents, businesses, services, and tourists prior to the end of Bonner Bridge's service life.
- Provide a replacement crossing that takes into account natural channel migration expected through year 2050 and provides the flexibility to let the channel move.
- Provide a replacement crossing that should not be endangered by shoreline movement through year 2050.

## **Background – History of Planning & Documentation**

Since the end of World War II, annual visitation to the “Outer Banks” began to steadily climb each year and more collaborative planning was initiated by the agencies responsible for the safekeeping of the visitors and the resources in the barrier islands making up the Seashore. A consortium of State and Federal Agencies came together in the early 1990's to become what would later be called the “Outer Bank Task Force” (Task Force) dedicating themselves to working together to improve the corridor transportation ribbon running through islands from Whalebone Junction on Bodie Island to Ocracoke Island. At the top of their list was to address “hot spots,” areas that perennially were over washed and flooded by the ocean during storms and nor'easters.

After a series of meetings in early 1993, the Task Force adopted a formal organization structure with NPS and NCDOT elected as co-chairs of a “Partnership for the protection and maintenance of a transportation system on the North Carolina's Outer Banks”. Additional membership included:

Federal Highway Service (FHWA),  
North Carolina Department of Environment, Health, and Natural Resources (NCDENR),  
U.S. Army Corps of Engineers (USACE), and  
U.S. Fish and wildlife Service (USFWS).

The “Partners” began work in earnest on a planning document for the replacement of the Bonner Bridge and thus began a series of environmental reviews focused on replacing the Bridge. *The NPS was a Cooperating Agency on each and all of the following documents.*

### 1993 Draft Environmental Impact Statement (DEIS)

A DEIS was released by NCDOT for review in November 1993. The DEIS assessed a single preferred alternative, the Parallel Bridge Corridor across Oregon Inlet. After the release of the DEIS, public hearings were held in early 1994. Comments were received regarding the DEIS from the public and from federal, state, and local agencies. In 1994 the “Partnership” grew with the addition of the following entities:



National Marine Fisheries Service (NMFS),  
Dare County (Dare), and  
Hyde County (Hyde).

Thereafter, all of the state and federal “Partners”, with the exception of the two county governments, were Cooperating Agencies on all subsequent environmental planning documents. (Historical note – The Task Force continued to meet regularly addressing transportation issues, engage in transportation studies and develop NEPA documents until around 2000 when USACE, one of the primary funding contributors to the Task Force lost its funding to continue transportation studies. Soon after, NCDOT began its Merger Team process specifically for the Bonner Bridge replacement basically comprised of all of the same “Partners” in the Task Force.)

1996 Final Environmental Impact Statement (FEIS)

A preliminary FEIS was prepared by NCDOT; however, a decision document was never signed because formal consultation with the USFWS under Section 7 of the Endangered Species Act was not completed.

2005 Supplemental Draft Environmental Impact Statement (SDEIS)

A decision was made in 2001 to prepare a SDEIS. Work on the SDEIS began in 2002 by NCDOT with a new study of potential Bonner Bridge replacement alternatives. The study area was expanded south to encompass NC 12 south to Rodanthe because NC 12 had begun to be regularly threatened by shoreline erosion and overwash. The SDEIS was completed in September 2005. The SDEIS assessed five alternatives in two corridors, the Pamlico Sound Bridge Corridor and the Parallel Bridge Corridor. Two Public Hearings were held by NCDOT in November 2005.

2007 Supplement to the 2005 Supplemental Draft Environmental Impact Statement (SSDEIS)

A proposal made during the comment period following the release of the SDEIS led to the development of two additional Parallel Bridge Corridor alternatives by NCDOT. Those alternatives were assessed in the Supplement to the SDEIS. Two Public Hearings were held by NCDOT in March 2007.

2008 Final Environmental Impact Statement (FEIS)

The FEIS was issued by NCDOT in September, 2008. It identified the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge as the Preferred Alternative and addressed public comments received on the SDEIS and SSDEIS.

2010 Environmental Assessment (EA)

Several modifications were made to the alternatives to respond to comments on the 2008 FEIS. The purpose of the EA was to document these modifications and to determine whether there were any new, significant issues not addressed in the 2008 FEIS and whether a Supplemental FEIS was needed. A draft EA was prepared and completed by NCDOT on May 7, 2010. The EA included the following:

- The decision to add a new detailed study alternative (Parallel Bridge Corridor with NC 12 Transportation Management Plan) and select it as the Preferred Alternative.
- The elimination of the Pamlico Sound Bridge Corridor alternatives as detailed study alternatives.

Two Public Hearings were held by NCDOT in July 2010. Based on this review, NCDOT determined that the changes identified in the EA did not result in any new significant impacts not previously identified and accordingly a Supplemental FEIS was not required. NCDOT and FHWA issued a Record of Decision in December of 2010.

### **Alternatives Considered But Not Selected**

The seven alternative studies were completed over the course of the project's development, which ultimately yielded the eight alternatives evaluated in detail in the SDEIS (five alternatives), SSDEIS (two alternatives), the FEIS, and the EA (one alternative).

Full descriptions of each study are presented in Chapter 2 of the 2008 FEIS and Chapter 2 of the 2010 EA and are summarized below.

The eight alternatives analyzed in detail in the FEIS and EA for the replacement of the Bonner Bridge are located within two replacement bridge corridors. The two corridors are: the Pamlico Sound Bridge Corridor and the Parallel Bridge Corridor with NC 12 Maintenance. The Pamlico Sound Bridge Corridor and its associated two alternatives were dropped as detailed study alternatives in the EA for reasons presented in Section 2.2 of the EA. The alternatives associated with the Parallel Bridge Corridor that were not ultimately selected are:

- No-action Alternative.
- With Nourishment.
- With Road North/Bridge South.
- With All Bridge.
- With Phased Approach/Rodanthe Bridge
- With Phased Approach/Rodanthe Nourishment
- With NC 12 Transportation Management Plan.

The No-action Alternative assumed the Bonner Bridge would be demolished at the end of its service life and not replaced. This would severely limit accessibility of the barrier islands for residents, visitors, workers, and off-island goods and services. This lack of accessibility would adversely affect the economy of the islands, as well as the provision of emergency medical services, fire and police protection, schools, solid waste disposal and utility services.

The Nourishment Alternative assumed that NC 12 would remain in its current location, and beach nourishment combined with dune enhancement would be used to maintain an adequate beach and dune system. The total length of beach requiring regular nourishment would be approximately 6.3 miles. Nourishment would occur in four locations, likely repeated at four-year intervals through the design life of the project.

With the Road North/Bridge South Alternative NC 12 would be placed on a bridge west of Hatteras Island beginning at a new intersection in Rodanthe (as revised in the EA) and continuing to a point approximately 2 miles north of the Refuge's southern boundary where the

project would meet existing NC 12. NC 12 would then remain unchanged for 2.6 miles. Beginning at a point approximately 1.3 miles south of the Refuge's ponds, NC 12 would be relocated as a road on the ground to a point 230 feet west of the forecast 2060 high erosion shoreline. This relocation would continue 7.1 miles north until the relocated NC 12 would meet the Oregon Inlet Bridge. Three 10-foot-high dunes, totaling 2,100 feet in length, would be built adjacent to the relocated road, but not immediately. They would be built when needed as the shoreline erodes towards the relocated road. The first one was not expected to be needed until 2030.

The All Bridge Alternative would include the same bridge in the Rodanthe area (as revised in the EA) as the Road North/Bridge South Alternative. In the central and northern part of the Refuge, NC 12 would be constructed on a bridge to the west of the existing road. Two road segments would be included in this relocation, one near Oregon Inlet and one just north of the Refuge's ponds, where access from NC 12 to the Refuge would be provided. Access to the Refuge also would be available in a 1.8-mile section of NC 12 that would be left unchanged between the Rodanthe area bridge and the beginning of the next bridge section south of the ponds. The bridges associated with this alternative would span the five potential storm-related island breach locations, some of which extend outside the hot spot areas.

Two Phased Approach alternatives assume an Oregon Inlet bridge, as well as elevating portions of NC 12 through both the Refuge and northern Rodanthe within the existing NC 12 easement. Two southern termini, defined by their different stabilization methods for NC 12 in Rodanthe, were considered:

- With the Phased Approach/Rodanthe Bridge Alternative, the bridge in the existing NC 12 easement would begin in Rodanthe just north of Laura Lane (approximately 0.8 mile south of the Refuge boundary as reflected in the EA) and extend north to Oregon Inlet except for the 2.1-mile section of NC 12 in the southern half of the Refuge that would not be threatened by erosion prior to the year 2060. Access to properties adjacent to the bridge in Rodanthe would be provided by a one-lane, one-way frontage road on each side of the NC 12 bridge.
- The Phased Approach/Rodanthe Nourishment Alternative would be similar, except the southern end of the NC 12 bridge would begin 0.3 mile south of the Refuge/ Rodanthe border. Beach nourishment would be used to protect NC 12 in Rodanthe.

The NC 12 Transportation Management Plan Alternative was a variation of the Parallel Bridge Corridor alternatives assessed in the FEIS. It called for Phase I Oregon Inlet Bridge to be rebuilt as soon as possible, followed by interagency collaboration and appropriate public coordination prior to the implementation of later phases as coastal conditions warrant. The details of the later phases would be determined, reevaluated, and documented through collaboration with the Merger Team and other stakeholders, including the public.

### **Basis for Selection of the Selected Alternative**

During a May 21, 2009 Merger Team meeting (Section 3.3.3 of the EA), the US Environmental Protection Agency (USEPA) representative suggested that NCDOT move forward with an alternative that would include the construction of a replacement for Bonner Bridge immediately



while not prescribing a solution for the remainder of the project at this time. For determining solutions for later phases of the project, it was recommended that an interagency, collaborative adaptive management strategy be developed. Following the meeting, FHWA and NCDOT developed a description of a new alternative, which eventually become the Selected Alternative, entitled the **Parallel Bridge Corridor with NC 12 Transportation Management Plan**. The description of the alternative was circulated to the Merger Team for review and was revised based on agency comment.

The Merger Team agreed that the concept of the NC 12 Transportation Management Plan Selected Alternative fit within the terms of the August 27, 2007, Concurrence Point 3 Agreement in that it was the “least environmentally damaging practicable alternative” (LEDPA) allowing the project to move forward in a timely manner.

The following observations were made at the May 21, 2009, meeting that led to the determination of this alternative as the LEDPA:

- The August 27, 2007, Agreement found that the Pamlico Sound Bridge Corridor is not practicable and that the Parallel Bridge Corridor includes several different alternatives that could be considered in the future when future conditions are better known.
- The August 27, 2007, Agreement, while identifying the Phased Approach/Rodanthe Bridge alternative as the LEDPA, left open the opportunity to reconsider the features of phases beyond Phase I (new Oregon Inlet bridge) because it was felt that future coastal conditions were uncertain in the Refuge.
- The environmental impact of multiple Parallel Bridge Corridor alternatives had been evaluated and documented based on thorough research related to potential future coastal conditions in the project area.
- Despite thorough coastal studies prepared during the environmental impact assessment, it was not appropriate to determine the specifics of future phases of a Parallel Bridge Corridor alternative at that time given there was a great deal of uncertainty in even the best models of future shoreline conditions.
- It was necessary to build Phase I immediately and the specific features of the rest of the project should be examined in more detail at the time they are to be built, when future conditions are more known.
- An adaptive management plan should be developed to assist with cooperative decision-making for future decisions related to the project.
- State and federal environmental resource and regulatory agencies should be involved in future phase development.
- The regulatory challenges associated with finalizing future phases would likely remain when developing future phases.

All agencies in attendance at the May 21, 2009, Merger Team meeting agreed that NCDOT and FHWA could move forward with the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative as the Preferred, and now Selected Alternative based on the August 27, 2007, Agreement. Based on discussions at the Merger Team meetings on May 21, 2009, and September 17, 2009, an amendment to the August 27, 2007 Agreement was prepared and signed by the Dispute Resolution Board on January 7, 2010 (see Appendix A of the EA). The LEDPA agreement amendment does not change the intent of the original Agreement

“beyond the understanding that the Phased Approach/Rodanthe Bridge alternative is no longer considered and identified in this ROD as the LEDPA.” The amendment stipulates that “Phase I of the project will be the construction of the replacement bridge over Oregon Inlet within the Parallel Bridge Corridor as soon as possible.” It also stipulates that any option considered for future phases of the project beyond Phase I “will be evaluated and selected with multi-agency input and concurrence as part of the Merger Process.”

The amendment agreement affirmed that the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative is consistent with the original August 27, 2007, agreement. The amendment agreement stated:

At this time, there is no formally prescribed alternative for the remaining phases of the project south of Oregon Inlet. One or more of a combination of options, drawing from the alternatives previously studied, as well as any other alternatives determined at the time to be reasonable, practicable and feasible, will be evaluated, designed, and finalized prior to the implementation of actions beyond Phase I. Any option will be evaluated and selected with multi-agency input and concurrence as part of the Merger Process. The agencies do agree that permits will not be granted for the remaining phases of work until their applicable laws and regulations have been satisfied.

## **Description of the Selected Alternative**

### ***Phase I***

Phase I of the Selected Alternative, as described in Section 2.3.2.1 of the EA, will consist of the replacement of Bonner Bridge with an Oregon Inlet bridge parallel to and west of Bonner Bridge. On the south side of Oregon Inlet within Pea Island National Wild Refuge (Refuge), the bridge and its approach road will be constructed in a new easement to the west of the existing NC 12 easement; approximately 3.2 acres of new easement will be required within the Refuge. The bridge approach will leave the existing easement approximately 2,640 feet south of the point where the bridge leaves Hatteras Island. When it leaves the island, the bridge will be approximately 212 feet west of Bonner Bridge. On the north side of Oregon Inlet, the bridge will re-enter the existing NC 12 easement within the Seashore approximately 2,700 feet north of where it enters Bodie Island. When it enters Bodie Island the bridge will be approximately 35 feet west of Bonner Bridge. Coordination with the Refuge and the Seashore to minimize adverse impacts to Refuge and Seashore resources will continue through final design of the Design-Built Bridge.

The typical section for the Phase I Oregon Inlet Bridge for the Selected Alternative will provide two 12-foot travel lanes and two 8-foot shoulders thereby accommodating both vehicle and bicycle traffic. The bridge will include a series of navigational spans across Oregon Inlet. Spans within the navigation zone will provide 200 feet of horizontal clearance. The main bridge structure for the Phase I Oregon Inlet Bridge will be designed in coordination with USACE and the US Coast Guard (USCG), including finalizing the location and length of the navigation zone. The length of the navigation zone is assumed at this time to be 3,300 feet in order to lower the Oregon Inlet bridge height as it enters Hatteras Island.

All aspects of Phase I will be designed to conform to North Carolina highway specifications as approved by FHWA and NCDOT to ensure the safe construction and operation of the highway. In addition, other state and federal environmental resource and regulatory agencies will have an opportunity to review and comment on the final design prior to authorization of construction.

The proposed replacement structure will provide the same access as the existing structure, will be located immediately west of the existing structure and will be constructed with superior materials allowing for longer spanners and less bents resting on the sounds floor, enhancing water flow, preserving natural channels and promoting safer automobile, bicycle and boating access for all means and methods of transportation. The replacement bridge's projected life span is through the year 2050. As discussed in Section 4.5.3.2 of the FEIS, NCDOT maintains catwalks on the southern end of the existing bridge to provide access to the public to fish at Oregon Inlet. The type of access that will be provided with the Phase I Oregon Inlet Bridge will be determined during the final as-built design phase of the Bridge; however, NCDOT is committed to restoring access to fishing at the northern end of Hatteras Island once construction of Phase I is complete. The existing catwalks will remain open to the public during construction as long as allowing such access is safely viable.

### **Measures to Minimize Harm**

All practical measures to avoid or minimize environmental harm have been adopted as part of the Selected Alternative. These measures include those that are incorporated in most transportation improvement projects, such as relocation services and wetland compensation, as well as 28 project-specific commitments. The project-specific commitments are presented in Appendix B and also appeared at the beginning of the EA. Additional activities to minimize harm not included in the project-specific commitments are discussed in the following sections. Additional measures to minimize harm may be developed, as appropriate, during the environmental permit process for Phase I and as future phases of the Selected Alternative are finalized.

### **Relocations**

Current relocation studies indicate that impacts to minorities, large families, disabled persons, or others who would have special problems being relocated are not anticipated. Phase I of the Selected Alternative will involve no displacements.

### **Cultural Resources**

None impacted on Bodie Island (NPS). Impacted Cultural resources are all situated on the Refuge (USFWS).

### **Noise Impacts**

The noise level and abatement analysis for the Selected Alternative indicates that FHWA's Noise Abatement Criteria (NAC) will not be approached or exceeded with Phase I.

### **Wetland Impacts**

Final avoidance and minimization measures associated with wetland, sub-aquatic vegetation (SAV) and Oregon Inlet impacts for Phase I of the Selected Alternative were discussed and

agreed upon by the NEPA/Section 404 Merger Team at a Concurrence Point 2A/4A meeting held on November 13, 2008 (see Section 3.3.1 of the EA). Additional Concurrence Point 2A/4A meetings will be held prior to the completion of the final design for each remaining phase of the project.

Section 404 jurisdictional wetland impacts with Phase I of the Selected Alternative will be approximately 0.9 acre, including approximately 0.37 acre of CAMA coastal wetlands. The most recent studies now fix the wetland permanent impacts at 0.08 acres and the temporary impacts at 0.98 acres. Accordingly, the NPS concludes that the Selected Alternative is an exempted wetland impact action consistent with the NPS Director's Order 77-1: Wetland Protection. (See "Project Mitigation Measures" page 12, below.)

Jurisdictional wetland impacts will be further minimized to the extent practicable during final design. Compensatory mitigation will be provided for all unavoidable impacts to these valuable natural systems. A mitigation plan for wetland impacts will be developed by NCDOT during the Section 404/Section 401 permitting process; a preliminary list of wetland mitigation measures is included in table below. An initial meeting on wetland mitigation was held with the Merger Team on September 17, 2009. Temporary wetland impacts will occur with both construction of the Selected Alternative as well as the demolition and removal of the old bridge.

The extent of the impact on wetlands of the demolition of the old bridge will depend on the access technique used. NCDOT will coordinate with environmental resource and regulatory agencies prior to bridge demolition and removal to determine the most practicable construction access methodology for the demolition of the old bridge.

### **Protected Species Impacts**

The Selected Alternative is likely to disturb nesting on the beach by the endangered piping plover, primarily in areas of wintering piping plover critical habitat near Oregon Inlet and Green Island. It also is likely to disturb nesting on the beach by the leatherback sea turtle, green sea turtle, and loggerhead sea turtle. It is not likely to adversely affect turtles in the ocean. USFWS issued *Biological and Conference Opinions* (USFWS, 2008) related to the piping plover, loggerhead sea turtle, green sea turtle, and leatherback sea turtle, as well as critical habitat for wintering piping plovers. NCDOT agreed to implement several nondiscretionary measures that include the terms and conditions outlined in the *Biological and Conference Opinions* (USFWS, 2008) which are presented in the Project Commitments in Appendix A. NCDOT also coordinated with NOAA Fisheries as documented in Sections 4.7.9 and 8.11 of the FEIS and Section 3.6.3 of the EA. In addition, in the process of the NPS review and comment phase in developing NCDOT's Request for Proposals of this Design-Built Project, specific commitments were made and articulated by in Project Commitments issued by NCDOT, dealing with dredging, dredge spoil, demolition debris, sediment and erosion control, nighttime construction, manatees, shortnose, sea beach amaranth, piping plovers and sea turtles. (See Appendix B, attached.)

### **Construction Impacts**

Construction of the Selected Alternative and demolition and removal of the old bridge will be governed by:



- NCDOT's *Standard Specifications for Roads and Structures* (NCDOT, July 2006, or as current at the time of construction); and
- American Association of State Highway and Transportation Officials' (AASHTO) *Standard Specifications for Highway Bridges* (AASHTO, 2002, or as current at the time of construction).

Mechanisms will be put in place to maintain traffic flow; minimize air quality, noise, and construction lighting impacts; manage waste disposal; protect surrounding natural resources; control erosion; and handle any accidental waste spills. Affected geodetic survey markers in the project area will be properly relocated.

## Mitigation

The chart below lists the current mitigation commitments proposed for impacts to historic properties, natural resources, and Section 4(f) properties. FHWA and NCDOT will finalize the specific jurisdictional wetland and SAV mitigation in coordination with USACE, NOAA, USFWS, NPS, and NCDENR and other agencies as appropriate. FHWA and NCDOT also are coordinating with NPS and USFWS on mitigation for impacts to the Cape Hatteras National Seashore and Pea Island National Wildlife Refuge.

Project Mitigation Measures

Resource	Mitigation Measure
Oregon Inlet Fishing Access	NCDOT will ensure that access to fishing at the north end of Hatteras Island is restored once construction of the new Oregon Inlet bridge is complete. The specific method of access will be determined during the final design of Phase I. The catwalks on the existing Bonner Bridge will remain open during construction as long as is safely feasible.
Section 404/401 Jurisdictional Resources (wetlands, SAV)	NCDOT is working with NCDENR-Division of Marine Fisheries (DMF) and the National Marine Fisheries Service (NMFS) on the use of bridge demolition material as an artificial reef in the ocean beyond NPS jurisdiction.
	Once construction of Phase I is complete, the portion of the existing bridge currently within SAV habitat (adjacent to Bodie Island) will be removed in order to restore approximately 1.33 acres of habitat.
	NCDOT proposes to create approximately 11 acres of oyster reef habitat approximately 2 miles southwest of the new bridge at a 2:1 ratio in an agency-approved location as mitigation for the remainder of SAV impacts.
	Wetland mitigation will be contained within the Seashore. Mitigation will include treatment of exotic species ( <i>Phragmites australis</i> ) within wetlands considered to have high conservation value by NPS. NPS has identified approximately 55 acres adjacent to the Bodie Island Lighthouse Pond as the highest priority for treatment; NCDOT will treat the area for five years. This mitigation will be used to offset



	impacts for Phase I and for future phases as appropriate.
	NCDOT will propose improvements to the “north drain” site in Rodanthe (restoration of hydraulic connectivity) as wetland mitigation for future phases.
Section 106 Stipulations	<p>Parallel Bridge Corridor Minimization/Mitigation Measures</p> <p>Compile an ethnographical context of the men and women who lived and worked in the general project area during the late nineteenth and early twentieth centuries. Will focus on the area’s watermen, fishermen, Civilian Conservation Corps, members of gun or hunting clubs, and lifesaving station employees. Will produce a digital document which contains the recorded oral histories and documentary materials.</p> <p>Context for tourism – NCDOT will work with USFWS, SHPO, the North Carolina Aquarium Society, and NPS to compile a context for the Coast Guard and Life Saving stations, wildlife refuges, and other state and federal “outposts” on North Carolina’s Outer Banks.</p>
Cape Hatteras National Seashore Property	<p>Relocate Oregon Inlet Fishing Center septic system (impacted by Phase I construction) to a location to be determined in coordination with NPS.</p> <p>Relocate Oregon Inlet Fishing Center RV dump station (impacted by Phase I construction) to a location to be determined in coordination with NPS.</p>

### **Monitoring and Enforcement Program**

Continuing coordination will be maintained by NPS with regulatory and resource agencies during final design, subsequent permitting, right-of-way acquisition, and construction to ensure that avoidance, minimization, and compensatory mitigation measures will be initiated, as specified in the NPS Permit and as agreed to in the Project Commitments (see Appendix B). NCDOT and FHWA will enforce pertinent specifications and contract provisions in accordance with the intent of the EA and the welfare of the public. NCDOT will provide up to \$700,000 in cost recovery funds for a full-time NPS employee as a permit compliance monitor through completion of the project, removal of the old bridge and restoration of the property to the satisfaction of NPS. The employee primary duties will be to monitor daily all activities at the site and to ensure full compliance of the NPS Permit, from the commencement of construction to the end of the project.

### **Public Scoping & Agency Coordination**

Project coordination meetings have been held throughout the project development process with representatives from numerous Federal and State agencies. Between the time project coordination first began in 1990 until the time the EA was signed 2010 there were at least 67 documented meetings between NCDOT and the Cooperating and participating agencies, most all of which were attended by NPS representatives. Of those meetings 12 detailed the NEPA process and specifically included representatives from the NPS, NCDOT, FHWA, and various other agencies.

Additionally, 15 Public Hearings, Public Informational Workshops, and Open House meetings were held between 1990 and 2010. The meeting dates were as follows:

<b>Meeting Date</b>	<b>Meeting Type</b>
July 19, 1990	Public Informational Workshop
February 19, 1991	Public Informational Workshop
February 20, 1991	Public Informational Workshop
February 23, 1994	Public Hearing
February 24, 1994	Public Hearing
June 26, 2003	Public Informational Workshop
June 26, 2003	Public Informational Workshop
July 22, 2003	Public Informational Workshop
November 9, 2005	Public Hearing
November 10, 2005	Public Hearing
March 28, 2007	Public Hearing
March 29, 2007	Public Hearing
July 6, 2010	Public Open House & Hearing
July 7, 2010	Public Open House
July 8, 2010	Public Open House & Hearing

No attendance figures or number of comments are available for the first three meetings. The remaining 12 meetings had a total attendance of 1,000 people and generated a total of 4,420 comments, 4,062 of which were submitted at or after the 2010 meetings.

Throughout the 20 years of public comment on the project, comments consistently included requests to maintain access to the Seashore and the Refuge, replacement of the existing Bonner Bridge as quickly as possible, and to maintain navigational access to Oregon Inlet by retaining the terminal groin situated on Pea Island Wildlife Refuge. By 2010 there were also comments concerning the economic impacts to local community businesses from closures of NC 12 due to frequent storm events. Responses to the comments can be found in the FEIS and the ROD issued by the FHWA on December 20, 2010.

## **Conclusion**

Among the alternatives considered, the Selected Alternative meets the purpose, need and objectives of the FEIS/EA and is expected to support the long-term protection, preservation and restoration of natural and cultural resources of the Seashore. It incorporates all practical means to avoid or minimize environmental harm and will not result in the impairment of park resources and values or violate the NPS Organic Act.

The official responsible for implementing the selected action is the Superintendent of Cape Hatteras National Seashore

## Appendix A

### NON-IMPAIRMENT DETERMINATION

#### **The Prohibition on Impairment of Park Resources and Values**

NPS Management Policies 2006, Section 1.4.4, explains the prohibition on non-impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the National Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

#### **What is Impairment?**

NPS Management Policies 2006, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment.

Impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Section 1.4.5 of *Management Policies 2006* states:

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Per Section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the NPS was in some way responsible for the action.

### **How is an Impairment Determination Made?**

Section 1.4.7 of *Management Policies 2006* states, "[I]n making a determination of whether there would be an impairment, an NPS decision maker must use his or her professional judgment. This means that the decision-maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969 (NEPA); consultations required under Section 106 of the National Historic Preservation Act (NHPA); relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision.

*Management Policies 2006* further define "professional judgment" as "a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities relation to the decision.

### **Non-impairment Determination for the Selected Alternative**

A non-impairment determination is made for all resource impact topics carried forward for detailed analysis for the Selected Alternative. A non-impairment determination is not made for

environmental justice, park operations, public health and safety, recreation, and visitor use and experience, because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. Accordingly, a non-impairment determination is made for the following topics:

#### Air Quality

Implementation of the Selected Alternative will result in direct, adverse, negligible, short-term impacts on air quality from the construction activities resulting in temporary increases of air particulates and carbon monoxide from the heavy equipment powered by hydrocarbon fuels. However, this project was evaluated for its consistency with the state air quality goals found in the State Implementation Plan for the attainment of clean air quality in North Carolina and the goals set forth in the Clean Air Act Amendments (CAAA) and the Final Conformity Rule. Because the project will be consistent with the state air quality goals and the goals set forth in the CAAA and air quality is expected to return to current conditions once the construction ends, there will be no impairment to park resources from the implementation of the Selected Alternative.

#### Cultural, Historic and Archaeological Resources

Based on historic and archaeological baseline studies the Selected Alternative will have no impact to historic and archaeological resources of NPS. If cultural artifacts or remains are discovered during construction the NPS and the SHPO will be notified immediately by the NPS Permit Monitor.

#### Scenic Features

The Selected Alternative will result in direct, adverse, short-term, moderate impacts from construction activities that will disrupt the scenic and aesthetic values of the Seashore. The aesthetic design of the replacement bridge has been discussed and will be finalized before construction with FHWA, NCDOT, and NPS. There is no way to replace the bridge without the necessary impacts of construction. However, the construction activities are temporary and when finished, the scenic and aesthetic values will be returned to a condition that is as good as or better than current conditions. Therefore the Selected Alternative will not result in impairment to scenic features of the Seashore.

#### Soil and Sediment

The Selected Alternative will result in a short term, negative impact to soil and sediment from construction activities. During construction there will be an immediate disturbance due to ground disturbing activities that will temporarily increase the sediment load. This impact will be mitigated by using BMPs and will last only during construction. therefore there will be no impairment to soil and sediment resources of the Seashore from implementation of the Selected Alternative.

#### Soundscapes

The Selected alternative will result in a short term, minor negative impact to soundscapes. During construction the noise level will increase, but this impact is temporary and will not last



beyond the completion of construction. Accordingly, the Selected Alternative will not add capacity or cause a significant change to Seashore resources or adverse impacts to park visitors.

#### Special Status Species

The Selected Alternative through noise and nighttime lighting is likely to minimally disturb nesting on the beach by the piping plover, primarily in critical habitat areas near Oregon Inlet and Green Island. It also is likely to disturb some nesting on the beach by the leatherback sea turtle, green sea turtle, and loggerhead sea turtle. It is not likely to adversely affect turtles in the ocean. NCDOT agreed to implement number of nondiscretionary measures that include the terms and conditions outlined in the *Biological and Conference Opinions* (USFWS, 2008) and are presented in the Project Commitments in Appendix A. NCDOT has also coordinated with NOAA Fisheries as documented in Sections 4.7.9 and 8.11 of the FEIS and Section 3.6.3 of the EA.

Because of the representation and coordination of NCDOT in this project, NPS has determined that the implementation of the Selected Alternative will have no significant impact on any state or federally listed species or species of concern. Current and future visitors will continue to have the opportunity to enjoy special status species; accordingly there will be no impairment to special status species from implementation of the Selected Alternative.

#### Water Quality and Hydrology

No significant impacts to the water quality in the project area are expected to occur as a result of the Selected Alternative. A National Pollutant and Discharge Elimination System (NPDES) permit has been issued for this project and BMPs will be placed in the contract to exercise every reasonable precaution during construction to prevent pollution of streams in the vicinity of the project area. The impacts will be minimal and temporary. Accordingly, there will be no impairment to park resources from implementation of the Selected Alternative.

#### Wetlands

Because of delineation and mitigation of wetland impacts in this project, environmental harm from the Selected Alternative will be minimized and temporary to wetlands in the vicinity of the project area by standard NPDES BMP sedimentation, erosion and hydrological control measures. The most recent studies now fix the wetland permanent impacts at 0.08 acres and the temporary impacts at 0.98 acres. A condition of the NPS permit requires NCDOT to develop a Mitigation Plan that includes the eradication of exotic species within 55 acres of wetland within the Seashore. Accordingly, the NPS concludes that the Selected Alternative is an exempted wetland impact action consistent with the NPS Director's Order 77-1: Wetland Protection and it will not impair wetland resources.

## **Appendix B**

### **NC 12 Replacement of the Herbert C. Bonner Bridge**

(Bridge No. 11) over Oregon Inlet Federal-Aid No. BRS-2358(15) State Project No.  
8.1051205  
TIP Project No. B-2500  
Dare County, North Carolina  
Bonner Bridge FEIS 2008

UNITED STATES DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAYS  
ADMINISTRATION AND NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

### **PROJECT COMMITMENTS**

#### **Highway Design Branch**

Navigation Span Location. One navigation zone would be built to serve boats passing through Oregon Inlet. The location of the zone would be determined in coordination with the US Army Corps of Engineers (USACE).

Bicycle Accommodations. The Seashore management plan supports the use of bicycles along NC 12. All bridges in both replacement bridge corridors (including the Selected Alternative) would have 8-foot wide shoulders that would be safer for bicycle and pedestrian traffic than Bonner Bridge's 2-foot wide shoulders. In addition, a bicycle-safe bridge rail on the bridges also would provide increased safety for bicyclists. New roadway would have 4-foot paved shoulders, which would be safer for use by bicycle and pedestrian traffic than existing NC 12's unpaved shoulders.

#### **Highway Design Branch and Division 1**

Use of Work Bridges. During construction in the Pamlico Sound Bridge Corridor, steps taken to minimize turbidity (when possible and practicable) would include the use of work bridges (rather than dredging for barges) for movement of construction equipment in shallow areas where submerged aquatic vegetation (SAV) is present. If SAV is in waters deep enough to float a barge without dredging, the use of a work bridge would not be necessary. Work bridges also would be used to carry construction equipment over intertidal marsh areas (black needlerush and smooth cordgrass). Dredging generally would only be used in depths less than 6 feet where SAV is not present. Under the Selected Alternative, work bridges would be used for building proposed bridges over wetlands south of Oregon Inlet. The Oregon Inlet new bridge would generally be built from a barge. West of Bodie Island, a temporary haul road on geotextile fabric, dredging, or a work bridge could be used. Use of a

work bridge instead of a haul road for short distances at critical locations, such as SAV locations, would be considered prior to construction.

Sedimentation and Erosion Control. All waters in the project area are classified as SA waters (Class A salt waters) with a supplemental classification of High Quality Waters (HQW). The most stringent application of the Best Management Practices (BMPs) is expected where highway projects affect receiving waters of special designation, such as HQW. Also, impacts to adjacent areas of SAV and/or wetlands should be minimized. Therefore, sedimentation and erosion control measures shall adhere to the Design Standards in Sensitive Watersheds [15A NCAC 04B.0124 (b)-(e)]. Prior to construction, the design-build contractor will submit the proposed sediment and erosion control plans for each stage of construction to the NCDOT and permitting agencies for review.

Pile Placement. Bridge piles in open water would be jetted to the tip elevation (depth of the tip of the pile). Bridge piles over land would be jetted or driven.

Use of Bridge Demolition Debris for an Artificial Reef. The NCDOT would work with the NC Division of Marine Fisheries to accommodate this desire during demolition planning. Coordination also would be conducted with the National Marine Fisheries Service (NMFS) in association with their regulation of several protected species.

## **Highway Design Branch, Project Development and Environmental Analysis Branch, and Division 1**

Design Coordination. The NCDOT would invite the National Park Service (NPS) and the US Fish and Wildlife Service (USFWS) (in the case of the Parallel Bridge Corridor alternatives including the Selected Alternative) to participate in the development of project design and mitigation strategies as a part of the permit application process.

Dredging. To avoid construction impacts to protected turtles, the NCDOT's contractor would use pipeline or clamshell dredging. A hopper dredge would not be used for bridge construction or Bonner Bridge demolition.

Disposal of Dredged Material. Prior to construction, during the USACE permit preparation process, the FHWA and the NCDOT would work with appropriate environmental resource and regulatory agencies to identify the characteristics of dredged material from bridge construction in open water and develop a disposal plan that would minimize harm to natural resources. The appropriate location for dredged material disposal would be determined based on the character of the materials dredged, the availability of disposal sites, and coastal conditions near the time of construction. In addition, the terms and conditions outlined in the *Biological and Conference Opinions* (USFWS, 2008) related to piping plovers specify that "all dredge spoil excavated for construction barge access must be used to augment either existing dredge-material islands or to create new dredge-material islands for use by foraging plovers. This must be accomplished as per the specifications of the North Carolina Wildlife Resources Commission."

Night-time Construction. Because construction activities could occur 24-hours-a-day, construction areas could be lit to daylight conditions at night. The NCDOT would work with the North Carolina Department of Environment and Natural Resources' Division of Marine Fisheries, the National Marine Fisheries Service, the NPS, and the USFWS to determine other areas near project construction where night lighting would need to be avoided or limited. Night lighting also would not be used close to areas where people sleep, including the campground at the northern end of the project area and the Rodanthe area at the southern end. Night lighting also will meet the requirements specified to protect sea turtles.

Manatee Protection. Construction contracts would require compliance with the USFWS' Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters (June 2003).

Sea Turtle and Smalltooth Sawfish Protection. NCDOT will comply with the NMFS's March 23, 2006, *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS, 2006) that restrict in-water construction-related activities when these protected species are observed in the project area. However, the NMFS and NCDOT agree that bridge construction or demolition activities do not need to stop when a protected species is sighted in the proximity of construction if the construction activities are not in the water. The in-water moratorium prohibits pile installation and removal and activities associated with bridge construction and demolition when listed species are present in the water, but does not restrict terrestrial activity.

Terminal Groin Removal. With the Parallel Bridge Corridor (including the Selected Alternative), the NCDOT would apply for a permit to retain the groin to protect the south end of the Oregon Inlet bridge. The groin would not be needed to protect a Pamlico Sound bridge.

Archaeological Resources Discovered During Construction. If any historic archaeological resources (i.e., historic watercraft) are encountered in the area west of Bodie Island during construction, construction work affecting the resource will cease immediately until the resource can be identified and assessed for National Register of Historic Places eligibility.

Construction of Future Phases Based on Available Funding. With the Selected Alternative, it is NCDOT's intent to place a high priority on the implementation of Phase II. This intent recognizes the need to build Phase II, particularly in the Rodanthe "S" Curves, Sandbag Area, and Canal Zone hot spots, as soon as it is practicable.

Monitoring Program. NCDOT considers the [year] 2060 high erosion shoreline a reasonable assumption for current planning purposes, but also recognizes that decisions related to the implementation of Phases III and IV and the specific location of Phases III and IV would likely need to evolve with actual geomorphological change relative to the NC 12 easement, whether from changes in the characteristics of expected beach erosion, the

possible changes of sound-side erosion at Oregon Inlet, accelerated sea level rise, or island breaching. With this in mind, NCDOT would implement a monitoring program on Hatteras Island in the project area whose particulars would be developed in association with representatives of the Pea Island National Wildlife Refuge, including development of decision-making criteria for translating monitoring findings into a decision to move forward with Phases III and IV.

Breach Response-Related Data Gathering Program. Recognizing the possibility that a breach could occur at the southern part of the Refuge prior to the completion of Phase II and four other locations exist in the project area that are geologically susceptible to a breach (three are bridged in Phase II and one in Phase III), NCDOT would conduct a breach response-related data gathering program focusing on the southern end of the Refuge.

Reduce the Potential Impacts from NC 12 Maintenance Prior to the Completion of Each Phase. Recognizing that storm-related NC 12 maintenance will occur before the completion of Phases II, III, and IV, particularly before the implementation of Phase II in the three hot spot areas, NCDOT would continue to work with the Refuge to reduce the potential impacts to the Refuge and NC 12 resulting from NC 12 storm-related maintenance.

Shortnose Sturgeon. Conservation measures to protect shortnose sturgeon would include no hopper dredging and measures to minimize habitat degradation. Such measures would include BMPs involving use, storage, and disposal of construction/demolition materials to minimize short-term turbidity or water quality degradation during over water construction in Oregon Inlet and during periodic maintenance. Construction and demolition activities associated with Phase I of the project would be completed as quickly as possible in order to minimize deterring spawning sturgeon from entering Oregon Inlet. In addition, the project would incorporate BMPs to reduce habitat degradation from stormwater runoff pollution.

#### **Highway Design Branch, Project Development and Environmental Analysis Branch, Division 1, and Right-of-Way Branch**

Utilities. Project development and construction activities would be coordinated with utility providers in the project area in order to prevent interruption of local utility services. The following utility providers currently serve the project area: Dare County (water service); Sprint Communications (telephone service); Charter Communications (cable television service); and Cape Hatteras Electric Membership Association (electric power service).

#### **Highway Design Branch, Project Development and Environmental Analysis Branch, Division 1, and Geotechnical Unit**

Use of Explosives During Construction. The use of explosives during construction is not anticipated. If explosives were needed to remove Bonner Bridge's piles, the NCDOT would coordinate with the appropriate environmental resource and regulatory agencies to develop a



blasting program that would minimize adverse effects to the natural environment.

### **Project Development and Environmental Analysis Branch**

Memorandum of Agreement. Prior to the release of [any] Record of Decision (ROD), FHWA will complete a Memorandum of Agreement with the State Historic Preservation Office and the Advisory Council on Historic Preservation in consultation with other consulting parties, as per the requirements of Section 106 of the Historic Preservation Act of 1966.

Seabeach Amaranth. Since the favored habitat of the seabeach amaranth is highly ephemeral, a survey of the project area would be conducted for the habitat of this species at least one year prior to initiating bridge construction activities. It would occur as needed for each construction phase of the Selected Alternative.

### **Highway Design Branch, Project Development and Environmental Analysis Branch, Division 1, and Bridge Management Unit**

Piping Plover. The NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the *Biological and Conference Opinions* (USFWS, 2008):

- a. All construction equipment and personnel must avoid all bird closure areas within the Seashore and Refuge.

All future routine maintenance activities of bridge structures that would occur within or adjacent to current or future plover nesting areas must occur outside the nesting season (April 1 to July 15).

All future repair work on bridge structures that would occur within or adjacent to current or future plover nesting areas must occur outside the nesting season (April 1 to July 15) unless emergency or human safety considerations require otherwise. In this event, the area must be surveyed for nesting plovers and avoided to the extent possible.

- b. Do not moor any construction barges within 300 feet (91.4 meters) of the following islands: Green Island, Wells Island, Parnell Island, Island MN, Island C, the small unnamed island immediately east of Island C, Island D, and Island G (see Figure 1 in the *Biological and Conference Opinions* in Appendix E).

- c. All dredge spoil excavated for construction barge access must be used to augment either existing dredge-material islands or to create new dredge-material islands for use by foraging plovers. This must be accomplished as per the specifications of the North Carolina Wildlife Resources Commission. The point of contact is Sue Cameron at 910-325-3602. If the dredge material is used outside the current defined action area, the action area is assumed to

be expanded to cover the beneficial placement of the material.

d. To the maximum extent practical, while ensuring the safety of the traveling public, limit or avoid the use of road signs or other potential predator perches adjacent to plover nesting or foraging areas. Where signs or other structures are necessary, determine if alternative designs would be less conducive for perching on by avian predators (gulls, crows, grackles, hawks, etc.). For example, minimize or avoid the use of large cantilever signs in favor of smaller and shorter designs.

In addition, the project will incorporate the most current BMPs to reduce habitat degradation from stormwater runoff pollution as a conservation measure. Phase I of the project will be built at least 125 feet (38.1 meters) farther west of the Bonner Bridge and currently occupied piping plover habitat. Temporary facilities such as haul roads that affect proposed piping plover critical habitat will be removed as soon as possible.

Sea Turtles (green sea turtle, leatherback sea turtle, and loggerhead sea turtle). The NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the *Biological and Conference Opinions* (USFWS, 2008):

a. All construction equipment and personnel must avoid all marked sea turtle nests.

Construction material and equipment staging areas must not be located seaward of the artificial dune.

All future routine maintenance activities of bridge structures that would occur within or adjacent to current or future sea turtle nesting habitat, and which would require vehicles or equipment on the beach or the use of night lighting (excluding navigation lights required by the US Coast Guard), must occur outside the nesting season (May 1 to November 15).

All future repair work of bridge structures that would occur within or adjacent to current or future sea turtle nesting habitat, and which would require vehicles or equipment on the beach or the use of night lighting (excluding navigation lights required by the US Coast Guard) must occur outside the nesting season (May 1 to November 15) unless emergency or human safety considerations require otherwise. In this event, the area must be surveyed for sea turtle nests and avoided to the extent possible.

b. Provide an opportunity for the USFWS or an USFWS designee to educate construction contractor managers, supervisors, foremen and other key personnel and resident NCDOT personnel with oversight duties (division engineer, resident engineer, division environmental officer, etc.) as to adverse effects of artificial lighting on nesting sea turtles and hatchlings, and to the importance of minimizing those effects.

c. During turtle nesting season (May 1 to November 15), use the minimum number and the lowest wattage lights that are necessary for construction.

During turtle nesting season, portable construction lighting must be of the low-pressure

sodium-vapor type. During turtle nesting season, utilize directional shields on all portable construction lights, and avoid directly illuminating the turtle nesting beach at night.

During turtle nesting season, all portable construction lights must be mounted as low to the ground as possible.

During turtle nesting season, turn off all lights when not needed.

d. For Phases II, III and IV of the Phased Approach/Rodanthe Bridge Alternative (Preferred), on the ocean side, design the bridge structure in a manner which will shield the beach on the east side from direct light emanating from passenger vehicle headlights. For the small portion of Phase I over land on Hatteras Island, retrofit the bridge structure at the time that Phase II connects with Phase I. The specific design of the bridge will be developed in consultation with the USFWS prior to re-evaluation of the environmental document for Phase II.

e. Avoid retrofitting the bridges and approach roads with permanent light fixtures in the future (excluding navigation lights required by the US Coast Guard).

In addition, NCDOT does not anticipate the use of explosives during construction or demolition of the existing bridge. The NCDOT contractor will use pipeline or clamshell dredging, rather than a hopper dredge to minimize effects to sea turtles. No permanent light fixtures will be installed on the bridge or the approaches (with the exception of navigation lights as required by the US Coast Guard).

#### **Photogrammetry Unit and Project Development and Environmental Analysis Branch**

Submerged Aquatic Vegetation (SAV) Survey. The dynamic nature of the area around Oregon Inlet results in ephemeral habitats, particularly in shallow water and shoreline areas. Consequently, the NCDOT would obtain new SAV information for use by the contractor in construction access planning.