Record of Decision

for

NC 12 – Pea Island Long-Term Improvements
Bonner Bridge Replacement Project Phase IIa

Federal-Aid No. BRNHF-0012(55)

NCDOT Project Definition: 32635
TIP Project No. B-2500A
Dare County, North Carolina

Federal Highway Administration

North Carolina Department of Transportation

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1.0 Decision

This document records the decision for the proposed NC 12—Pea Island Long-Term Improvements (Bonner Bridge Replacement Project Phase IIa) in Dare County, North Carolina and re-affirms the Selected Alternative (Parallel Bridge Corridor with Transportation Management Plan [PBC/TMP] Alternative) presented in the 2010 Record of Decision for the Bonner Bridge Replacement Project (B-2500). Bonner Bridge Replacement Project Phases I, IIa, and IIb are included in the North Carolina Department of Transportation's (NCDOT) approved 2012 to 2020 and the draft 2013-2023 State Transportation Improvement Program (STIP) as Project Nos. B-2500, B-2500A, and B-2500B. The project is broken into phases in the NCDOT's 2013 to 2023 Draft STIP. The NC 12 – Pea Island Long-Term Improvements recorded in this document are designated in the Draft STIP as segment A of project B-2500 or B-2500A.

In accordance with the National Environmental Policy Act (NEPA) and the requirements set by the Council on Environmental Quality (CEQ) (40 CFR [Code of Federal Regulations] 1505.2), this Record of Decision (ROD) for Phase IIa also summarizes the following:

- Alternatives considered for the proposed project by NCDOT and the Federal Highway Administration (FHWA) and the basis for selection, description, cost estimates, and impacts of the Selected Alternative
- The Section 4(f) statement
- Measures adopted to avoid and minimize harm
- Monitoring and enforcement programs for the implementation of mitigation measures
- Public and agency comments on the February 2013 Phase IIa Environmental Assessment (EA)

The replacement of Bonner Bridge over Oregon Inlet is Phase I of Project No. B-2500. Bonner Bridge, built in 1962, is approaching the end of its reasonable service life. Bonner Bridge is a part of NC 12 and provides the only highway connection between Hatteras Island and Bodie Island. The replacement structure will serve the same function. The project also includes the NC 12 corridor between the community of Rodanthe and Oregon Inlet, a section of roadway that is at risk because of shoreline erosion (with potential for storm overwash and road loss), five locations considered geologically susceptible to breaching, and which has experienced extensive recent damage as a result of Hurricane Irene in 2011 and Hurricane Sandy in 2012. Phase IIa consists of long-term improvements in the Pea Island inlet area. The entire Bonner

Bridge Replacement Project (B-2500), including Phase IIa as discussed in this Phase IIa ROD, will provide a long-term approach to minimizing that risk through 2060.

The Bonner Bridge Replacement Project (B-2500) project area is in Dare County in eastern North Carolina, and encompasses northern Hatteras Island, the southern end of Bodie Island, and regions of the Pamlico Sound. As set forth in the 2010 ROD, the Selected Alternative for the Bonner Bridge Replacement Project (B-2500) is the PBC/TMP (see Figure 1). The PBC/TMP Alternative calls for Phase I (Oregon Inlet bridge) to be built as soon as possible, followed by construction of later phases whose details would be determined, reevaluated, and documented through interagency collaboration as project area conditions warrant.

As shown in Figure 1, the Phase IIa project area includes the area between the southern end of the Pea Island National Wildlife Refuge's (the Refuge) South Pond and the northern end of the 2.1-mile section of NC 12 in the southern half of the Refuge that is not expected to be threatened by shoreline erosion prior to 2060 (see Figure 2). This area includes the Pea Island inlet, which formed as a result of Hurricane Irene in August 2011, as well as the entire area identified in the 2008 Final Environmental Impact Statement (FEIS) for this study area as geologically susceptible to breaches. As of May 2013, the Pea Island inlet is closed as a result of natural coastal processes.

As documented in Section 1.2 of the 2008 FEIS, the purposes of the proposed Bonner Bridge Replacement Project (B-2500) are to:

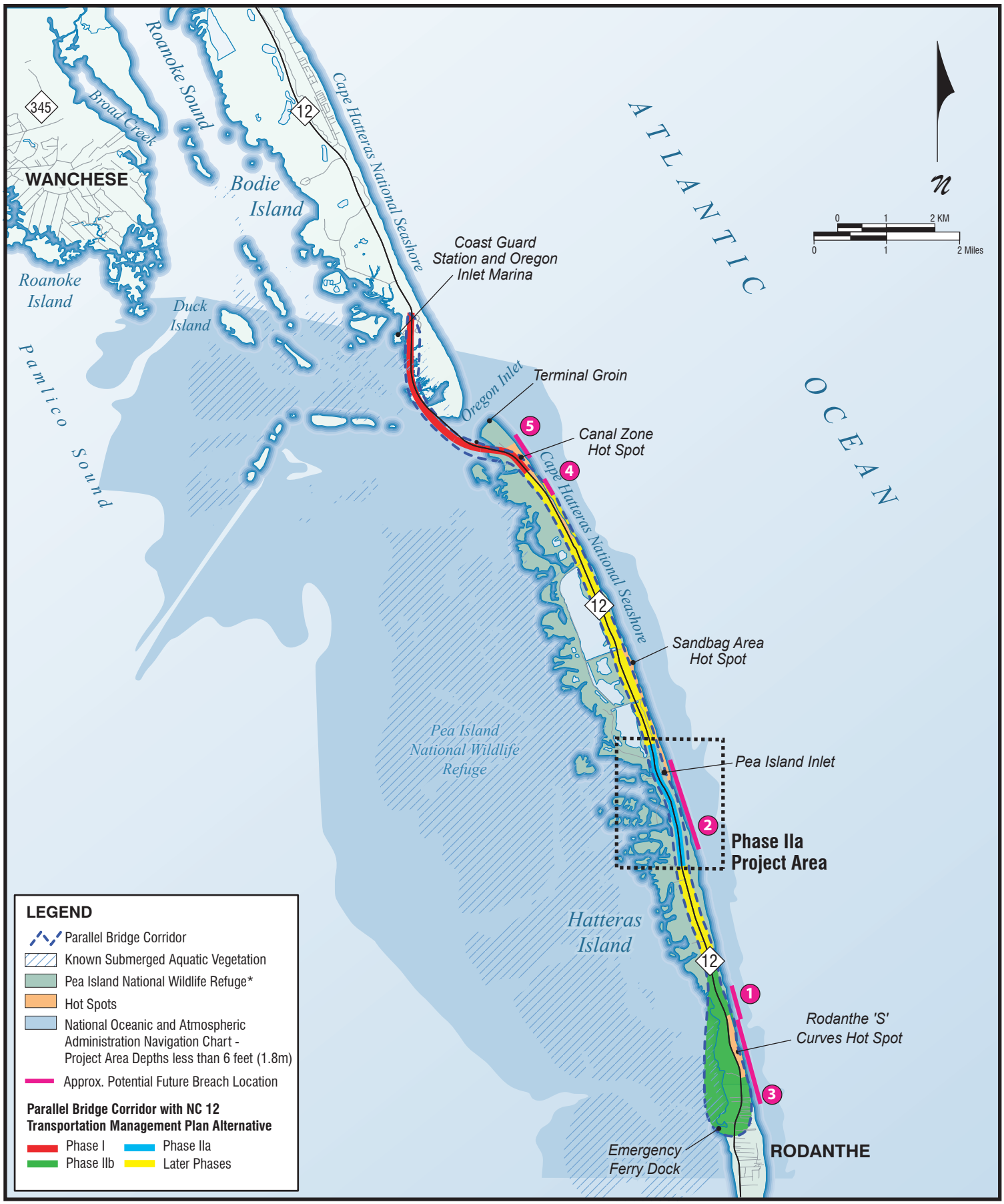
- Provide a new means of access from Bodie Island to Hatteras Island for its residents, businesses, services, and tourists prior to the end of Bonner Bridge's service life

- 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 will not be endangered by shoreline movement through year 2050

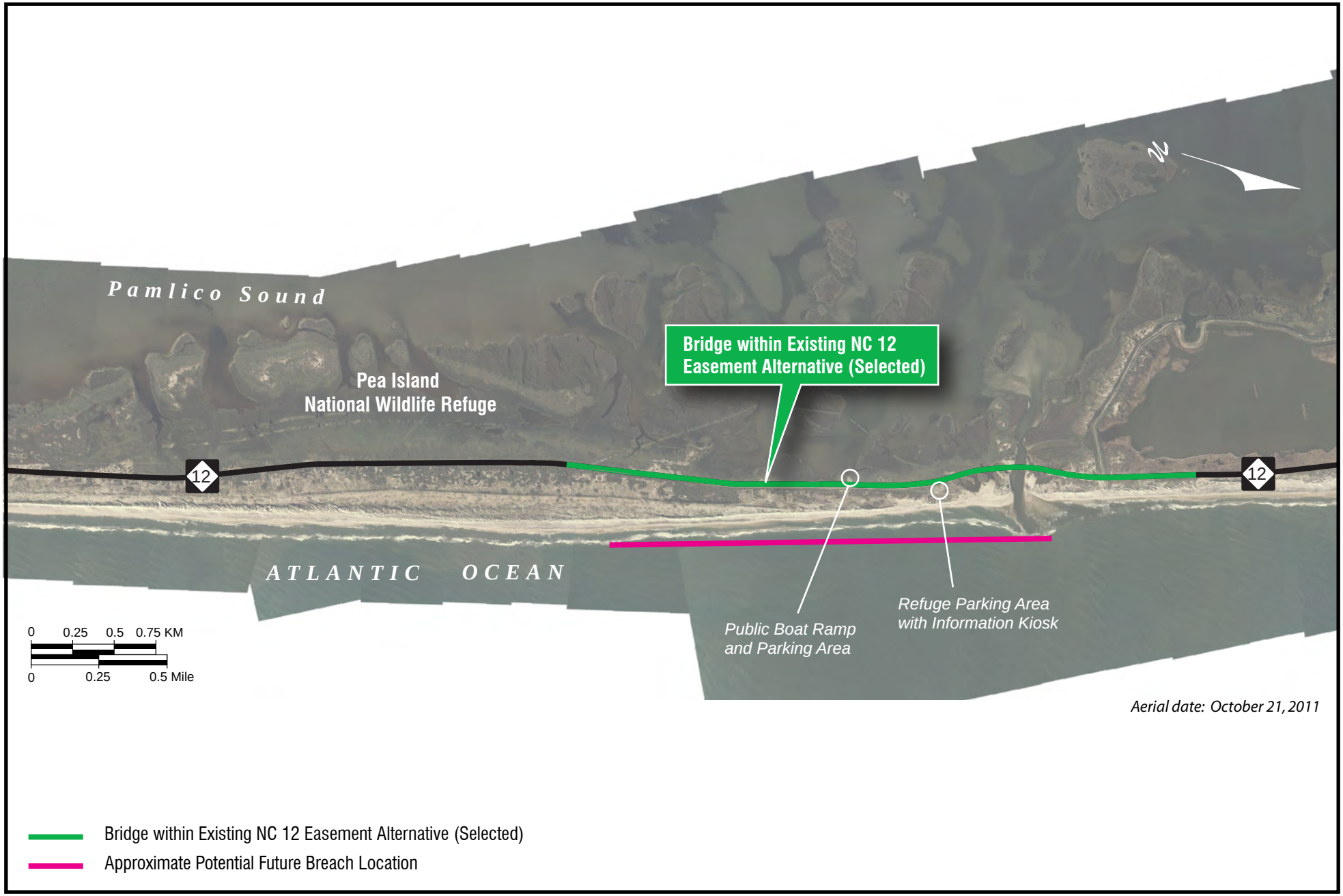
The long-term improvements encompassed by Phase IIa contribute to the overall purpose of the project by providing a long-term solution to the presence and potential presence of breaches and inlets in the Phase IIa project area and to the future challenges of shoreline erosion and overwash in this area.

The Phase IIa EA was prepared to identify and assess changes in the setting, project, and potential project impacts that may have occurred since the 2010 ROD was issued, and to provide documentation of compliance with NEPA for Phase IIa in accordance with the PBC/TMP Alternative (the Selected Alternative in the 2010 ROD). The Phase IIa EA identifies the Bridge within Existing Easement Alternative as the Preferred Alternative for Phase IIa of the project (now the Phase IIa EA Selected Alternative).



PARALLEL BRIDGE CORRIDOR WITH TRANSPORTATION MANAGEMENT PLAN ALTERNATIVE

Figure 1



PHASE IIa SELECTED ALTERNATIVE

Figure
2

In making the Phase IIa Selected Alternative decision, NCDOT and FHWA considered the information and analysis presented in the Phase IIa EA, as well as public, agency, and non-governmental organization (NGO) comments on the Phase IIa EA. Findings contained in the 2005 Supplemental Draft Environmental Impact Statement (SDEIS), the 2007 Supplement to the Supplemental Draft Environmental Impact Statement (SSDEIS), the 2008 FEIS, the May 2010 EA, and the 2010 ROD for the Bonner Bridge Replacement Project (B-2500) also were considered. Environmental resource and regulatory agency participation was done in the context of a NEPA/Section 404 Merger Process. The Merger Process is a streamlining effort developed to efficiently integrate the permitting process through participation of federal and state environmental resource and regulatory agencies as part of the Merger Team. The Merger Team meets periodically in a series of concurrence points throughout the project planning process with the goal of obtaining stakeholder concurrence on key issues during the NEPA study so that those decisions do not need to be revisited during the application for a US Army Corps of Engineers (USACE) Clean Water Act Section 404 permit. More detailed information about the Merger Process is found in Section 3.2.

As per the description for "later phases" of the PBC/TMP Alternative presented in Section 3.3.2 of the 2010 ROD (beginning on page 12), findings of the *Coastal Monitoring Program, NC 12 Transportation Management Plan, TIP Project B-2500, 2011 Update* (Overton, 2013) and initial findings of the 2012 monitoring program were considered. The NEPA/Section 404 Merger Process was used as a part of alternatives studies, in the selection of the detailed study alternative, in the selection of the Least Environmentally Damaging Practicable Alternative (LEDPA), and in identifying and selecting measures to minimize harm for Phase IIa. Formal consultation was re-initiated and completed under Section 7 of the Endangered Species Act and the State Historic Preservation Officer (SHPO) was consulted under the principles and stipulations of the 2010 Programmatic Agreement (PA) prepared per the requirement of Section 106 of the Historic Preservation Act of 1966.

A complete description of the anticipated impacts for the Phase IIa Selected Alternative is included in the Phase IIa EA. These impacts also are summarized in Section 3.5 of this document. The impacts presented in the Phase IIa EA are associated with the Pea Island inlet in an open state. While the inlet closed as a result of natural processes in May 2013, these open state impacts are still included in this ROD and are considered to be representative of the impacts of the Phase IIa Selected Alternative with the presence of an inlet in the Phase IIa project area because the inlet may open again. The text of this ROD notes the impacts that do not apply with the closed inlet. With the inlet closed, the types of impacts of the Phase IIa Selected Alternative in the inlet area would be the same as other impacts on land described in the Phase IIa EA. No new impact types are added. With the inlet closed, the setting in the Phase IIa project area is similar to the setting considered for the same area in the 2008 FEIS. Where the Pea Island inlet is referenced as a landmark in this ROD, the location remains the same whether the inlet is in an open or closed state.

The Bridge within Existing Easement Alternative is selected for implementation as Phase IIa of the Bonner Bridge Replacement Project (B-2500) and is therefore referred to as the Phase IIa Selected Alternative in the balance of this ROD. The entire the Bonner Bridge Replacement Project (B-2500) is referred to as the PBC/TMP Alternative, as stated in the 2010 ROD.

2.0 Project History

Section 2.0 of the 2010 ROD describes the following environmental documents generated over the history of the Bonner Bridge Replacement Project (B-2500) through December 2010:

- 1993 Draft Environmental Impact Statement
- 2005 Supplemental Draft Environmental Impact Statement
- 2007 Supplement to the 2005 Supplemental Draft Environmental Impact Statement
- 2008 Final Environmental Impact Statement
- 2010 Environmental Assessment
- The 2010 ROD and 2013 Phase IIa EA are described below

2.1 2010 Record of Decision

The 2010 ROD was signed by FHWA on December 20, 2010. The 2010 ROD identified the PBC/TMP as the Selected Alternative for the Bonner Bridge Replacement Project (B-2500), and summarized its selection process from among the alternatives considered. A summary of impacts for all phases of the PBC/TMP was provided in the 2010 ROD, along with measures to minimize harm associated with the impacts. The Section 4(f) statement concluded that there is no feasible and prudent alternative to the use of land from the Pea Island National Wildlife Refuge from the construction of Phase I of the PBC/TMP, that the PBC/TMP would cause the least overall harm, and that the PBC/TMP includes all possible planning to minimize harm to the property. The 2010 ROD also included plans for the ongoing monitoring and enforcement program, corrections to the 2010 EA, responses to comments on the 2010 EA, the Section 106 PA, and next steps in the project process.

2.2 2013 Phase IIa Environmental Assessment

The Phase IIa EA, released in February 2013, identified the Phase IIa study area and assessed changes in the setting, project, and potential project impacts that might have occurred since the 2010 ROD. Most notably, the changes identified include the effects of

Hurricane Irene, which struck the North Carolina coast in August 2011 and breached NC 12 within the Pea Island National Wildlife Refuge (the "Pea Island inlet"). As of May 2013, the Pea Island inlet closed as a result of natural processes.

In addition to documenting these changes, the Phase IIa EA documented the selection of a Preferred Alternative for the Phase IIa project area (now the Phase IIa EA Selected Alternative). The Phase IIa EA included the following:

- A description of other alternatives considered and the reasons for eliminating them as detailed study alternatives
- New information gathered since the publication of the 2010 ROD, including new cost estimates, results of the Peer Exchange Meeting held in October 2011, an updated 2060 shoreline forecast and other coastal condition updates, and new bird surveys
- The identification of the Bridge within Existing NC 12 Easement as the Phase IIa Preferred Alternative and reasons for its selection
- Updated discussion of environmental conditions and assessment of impacts for the Phase IIa Preferred Alternative, as well as assessment of the effect of the Phase IIa Preferred Alternative on the PBC/TMP Alternative for the entire project length
- A series of three public hearings was held in March 2013. FHWA and NCDOT have carefully reviewed the impact analysis included in the Phase IIa EA and all of the comments received on those documents and at the March 2013 public hearings. Based on this review, FHWA determined that the changes identified in the Phase IIa EA do not result in any new significant impacts not previously identified for the PBC/TMP; therefore, a Supplemental FEIS is not required.

3.0 Alternatives Considered

Section 3.0 of the 2010 ROD describes the eight alternatives analyzed in detail for the 2008 FEIS and 2010 EA. These eight alternatives fall into one of two corridors – the Pamlico Sound Bridge Corridor or the Parallel Bridge Corridor. The two Pamlico Sound Bridge Corridor alternatives were dropped from detailed study. The following six Parallel Bridge Corridor alternatives were considered:

- 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 (PBC/TMP)

The PBC/TMP alternative was selected as the Selected Alternative in the 2010 ROD and is described in Section 3.3 of that document. The PBC/TMP Alternative includes future phases, such as Phase IIa, as part of its NC 12 Transportation Management Plan component. The impacts of all of the Parallel Bridge Corridor alternatives were documented to consider the reasonably foreseeable range of impacts that could result from the implementation of future phases of B-2500 (See 2010 ROD, Table 1).

3.1 Phase IIa Alternatives Studies

3.1.1 Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternatives Considered

Four alternatives were considered for the Phase IIa project area. All four alternatives would extend from the southern-most Refuge pond south to a point where NC 12 is not threatened by the forecast 2060 high-erosion shoreline (i.e., approximately 2.4 miles). This distance includes the entire area identified in the 2008 FEIS for this study area as geologically susceptible to breaches. The four alternatives considered for study in the Phase IIa project area are:

1. Beach Nourishment

   The Beach Nourishment alternative would keep NC 12 in its current location and use beach nourishment and dune enhancement to maintain an adequate protective beach and dune system. Nourishment would occur in four locations, likely repeated at four-year intervals.

   This alternative was eliminated for Phase IIa because of uncertainties related to the availability of a suitable sand source over the project's estimated 50-year life (i.e., through 2060); it would have necessitated the closure of the Pea Island inlet by NCDOT had it not closed in May 2013; it would not adequately protect NC 12 from potential future breaches/ inlets (either from ocean or sound-side [such as Hurricane Irene] storm surges, although the dunes associated with this alternative would reduce the risk of a breach occurring) or the re-opening of Pea Island inlet in this area since NC 12 would remain at-grade; it would not allow natural island processes to occur; and, based on comments from the US Fish and Wildlife Service (USFWS)-Refuge, it would likely be incompatible with the Refuge's mission and purpose.

2. Bridge on New Location (from All Bridge Alternative)

   The Bridge on New Location alternative would relocate NC 12 onto a bridge west of the forecast 2060 high-erosion shoreline in the north end of the Refuge. At the south

end of the Refuge and in Rodanthe, NC 12 would be placed on a bridge west of Hatteras Island.

This alternative was eliminated for Phase IIa because, based on comments from the USFWS-Refuge, it would likely be found to be incompatible with the Refuge's mission and purpose because it would involve a substantial deviation from the existing NC 12 easement, which would not be considered a minor modification (see October 18, 2011 Merger Team Meeting Minutes, Phase IIa EA, Appendix A), and because it would impact an historic resource – the southern dike around a Refuge pond.

3. Road on New Location (from Road North/Bridge South Alternative)

   The Road on New Location alternative would relocate NC 12 as a road west of the forecast 2060 high-erosion shoreline in the north end of the Refuge. At the south end of the Refuge and in Rodanthe, NC 12 would be placed on a bridge west of Hatteras Island.

   This alternative was eliminated for Phase IIa because it would have necessitated the closure of the Pea Island inlet by NCDOT had it not closed in May 2013 and it would not adequately protect NC 12 from the formation of potential future inlets or re-opening of Pea Island inlet in this area since NC 12 would remain at-grade and would be susceptible to breaches either from ocean or sound-side (such as Hurricane Irene) storm surges. Additionally, based on comments from USFWS-Refuge, the Road on New Location alternative would likely be found incompatible with the Refuge's mission and purpose because it would involve a substantial deviation from the existing NC 12 easement, which would not be considered a minor modification (see October 18, 2011 Merger Team Meeting Minutes, Phase IIa EA, Appendix A).

4. Bridge within Existing NC 12 Easement (Phase III of Phased Approach Alternatives)

   The Bridge within Existing NC 12 Easement involves building a bridge in the existing NC 12 easement approximately 2.1 miles in length to replace the existing surface road and the temporary bridge over the Pea Island inlet. The total approximate length of Phase IIa (including approaches) is 2.4 miles.

   This alternative was selected for detailed study and as the Preferred Alternative (now the Phase IIa EA Selected Alternative) for reasons described below in Section 3.2.

3.1.2 Other Alternatives Considered

Several other alternatives were considered in addition to those listed above. These are:

1. Pamlico Sound Bridge Corridor

The Pamlico Sound Bridge Corridor consists of a proposed bridge through Pamlico Sound (located as far as 5 miles to the west of Hatteras Island) approximately 17.5 miles in length. The total corridor length is 18 miles, including the bridge and the approach roads at the northern and southern ends of the bridge structure. The southern terminus of the bridge is located within the community of Rodanthe on Hatteras Island, and the northern terminus is the same as the northern terminus of Phase I on Bodie Island, within the Cape Hatteras National Seashore (Seashore).

This alternative was eliminated as a detailed study alternative in the 2010 EA because of funding constraints. It was discussed again in Section 2.3.1 of the Phase IIa EA beginning on page 2-5. If selected, a bridge in the Pamlico Sound Bridge Corridor would need to be funded over multiple TIP cycles to be constructed, which was determined not to be reasonable because the phases of the new bridge could not be opened to traffic until construction of the entire bridge was completed, and delaying replacement of the Bonner Bridge would ultimately create a safety issue because of its poor condition and low sufficiency rating. As part of the study process for Phase II, NCDOT completed in 2012 an updated cost estimate for a Pamlico Sound bridge to assess whether there were any material changes to the cost and funding outlook. The 2012 cost estimates and financial analyses are presented in an October 24, 2012 report prepared by NCDOT titled *Bonner Bridge – NC 12 Transportation Management Plan Phase II – Pamlico Sound Bridge Corridor Cost Analysis*. The report concluded that financial constraints have not changed such to make the Pamlico Sound Bridge Corridor a practicable or prudent alternative. The report was summarized in Section 2.6.1 of the Phase IIa EA and included in full on the compact disc (CD) that accompanies the Phase IIa EA, at the public review locations listed in Section 6.7 of the Phase IIa EA, and on the NCDOT project website at http://www.ncdot.gov/projects/ bonnerbridgephase2/.

Beginning in 1989, the Equity Formula was used to allocate transportation funding throughout the state. On June 26, 2013, Governor McCrory signed into law the Strategic Transportation Investments legislation. This legislation sets forth a new way to fund and prioritize transportation projects in an effort to provide the maximum benefit to the state. The prioritization formula is driven by various data as determined by the North Carolina General Assembly as well as input from Metropolitan Planning Organizations, Rural Planning Organizations, and NCDOT Division Engineers. All modes of transportation will compete for the same funding under the new legislation.

Transportation project funding will be divided into three categories – Statewide, Regional, and Division. Forty percent (40%) of the funding will be distributed to projects of Statewide importance, thirty percent (30%) will be allocated to Regional projects, and the remaining thirty percent (30%) of transportation funds will be distributed to Division projects. Transportation initiatives will be classified as Statewide, Regional, or Division projects according to the definitions set forth in the

legislation (see N.C.G.S. § 136-189.10(1)–(3)). Based on these definitions as determined by the North Carolina General Assembly, the Pamlico Sound Bridge Corridor (PSBC) would be eligible for funding under only the Regional or Division categories.

Transportation funds allocated under the Regional category will be dispersed through seven (7) Distribution Regions. See N.C.G.S. §136-189.10(4). As with the Equity Formula, under the new legislation two NCDOT transportation divisions are paired to form one Distribution Region; the transportation division pairings are based on population. Distribution Region A is comprised of Division 1, where the proposed bridge will be located, and Division 4 for this category. See N.C.G.S. §136-189.10(4)(a). Preliminary revenue estimates indicate that this funding Region may receive approximately $445 million over a ten year period. However, Division 1 is not guaranteed any funding under the Regional category. Rather, transportation projects in Division 1 will compete for Regional funding against projects in Division 4. Only the highest ranked projects in Distribution Region A will be selected for funding.

Funds allocated under the Division category will be equally apportioned to each of the state's 14 transportation divisions. Preliminary revenue estimates indicate that Division 1 may receive approximately $360 million in this category over a ten year period. Only the highest ranked projects in the division will be selected for funding.

According to preliminary revenue estimates, the maximum amount of Regional and Division funding that Division 1 could receive during the upcoming ten year period is $805 million. If this funding were allocated to the PSBC, Division 4 could not construct any project of Regional importance during the ten year period, and Division 1 could not construct any project of either Regional or Division importance during that same period. Even so, the $805 million potentially available under the new funding formula is less than the lowest estimated cost of the PSBC alternative, which is $896 million. Therefore, the new funding formula under the Strategic Transportation Investments legislation does not change the prior conclusion that construction of a bridge in the PSBC is not feasible, prudent, or practicable.

2. Ferry Alternative

The Ferry Alternative was first examined in the 1991 feasibility study, and a summary of the analysis of this alternative is documented in Section 2.2.6 of the 2008 FEIS. Although considered by NCDOT and FHWA, the Ferry Alternative was eliminated because it would result in a decrease in the present level of traffic service across Oregon Inlet, would require extensive dredging (causing substantial impacts to submerged aquatic vegetation [SAVs]), and would be substantially more expensive than a bridge alternative. Though ferries had been previously eliminated as a viable alternative, FHWA and NCDOT re-evaluated, as part of the Phase II

study process, aspects of a potential Ferry Alternative (see Section 2.3.2 of the Phase IIa EA beginning on page 2-6), including: updating service assumptions; updating cost estimates; considering further the use of high-capacity, high-speed ferries; and considering a privatized, rather than publicly-funded, ferry system. Based on this re-evaluation of the Ferry Alternative, FHWA and NCDOT determined that the use of ferries to meet the transportation needs of Hatteras Island remains an unreasonable transportation alternative. The results of the re-evaluation are documented in a January 2013 report prepared by FHWA and NCDOT titled *Bonner Bridge – NC 12 Transportation Management Plan Phase II, Reconsideration of the Ferry Alternative Report for NC 12 Replacement of Herbert C. Bonner Bridge.* This report is available on the compact disc (CD) that accompanied the Phase IIa EA and on the NCDOT web site at http://www.ncdot.gov /projects/bonnerbridgephase2/.

3. Bridge from Rodanthe to Either Stumpy Point or Roanoke Island

   Public comments were received expressing continued support for a bridge from Rodanthe to either Stumpy Point or Roanoke Island. Both of these alternatives were addressed in Section 2.3.3 of the Phase IIa EA beginning on page 2-13 by documenting and re-affirming conclusions for these alternatives presented in previous environmental documentation. A bridge with an endpoint at Stumpy Point (the mainland) was examined during the Final Section 4(f) Evaluation presented in the 2008 FEIS, where it was determined that required improvements to US 264 for 12.5 miles through the Alligator River National Wildlife Refuge would result in a Section 4(f) use and wetland impacts, in addition to the community and residential impacts in Stumpy Point. In the same document, a bridge from Roanoke Island to Rodanthe was determined not to be a feasible and prudent Section 4(f) avoidance alternative because it would not meet the project's purposes and needs; it would result in severe disruption to the established community of Wanchese; it would result in the loss of a direct connection from Hatteras Island to the only hospital serving the area located on Bodie Island, which would severely impact the operations of emergency services from Hatteras Island; and it would require substantial utility relocation. Therefore, neither of these bridging options was determined to be a reasonable alternative for the Bonner Bridge Replacement Project (B-2500).

4. Seven-Mile Bridge Alternative

   A Seven-Mile Bridge Alternative from north of the Pea Island inlet through the Pamlico Sound and ending in Rodanthe was suggested during the October 2011 Peer Exchange meeting (see Phase IIa EA Section 2.6.2). This alternative would relocate NC 12 from the southern portion of the Refuge (i.e., south of the ponds), and the USFWS-Refuge stated that it could possibly be considered to be a "minor modification" to the existing NC 12 easement. As discussed in Section 2.3.4 of the Phase IIa EA beginning on page 2-14, the Seven Mile Bridge Alternative was not

carried forward as a detailed study alternative because it was determined to be cost-prohibitive given NCDOT financial constraints, because of impacts to the dike around the southern-most Refuge pond (which contributes to the Refuge's eligibility for the National Register of Historic Places [NRHP]), and because of impacts to SAV in Pamlico Sound. The NCDOT, FHWA, USFWS-Refuge (and the Merger Team) agreed that this alternative should not be pursued.

3.2 Phase IIa Basis for Selection of the Selected Alternative

The Selected Alternative from the 2010 ROD specified an alignment for a Phase I bridge and addressed the study and selection of future phases through a comprehensive NC 12 Transportation Management Plan (TMP), which explained that the study, selection, and finalizing of future phases would follow the provisions of the NEPA/Section 404 Merger Process (see the 2010 ROD Section 3.3.2). In evaluating alternatives for Phase IIa, FHWA and NCDOT carried out this commitment by following the Merger Process.

The Merger Team process is designed to streamline environmental review by bringing stakeholder agencies together to conduct NEPA and Section 404 review simultaneously. "The process is conducted under the concept of 'concurrence' with a project team organization. Concurrence implies that each team member and the agency they represent does not object to decisions made at strategic points in the project development process and in doing so 'pledges' to abide by the decision made unless there is a profound changed condition. The USACE, North Carolina Department of Environment and Natural Resources (NCDENR), NCDOT, and FHWA jointly lead the project team.[1] Concurrence points are defining points in the NEPA project development and Section 404 permitting process."[2] At each concurrence point, Merger Team member agencies have the option to concur with the decision, abstain, or non-concur (object) to the decision. Abstention means the agency does not actively object to allowing the process to move forward and agrees not to revisit the decision, though it does not sign the concurrence form.

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[1] The current Merger Team members are: NCDOT; FHWA; USACE; US Environmental Protection Agency (USEPA); USFWS (Raleigh Office); USFWS—Pea Island National Wildlife Refuge; National Marine Fisheries Service (NMFS); National Park Service (NPS)-Cape Hatteras National Seashore; North Carolina Department of Environment and Natural Resources (NCDENR)-Division of Coastal Management (DCM); NCDENR-Division of Marine Fisheries (DMF); NCDENR-Division of Water Resources (DWR- formerly the Division of Water Quality); North Carolina Wildlife Resources Commission (NCWRC); North Carolina Department of Cultural Resources (NCDCR); and the Albemarle Rural Planning Organization (RPO). The US Coast Guard (USCG) is not a signing team member, but is sent information before and following all NEPA/Section 404 Merger Team meetings.

[2] Memorandum of Understanding: Section 404 of the Clean Water Act and National Environmental Policy Act, revised May 16, 2012, page 2.

There are four (4) primary concurrence points during the Merger Process:[3]

1. The Merger Team determines the project's purpose and need.

2. The Merger Team reviews alternatives and decides which ones to carry forward.

3. The Merger Team selects the LEDPA.

4. The Merger Team identifies ways to avoid and minimize impacts associated with the LEDPA.

The Selected Alternative for Phase IIa was selected as a result of using the Merger Process, thus fulfilling the commitment made in the 2010 ROD. At the November 14, 2012 Merger Team meeting, the Team reached consensus that, from among the alternatives described above, the Bridge within Existing NC 12 Easement Alternative (see Figure 2) would be carried forward as the sole detailed study alternative and the LEDPA for Phase IIa. The LEDPA also is FHWA's and NCDOT's Phase IIa Selected Alternative in this Phase IIa ROD. FHWA, NCDOT, USACE, NCDENR-Division of Water Quality (DWQ), the North Carolina Department of Cultural Resources (NCDCR), and NCDENR-Division of Coastal Management (DCM) signed the Merger Team concurrence forms. U.S. Environmental Protection Agency (USEPA), USFWS, USFWS-Refuge, National Marine Fisheries Service (NMFS), the National Park Service (NPS), NCDENR-Division of Marine Fisheries (DMF), and the North Carolina Wildlife Resources Commission (NCWRC) abstained from this decision.[4] The concurrence forms are included in Appendix A of the Phase IIa EA.

The reasons for the selection of the Bridge within Existing NC 12 Easement as the Phase IIa Selected Alternative are:

- It is designed to account for the potential expansion and migration of Pea Island inlet and any future inlets that might form.

- It bridges the entire area considered geologically susceptible to breaches in the Pea Island inlet area (see Figure 2).

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[3] See Memorandum of Understanding: Section 404 of the Clean Water Act and National Environmental Policy Act, revised May 16, 2012, page 4-5, for a description of all Concurrence Points, including subpoints.

[4] The Merger Process guidelines define abstention as follows: "… abstain means that a team member does not actively object to a concurrence point but the agency representative does not sign the concurrence point form. The process may continue and the agency representative agrees not to revisit the concurrence point. Written justification for abstaining from a concurrence point should be provided to the project team within 5 days of the concurrence meeting."

- It accounts for shoreline movement in the area.
- It bridges wetlands in the area.
- It has fewer adverse impacts than the other Parallel Bridge Corridor alternatives that were considered for this phase (see Section 3.1.1).

3.3 Description of the Phase IIa Selected Alternative

The Phase IIa Selected Alternative, the Bridge within Existing NC 12 Easement Alternative (see Figure 2), would involve building a bridge in the existing NC 12 easement to replace the existing surface road and the temporary bridge over the Pea Island inlet. The total length of the proposed project is approximately 2.4 miles. The bridge component, approximately 2.1 miles in length, is designed to account the potential existence, expansion, and migration of an inlet in the future, and it bridges the entire area considered geologically susceptible to breaches in the Pea Island inlet area (see Figure 2). It would start near the southern end of the Refuge's South Pond, within the southern portion of the Sandbag Area Hot Spot (see Figure 1), continue to the south past the southern end of the area considered susceptible to breaches in the Pea Island inlet area, and end at the northern end of the 2.1-mile section of NC 12 in the southern half of the Refuge that is not expected to be threatened by shoreline erosion prior to 2060 (see Figure 2). The Phase IIa Selected Alternative has the following characteristics:

- Two 12-foot lanes with 8-foot shoulders on the bridge, similar to Phase I of the Bonner Bridge Replacement Project (B-2500)
- Located on the ocean side of the NC 12 easement except in the area of the temporary bridge, where it would be on the sound side. The temporary bridge was placed on the ocean side of the NC 12 easement.
- 110- to 120-foot main spans with 60-foot approach spans
- Approach fills at each end of the bridge (including an approximately 150-foot-long fill section at the south end of the bridge and a 200-foot-long fill section at the north end) with the fill held by a retaining wall where needed to keep approach fills within the NC 12 easement
- Pile foundation with a footer cast on top of the piles at the existing ground line topped by a pier used to support the bridge spans
- There would be 15.8 feet of clearance under much of the bridge spans above mean high water (17 feet from zero elevation). The bridge deck would be at an elevation of approximately 23 feet. A clearance of 15.8 feet is lower than what was assumed in the 2008 FEIS (25 feet of clearance under the bridge spans above mean high water). The lower bridge clearance is based on additional site analysis performed by

NCDOT of the Phase IIa project area. (Section 4.2.1 of the Phase IIa EA discusses in more detail the reasons for the higher bridge clearance heights that were recommended in the 2008 FEIS, as well as the additional site analysis of the Phase IIa project area performed by NCDOT that lead to the reduced bridge clearance for the Phase IIa Selected Alternative's bridge.) For approximately 5,000 feet in the area surrounding the Pea Island inlet, the Phase IIa Selected Alternative's bridge deck would be higher than 23 feet of elevation. The highest point of the bridge deck height would be over Pea Island inlet at 32.8 feet of elevation.

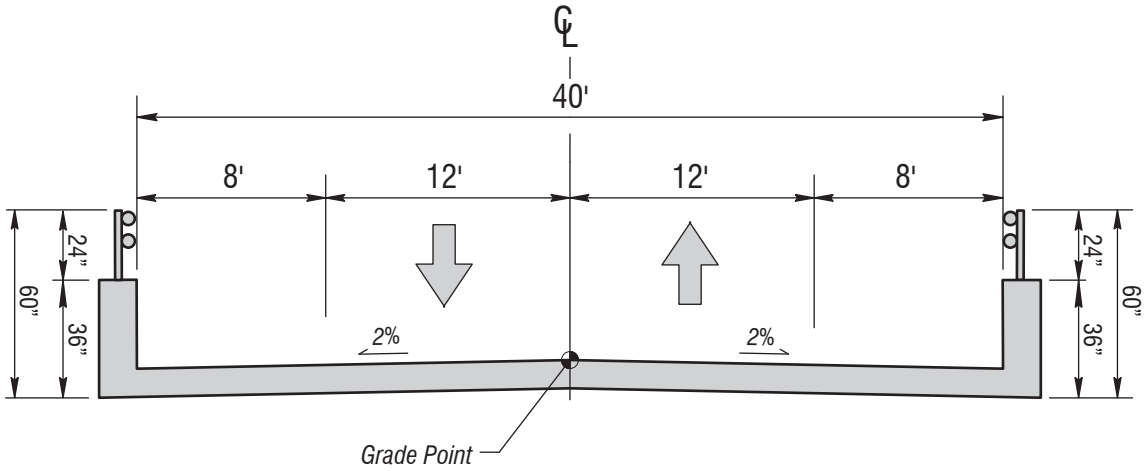
- Bicycle safe bridge rail designed as agreed to with the USFWS and the State Historic Preservation Officer (SHPO) during consultation under Section 7 of the Endangered Species Act and under the terms of the 2010 PA under Section 106 of the Historic Preservation Act of 1966 (see Figure 3). The bridge rail includes a 36-inch concrete parapet, which will minimize the impact of passenger vehicle headlights on nesting sea turtles. The bridge rail agreement is included in the 2013 first amendment to the 2010 PA (see Appendix E of this ROD).

- Runoff would be collected from the ends of the Phase IIa bridge and piped to a riprap apron, which would drain to roadside swales to promote infiltration. Bridge drainage for the main bridge spans would be from scuppers (openings) at the outer edges of the deck. The bridge would be high enough to allow wind to disperse the scupper discharge before it reaches the ground or inlet surface.

- The existing parking lot on the east side of the NC 12 and closest to the Pea Island inlet site would be fully removed along with all construction materials, including concrete, asphalt, contaminated soils, and any other material not naturally belonging on the site. At the end of construction, a replacement parking lot would be built and the existing kiosk would be relocated or reconstructed at a new site near the northern terminus of the Phase IIb project.

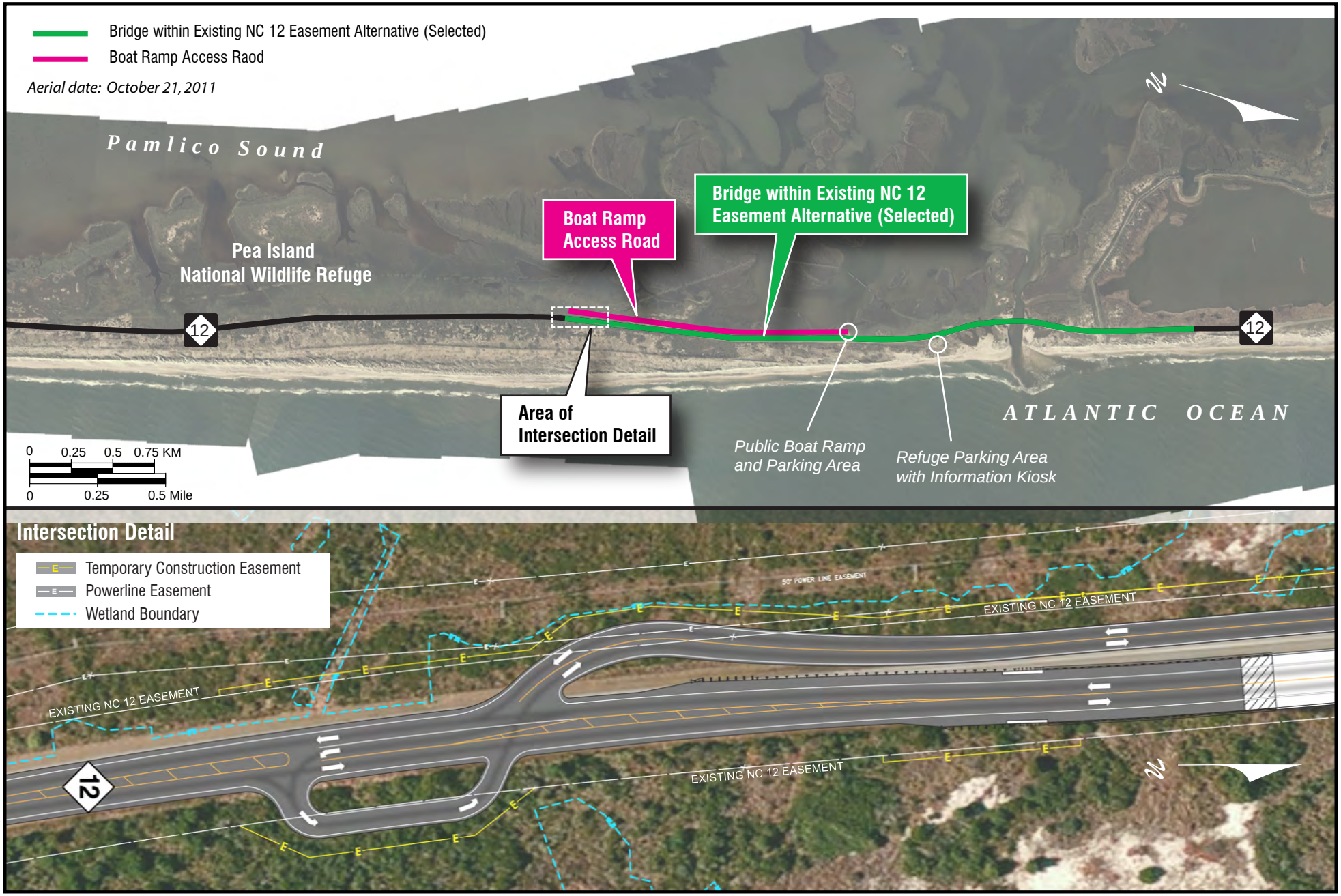
- The New Inlet boat ramp/parking lot on the west side of NC 12 would be fully restored by NCDOT following construction. An access road with a turnaround would be constructed from the southern terminus of the new bridge to the boat ramp parking lot, within the existing NC 12 easement to the greatest extent possible, as depicted on Figure 4. The only part that will be outside the existing NC 12 easement would be part of the intersection of the access road and NC 12.

- Construction activity would be primarily confined to the existing NC 12 easement, including a temporary traffic maintenance road. However, approximately 4.10 acres of temporary construction easement (outside of the existing NC 12 easement) would be needed to construct Phase IIa. A narrow temporary construction easement would be needed for the entire length of the Phase IIa Selected Alternative on at least one side of the existing NC 12 easement, and on both sides in four locations for short distances. Except in the area of the temporary bridge, the easement would be



PHASE IIa BRIDGE TYPICAL SECTION

Figure
3



NEW INLET BOAT RAMP ACCESS ROAD

Figure
4

approximately 5 feet wide. The purpose of this narrow easement would be primarily to provide room for construction workers to erect erosion control measures (fencing) along the edge of the existing NC 12 easement; a small portion would be occupied by the temporary traffic maintenance road. In the temporary bridge area, the easement would be needed to aid in the placement of temporary shoring along the edge of the existing NC 12 easement and to remove the temporary bridge and its associated shoring and riprap. Temporary construction easements also would be requested for staging areas placed at the existing paved New Inlet boat ramp/parking lot and the paved parking lot just south of the Pea Island inlet (see Figure 2). A pile jetting pipe would be placed between NC 12 and the Pamlico Sound on a 10-foot wide temporary easement at one location. Two additional jetting pipes would be used at the paved boat ramp easement and at the Pea Island inlet. Finally, easement will be needed to construct the part of the boat access road's intersection with NC 12 that is outside the existing NC 12 easement. Refuge land used under the temporary construction easement will be restored following the construction completion under the terms of the USFWS Special Use Permit, with the exception of the pavement for the boat ramp access road's intersection with NC 12.

- Two proposed temporary work bridges over Pea Island inlet would be built in the course of construction. One work bridge would be placed in the same location as the permanent bridge and used to move construction equipment from one side of Pea Island inlet to the other. The other would be built near the end of the project east of the existing temporary bridge (within the limits of the temporary construction easement) for use in removing the existing temporary bridge.

Construction is anticipated to last from 2 to 3 years, including removal of the temporary bridge.

3.4 Cost Estimate for the Phase IIa Selected Alternative

The Phase IIa Selected Alternative will cost an estimated $124.2 million (2013 dollars), including removal of the temporary bridge. No right-of-way cost is expected with the Phase IIa Selected Alternative.

Phase IIa would be funded through existing federal and state funding sources available to transportation projects and allocated to Division 1 in the STIP. In addition, FHWA advised NCDOT that a portion of the cost of Phase II (including Phase IIa and Phase IIb) may be eligible for reimbursement under federal Emergency Relief[5] (ER) funding. The amount of ER funding available for Phase II will depend upon the scope of the long-

[5] The FHWA Emergency Relief Program is a special program from the Highway Trust Fund for the repair or construction of federal-aid highways and roads on federal lands that have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause.

term solution as compared to the original damage as a result of the storm. FHWA estimates that 34 percent of the long-term solution at the Pea Island inlet site (Phase IIa) will be eligible for ER funding.

3.5 Summary of Impacts for the Phase IIa Selected Alternative

3.5.1 Phase IIa Selected Alternative Impacts

The Phase IIa EA updated the impact discussions presented in Chapter 4 of the 2008 FEIS and Section 2.3.3 of the 2010 EA. It focused on updates relevant to Phase IIa of the Bonner Bridge Replacement Project (B-2500). Changes in impacts are primarily associated with changes in the affected environment resulting from Hurricane Irene, in particular the introduction of the Pea Island inlet. The impacts presented in the Phase IIa EA are associated with the Pea Island inlet in an open state. As of May 2013, the inlet is closed as a result of natural processes. The open state impacts are still included in this ROD and are considered in general to be representative of the impacts of the Phase IIa Selected Alternative with the presence of an inlet in the Phase IIa project area. The text of this ROD notes the impacts that do not apply with the closed inlet. With the inlet closed, the impact types of the Phase IIa Selected Alternative in the inlet area are the same as other impacts on land. No new impact types are added. With the inlet closed, the setting in the Phase IIa project area is similar to the setting considered in the 2008 FEIS. Where the Pea Island inlet is referenced as a landmark in this ROD, the location remains the same whether the inlet is in an open or closed state.

The characteristics of the Phase IIa Selected Alternative would be similar to what was defined in the 2008 FEIS as the potential Phase III of the Phased Approach alternatives, in that both alternatives consist of a bridge within the existing NC 12 easement just south of the Refuge ponds. Thus, there are few changes in the impacts discussed in the 2008 FEIS as a result of Phase IIa project design changes. Any changes in impacts are instead the result of changes in Phase IIa project area conditions. The following direct impact types have changes in impacts from that presented in the 2008 FEIS and are summarized in this section:

- Visual impacts
- Cultural resource impacts
- Parks and recreation impacts
- Natural systems impacts

Hurricane Sandy in October 2012 did not introduce any notable new or changed environmental elements to the Phase IIa project area that would affect the impacts of the Phase IIa Selected Alternative.

Indirect and cumulative impacts findings contained in Section 4.12 of the 2008 FEIS are unchanged.

The impacts described below for the Phase IIa Selected Alternative would be in addition to those associated with building the existing temporary bridge in 2011. All work for that bridge was within the existing NC 12 easement with the exception of the excavation of fill material within the Refuge south of the terminal groin, the placement of some bridge bents outside the eastern easement edge, and the use of sandbag fill material from the beach face below the mean high water line. NCDOT acquired permits from USFWS, USACE, NCDENR-DCM, and NCDENR-DWQ and prepared a Type 1 Programmatic Categorical Exclusion (CE) for the temporary bridge, fulfilling the requirements of NEPA. The CE, approved in September 2011, demonstrated that the temporary bridge would have no significant environmental impact.

Visual Impacts

Section 4.3.2 of the 2008 FEIS discussed that a bridge in the existing NC 12 easement in the Phase IIa project area would be a sizable new linear man-made feature that would represent an intrusion into the landscape of the Refuge. At that time, the bridge deck was planned at an elevation of approximately 33.5 feet above mean sea level (approximately 30 feet above ground). However, as part of the design of the Phase IIa Selected Alternative's bridge, additional site analysis was performed by NCDOT of the Phase IIa project area to determine the necessary bridge heights. Based on this analysis, it was determined that a lower bridge height would meet safety requirements. A deck 23 feet above mean sea level could be used, except for an approximately 5,000 feet in the area surrounding the Pea Island inlet where the Phase IIa Selected Alternative's bridge deck would be higher than 23 feet above mean sea level. The highest point of the bridge deck height would be over Pea Island inlet at 32.8 feet above mean sea level. Therefore, the visual impacts assumed in the 2008 FEIS would remain, but would be lessened because of the shorter bridge heights.

Cultural Resource Impacts

Of the four resources in the Bonner Bridge Replacement Project area listed on or eligible for inclusion in the NRHP, as discussed in Section 4.4.1 of the 2008 FEIS, only one resource would be affected by the Phase IIa Selected Alternative – the Pea Island National Wildlife Refuge. The nature of the Adverse Effect would be the visual impact of the Phase IIa Selected Alternative on the historic landscape of the Refuge. As discussed in Section 4.2.1 of the Phase IIa EA and in Section 4.3.2 of the 2008 FEIS, the bridge would introduce a sizable new, elevated, linear, man-made feature through the Refuge. As discussed under "Visual Impacts" above, the bridge deck height would be lowered from what was originally analyzed in the 2008 FEIS. Despite the reduced height, the Phase IIa Selected Alternative's bridge would dominate views from the dunes lining the beach and, as the dunes disappear over time, it would also dominate views of the beach and, ultimately, the ocean.

Parks and Recreation Impacts

Land Use. Aside from the temporary construction easement that would be needed for the entire length of the Phase IIa Selected Alternative during construction and which would be restored to the Refuge following completion under the terms of a USFWS Special Use Permit, the Phase IIa Selected Alternative would be built and maintained within the existing NC 12 easement. Thus, no new Refuge lands would be permanently used as NC 12 easement. The disturbance within the existing easement would be similar to that presented for the Phased Approach alternatives (also calling for a bridge in the existing easement) in the 2008 FEIS except for the addition of the boat access road. The boat access road would affect 5.45 acres. The total fill and pile impact would be 6.91 acres). The temporary construction easements would temporarily affect 4.10 acres of Refuge land outside the existing easement, but this land would be restored after construction is completed, except for that used for pavement for the boat ramp access road's intersection with NC 12. The unnecessary section of the existing NC 12 roadway, the parking lot being replaced, and the temporary bridge spanning the Pea Island inlet would be removed.

Recreational Use. Two facilities within the Pea Island National Wildlife Refuge, the public New Inlet boat ramp/parking lot on the west side of NC 12 and the public parking lot near the Pea Island inlet on the east side of NC 12, would be bypassed by the Phase IIa bridge. Motor vehicle access would be lost to these facilities during construction of the new bridge, as both facilities would be used as staging areas for construction activities. Upon completion of construction, NCDOT would construct a replacement parking lot at a new site near the northern terminus of the Phase IIb project. The New Inlet boat ramp/parking lot on the west side of NC 12 would be fully restored by NCDOT following construction. An access road would be constructed from the southern terminus of the Phase IIb bridge to the boat access parking lot, within the existing easement to the greatest extent possible, as depicted on Figure 4.

As natural coastal processes unfold, the character of the land under the Phase IIa bridge would change. Upon completion of construction, the bridge still would be westward of the beach. As the shoreline erodes, the dunes and beach will migrate under the bridge until eventually the bridge is in the ocean. The presence of the bridge would affect several recreational activities, including fishing, hiking, surfing, wind surfing, kite boarding, swimming, ocean kayaking, and birding, as mentioned in Section 4.5.3.3 of the 2008 FEIS. As with the Phased Approach alternatives discussed in the 2008 FEIS, bridge piles in the ocean could change the types of fish that congregate around the shore. To the extent that certain sections of the bridged roadway would be over the beach, beach and water activities would be affected, but not precluded where it is safe, by the presence of the bridge and bridge piles. Once Phase IIa bridge piles are in the ocean, the ability to surf in the area affected would be eliminated. Ultimately this would be the case for the entire 2.1-mile Phase IIa bridge. The piles would change how and where the

waves break, which would interfere with the swells in such a way that the waves would no longer be conducive to good surfing.

Natural Systems Impacts

Surface Waters and Water Quality. When the Pea Island inlet is in an open state, construction-related water quality impacts to the open water of Pea Island inlet could result in temporary increases in turbidity; however, given the dynamic nature of the waters in the inlet when it was open, a temporary increase in turbidity likely would not be notable as the flux of water through the inlet would reduce the potential for any permanent water quality problems.

To minimize the potential impact of project pollutants, a stormwater management plan was developed and submitted to the NCDENR-DWQ Stormwater Unit prior to the closure of Pea Island inlet. In a letter dated April 17, 2013, the NCDENR-DWQ Stormwater Unit "determined that the project proposes activities that are in compliance with [National Pollutant Discharge Elimination System (NPDES)] Permit NCS00250 and thus are excluded from additional State stormwater permitting requirements as set forth in Section 2.(d)(1) of Session Law 2008-211, effective October 1, 2008, and the stormwater rules under Title 15A NCAC 2H .1000, as amended."

As discussed in Section 4.7.2.2 of the 2008 FEIS (page 4-82), once over the ocean as a result of beach erosion, a bridge built in the existing NC 12 easement (Phased Approach alternatives) could permanently affect water quality in the near-shore area by increasing the amount of highway runoff in locations where the bridge would extend east of the 2060 high-erosion future shoreline. Best Management Practices (BMPs) discussed in Section 4.7.2.2 of the 2008 FEIS (page 4-82) for a bridge built in the existing NC 12 easement would apply to the Phase IIa Selected Alternative.

Biotic Communities. Biotic communities in the study area would be impacted permanently and temporarily as a result of Phase IIa construction as shown in Table 1 by biotic community and as follows:

- Permanent: 12.36 acres of biotic communities with Phase IIa NC 12 improvements, including 1.46 acres of fill and pile impacts and 10.90 acres as a result of shading from the bridge. Of the 12.36 acres of permanent impacts, approximately 82 percent (1.19 acres) of the pile impact and 72 percent (7.80 acres) of the shading impact would occur in man-dominated areas. All would occur within the existing NC 12 easement. The type of biotic community shaded would remain for a time an upland biotic community as the island erodes with its vegetation affected by shading and naturally occurring storm overwash fans. Once over the ocean, the bridge would shade that open water biotic community.

  The boat ramp access road that would be included as a part of project mitigation would include an additional 5.45 acres of permanent fill impact, including 3.00 acres

Table 1. Revised Impacts to Biotic Communities in the Phase IIa Project Area

Biotic Community	Subject to Section 404 Jurisdictions?	NC 12 Improvement		Recreation Facility Mitigation (Boat Ramp Access Road) Permanent Fill (acres)[1]	Temporary Easement (acres)[2]
		Permanent Fill and Pile (acres)	Permanent Shading (acres)		
Open water[3]	Yes	0.04	1.00	0.00	0.06
Open water ditch	Yes	0.00	0.00	0.78	0.00
Upland beach	No	0.00	0.13	0.00	0.14
Upland dune	No	0.00	0.00	0.00	0.00
Upland man-dominated	No	1.19	7.80	3.00	1.18
Wetland black needlerush	Yes	0.00	0.00	0.00	0.00
Upland black needlerush	No	0.00	0.00	0.00	0.00
Wetland maritime grassland	Yes	0.00	0.00	0.00	0.06
Upland maritime grassland	No	0.00	0.44	0.01	0.29
Wetland overwash	Yes	0.00	0.00	0.00	0.00
Upland overwash	No	0.00	0.01	0.00	0.01
Wetland maritime shrub thicket	Yes	0.00	0.00	0.07	0.09
Upland maritime shrub thicket	No	0.22	1.40	1.06	0.65
Wetland salt shrub/grassland	Yes	0.00	0.00	0.00	0.00
Upland salt shrub/grassland	No	0.00	0.00	0.00	0.00
Wetland maritime shrub/grassland	Yes	0.00	0.00	0.00	0.20
Upland maritime shrub/grassland	No	0.00	0.11	0.39	0.69
CAMA marsh	Yes	0.00	0.00	0.10	0.13
CAMA wetland maritime grassland	Yes	0.00	0.00	0.00	0.00[4]
CAMA wetland salt shrub/grassland	Yes	0.01	0.01	0.04	0.06
TOTAL BIOTIC COMMUNITY IMPACTS		**1.46**	**10.90**	**5.45**	**3.56**

[1]The existing parking lot on the east side of NC 12 that will be replaced as a site to be selected by the Refuge at a future date has 0.5 acre of pavement. It is estimated that the replacement parking lot will have a similar area of pavement on what is currently upland habitat.

[2]Impacts within the 4.10-acres temporary construction easement only. As indicated in the text above, there also would be temporary impacts within the existing NC 12 easement. The majority of the temporary impacts in the existing NC 12 easement are in upland, previously disturbed/ maintained areas in the man-dominated community.

[3]Classification includes inlets, Atlantic Ocean, and Pamlico Sound. Impact indicated is in Pea Island inlet when open.

[4]Impact less than 0.005 acre.

of what is currently upland man-dominated. The size of the new parking lot has not been agreed to with the Refuge. The existing parking lot is approximately 0.5 acre in size and it is assumed at this time that the new parking lot would be comparable in size. Thus, the total fill and pile impact would be approximately 7.41 acres.

For Phase IIa, 7.4 acres of existing NC 12 pavement and approximately 0.5 acre of existing parking pavement would be removed and the land would be restored to a natural condition.

- Temporary: Approximately 20 "slivers" of temporary impact adjacent to the existing NC 12 easement where a 3.84-acre additional temporary construction easement is required to construct both the bridge and the temporary detour road. A temporary easement of approximately 0.26 acre would be required for construction of the boat ramp access road, for a total easement of 4.10 acres. The remaining impact would be in the NC 12 easement and primarily located in upland, previously disturbed/maintained areas in the man-dominated community.

Wetlands and Open Water Habitat. The Phase IIa Selected Alternative would permanently impact 0.22 acre of wetlands and 0.04 acre of open water, and temporarily impact 0.90 acre of wetland (0.08 acre of which would be used for erosion control measures) and 0.28 acre of open water. There also would be 0.40 acre of hand clearing in wetlands for the project. Within the above described impacts, the following impact amounts would occur in Coastal Area Management Act (CAMA) wetlands: 0.15 acre of permanent fill, 0.20 acre of temporary fill, and 0.18 acre of hand clearing. The open water impacts were documented as a result of the presence of the Pea Island inlet, which was not present when impacts to open water were assessed in the 2008 FEIS. These open water impacts would not occur, however, unless Pea Island inlet reopens prior to the driving of Phase IIa bridge piles.

Protected Species. The open water habitat associated with an open Pea Island inlet formed would serve as another potential avenue for marine species to travel between the ocean and sound. The potential impacts to marine species in an inlet environment are temporary construction disturbance, highway runoff, and, once the Phase IIa bridge piles are in the ocean, predation on turtle hatchlings by fish attracted to piling habitat. NMFS issued a letter on September 30, 2013 (see Appendix D) concluding formal consultation with FHWA on sea turtles and sturgeon. The focus of the letter was on Oregon Inlet, where sea turtles and sturgeon are known to occur, and the proposed Phase I replacement bridge over Oregon Inlet. The letter did not indicate that a potential for impact to sea turtles existed for Phase IIa, even if Pea Island inlet were to re-open. Unlike the catwalks that provide fishing access at Oregon Inlet, no fishing access facilities are planned as part of the Phase IIa bridge. The letter also did not indicate that a potential for impact to sturgeon existed for Phase IIa even if Pea Island inlet were to re-open. There are no records of sea turtles or sturgeon using Pea Island inlet; these species typically prefer deeper water inlets, such as Oregon Inlet.

In the September 30, 2013 letter, NMFS indicated potential effects on sea turtles in the Oregon Inlet area will be discountable or insignificant for the following reasons: implementation of NMFS's March 23, 2006 *Sea Turtle and Smalltooth Sawfish Construction Conditions* during construction; sea turtles are highly mobile; no explosives will be used during bridge demolition and no dredging is proposed; temporary and permanent habitat loss effects will be insignificant, turbidity associated with construction would be limited to that occurring during pile driving and would occur in a relatively small portion of Oregon Inlet at any one time; sea turtle passage into or out of Oregon Inlet will not be significantly impeded during demolition and construction because of the broad width of Oregon Inlet where the bridge spans it; and effects on nesting behavior in the water will be discountable or insignificant. These conclusions for the Phase I Oregon Inlet replacement bridge assume that NCDOT would close the catwalks on Bonner Bridge to fishing at the start of replacement bridge construction. Further, these conclusions assume that fishing would not be allowed after bridge construction is complete from the portion of Bonner Bridge that will be left in place as a pier. This position is being taken by NMFS because evidence indicates that at least four sea turtles have been hooked during recreational fishing in Oregon Inlet since 1989 and one hooking occurred from the Bonner Bridge catwalks in 2012. NCDOT will install "no fishing" signs to not allow fishing on the catwalks during construction to satisfy NMFS concerns and for safety reasons. To satisfy NMFS concerns, "no fishing" signs also will be installed on the portion of Bonner Bridge that will be left in place as a pier. If and when a decision is made to allow fishing on the pier, FHWA will initiate Section 7 consultation with NMFS prior to the "no fishing" signs being removed. (See Project Commitments in Appendix A and the September 30, 2013 letter from USFWS in Appendix D).

In their September 30, 2013 letter, NMFS said (regarding the shortnose sturgeon): "Because of its expected rarity or absence from the project area, we believe the risk of project-related adverse effects to this species is discountable." In the same letter, NMFS said that they believed that impacts to the Atlantic sturgeon will be discountable or insignificant at Oregon Inlet because: sturgeon are highly mobile; no dredging or explosives use is proposed; sturgeon will be able to forage or pass underneath the new Oregon Inlet bridge post-construction; turbidity associated with construction would be limited to that occurring during pile driving and occur in a relatively small portion of Oregon Inlet at any one time; foraging will be insignificantly affected by sturgeon's avoidance of active construction areas; and since sturgeon migration is not deterred by the existing bridge, the risk that the replacement bridge would alter or significantly affect migration is discountable.

Therefore, the biological conclusions of "May Affect, Not Likely to Adversely Affect" for sea turtles in the water and the shortnose sturgeon remain unchanged from the 2008 FEIS. The biological conclusion of "May Affect, Not Likely to Adversely Affect" for the Atlantic sturgeon remains unchanged from the Phase IIa EA.

The biological conclusion of "May Affect, Likely to Adversely Affect" for the leatherback, green, and loggerhead sea turtles on land and the conclusion of "Not Applicable" for Kemp's ridley and hawksbill sea turtles on land remain unchanged from the 2008 FEIS. Impacts would be associated with the effect of construction lighting and motor vehicle headlights on sea turtle hatchlings. A closed Pea Island inlet does not affect these conclusions since Pea Island inlet also did not exist when these conclusions were originally reached in 2008.

The Phase IIa Selected Alternative would use less than 1 acre of potential piping plover nesting or foraging habitat (Pea Island inlet open or closed). Construction noise/vibration could affect nesting, were any nesting to occur in this area. Shoreline erosion could create habitat that could have been used by piping plovers that instead would be shaded by the Phase IIa bridge as the shoreline erodes. Currently no nests of piping plover have been recorded in the vicinity of the Pea Island inlet, though piping plover have been sighted in the area. While potential nesting and foraging habitat has increased in the vicinity of the Pea Island inlet (open or closed) since the 2010 ROD, an incidental take of piping plover nests during construction would not increase because no nests or nesting behavior have been documented near the Pea Island inlet. The biological conclusion of "May Affect, Likely to Adversely Affect" for the piping plover as documented in the 2008 FEIS is unchanged.

There is no Critical Habitat for protected species in the Phase IIa project area.

Conservation measures agreed upon during formal and informal consultation in 2008 with USFWS and NMFS remain applicable and appropriate to Phase IIa, with one change for piping plover and one change for sea turtle nesting; a new conservation measure for Phase I that is applicable to in-water sea turtles also has been added. USFWS has agreed in relation to conservation measures for the piping plover that for Phase IIa, construction activity outside the existing NC 12 easement may occur as described in Section 3.3. For sea turtle nesting, USFWS has agreed to a second type of acceptable construction lighting. (See the Project Commitments in Appendix A and the May 17, 2013 letter from the USFWS in Appendix D.)

Essential Fish Habitat. The potential impacts (short-term, long-term, permanent, and potential species-specific) to Essential Fish Habitat (EFH), relating to Phase I (replacement of the Bonner Bridge), which were addressed in the 2008 FEIS (Section 4.7.6.2) and the Essential Fish Habitat Assessment (CZR, Incorporated, 2008 would be similar for the Pea Island inlet area (when the inlet is open) since both areas have the same EFH types, and both Phase I and Phase IIa would involve the same type of activities in those habitats. The EFH impacts for Pea Island inlet in its open state would be:

- Approximately 0.05 acre of EFH would be permanently impacted, including 0.04 acre of open water from permanent piles within the new Pea Island inlet and 0.01 acre of permanent fill in CAMA wetlands.

- Alteration of estuarine/marine waters, intertidal flats, and some estuarine emergent wetlands would result directly from shading (0.32 acre) with a new structure over the Pea Island inlet.

- Bridge and pile presence may result in changes to: water flow, sediment grain size and topography, and light levels of the area underneath the bridge and for some distance surrounding the bridge.

- Temporary construction related impacts may result from noise and turbidity, sediment removal, and burial of organisms.

- Temporary impacts would affect 0.60 acre of EFH, including 0.33 acre of CAMA wetlands from temporary fill, 0.17 acre of CAMA wetlands from hand clearing, and 0.10 acre of open water from temporary construction bridges.

Permanent and temporary changes would be expected to have a minimal adverse effect on EFH and managed species. EFH would remain bridged even if the Pea Island inlet reopens, reopens and moves from its original location, or if a different new inlet were to form in this area in the future.

3.5.2 Effect of Implementing Phase IIa Selected Alternative on the Impacts Associated with All Phases of the PBC/TMP Alternative

The construction of the Phase IIa Selected Alternative would have the following potential effect on the environmental impacts of the implementation of all phases of the PBC/TMP Alternative (selected for implementation in the 2010 ROD):

- At its southern terminus, the Phase IIa Selected Alternative would end at the northern end of the 2.1-mile section of NC 12 in the southern half of the Refuge that is not expected to be threatened by shoreline erosion prior to 2060 (see Figure 2). At this section of NC 12 south of Phase IIa, and north of Phase IIb, no improvements to NC 12 are anticipated as a part of the PBC/TMP Alternative unless coastal conditions warrant. This area south of Phase IIa and north of Phase IIb also is not geologically prone to breaching. The southern end of Phase IIa is the same as was assumed in the 2008 FEIS impact assessment for all phases beyond Phase I. As discussed in the EA, the Selected Alternative for Phase IIa would not constrain the reasonable alternatives available for Phase IIb.

- North of Phase IIa, the Phase IIa Selected Alternative would connect to a section of NC 12 that is seaward of the 2060 high-erosion shoreline, and this part of NC 12 likely would be replaced as a part of the PBC/TMP Alternative. Considering each of the alternatives assessed in the 2008 FEIS that represent the range of potential

impacts for the complete PBC/TMP Alternative, the potential impacts of a future phase north of the Phase IIa Selected Alternative would be affected as follows:

- Nourishment. Nourishment could be used to protect the northern end of the Phase IIa Selected Alternative as a part of a future phase north of Phase IIa, with the impacts as defined in the 2008 FEIS[6]. The Nourishment Alternative is illustrated in Figure 2-18 of the 2008 FEIS.

- Road North/Bridge South. This alternative would involve relocating NC 12 as a surface road north of Phase IIa to a point west of the forecast 2060 high-erosion shoreline. The Road North/Bridge South Alternative is illustrated in Figure 2-19 of the 2008 FEIS. To connect the Phase IIa Selected Alternative to a relocated surface road, the Phase IIa Selected Alternative would need to be extended as a bridge in a manner that leaves the existing NC 12 easement and brings the bridge to a point west of the forecast 2060 high-erosion shoreline, where it could then meet a relocated NC 12 as a surface road. The impacts of such an alignment would be a combination of those of the Phased Approach and Road North/ Bridge South alternatives. Those impacts are documented in the 2008 FEIS[7]. There are no unique natural resource, cultural resource, or Refuge facility features in this area that were unaffected by the Phased Approach and Road North/Bridge South alternatives assessed in the 2008 FEIS that would be affected by making the connection described between Phase IIa and a future phase that uses components of the Phased Approach or Road North/Bridge South alternatives.

- All Bridge. The All Bridge Alternative follows the alignment of the Road North/ Bridge South Alternative but on a bridge. Thus, this alternative would involve relocating NC 12 as a bridge north of the Phase IIa Selected Alternative to a point behind the forecast 2060 high-erosion shoreline. The All Bridge Alternative is illustrated in Figure 2-20 of the 2008 FEIS. To connect the Phase IIa Selected Alternative to a bridge west of the existing NC 12 easement, the Phase IIa Selected Alternative would need to be extended in a manner that leaves the existing NC 12 easement and brings the bridge west to a point west of the forecast 2060 high-erosion shoreline, where it could then meet a relocated NC 12 as a bridge. The impacts of such an alignment would be a combination of the

[6] As indicated in Chapter 4 of the 2008 FEIS, the Nourishment Alternative's impacts north of Phase IIa would include impacts to Refuge lands, biotic communities, wetlands, unique and rare habitats, benthic communities, EFH, terrestrial and aquatic wildlife, and protected species.
[7] As indicated in Chapter 4 of the 2008 FEIS, the Road North/Bridge South Alternative's impacts north of Phase IIa would include impacts to Refuge lands, biotic communities, wetlands and open water habitat, Refuge historic features, and terrestrial and aquatic wildlife.

Phased Approach and All Bridge alternatives[8]. Those impacts are documented in the 2008 FEIS. There are no unique natural resource, cultural resource, or Refuge facility features in this area that were unaffected by the Phased Approach and All Bridge alternatives assessed in the 2008 FEIS that would be affected by making the connection described between Phase IIa and a future phase that uses components of the Phased Approach or All-Bridge alternatives.

  - Phased Approach. In this case, the Phase IIa Selected Alternative's bridge would be extended north within the existing NC 12 easement with the characteristics and impacts described for the Phased Approach alternatives in the 2008 FEIS and for Phase IIa when not in the vicinity of Pea Island inlet. The Phased Approach alternatives are illustrated in Figure 2-21 of the 2008 FEIS.

- The PBC/TMP Alternative calls for the study and selection of future actions on Hatteras Island beyond the limits of Phase I through a comprehensive NC 12 Transportation Management Plan. This approach takes into account the inherent uncertainty in predicting future conditions within the dynamic coastal environment. The PBC/TMP Alternative and the components of its comprehensive NC 12 Transportation Management Plan are described in Section 1.2 of the Phase IIa EA. The implementation of plan components began in early 2011 and would continue until the PBC/TMP Alternative is completed.

Based on the above considerations, the expected nature and extent of environmental impacts of the potential future phases of the PBC/TMP Alternative are not expected to change with the implementation of the Phase IIa Selected Alternative.

3.6 Agency Coordination

The following coordination among agencies has occurred since the coordination activities documented in Section 6 of the Phase IIa EA.

3.6.1 January 30, 2013 Merger Team Meeting

A Merger Team meeting was held January 30, 2013 (see Appendix D). The purposes of the meeting included:

- To finalize concurrence on Concurrence Point (CP) 4A (Avoidance and Minimization) for the Phase IIa Pea Island inlet site (B-2500A),

[8] As indicated in Chapter 4 of the 2008 FEIS, the All Bridge Alternative's impacts north of Phase IIa would include impacts to Refuge lands, biotic communities, wetlands and open water habitat, Refuge historic features, and terrestrial and aquatic wildlife.

- To discuss CP 4B (30 percent Hydraulic Review) for the Phase IIa Pea Island inlet site (B-2500A), and

- To discuss CP 4C (Permit Drawings Review) for the Phase IIa Pea Island inlet site (B-2500A).

Based on discussions at the meeting, the following Avoidance and Minimization measures were agreed to for inclusion in the CP4A form (bold text indicates changes that were made at the meeting):

- Section 404 Avoidance and Minimization

  - Temporary wetland impacts will be minimized to the extent practicable. All temporary wetland impacts will be restored per permit conditions. NCDOT will work with the regulatory agencies on the location and scope of any post-construction monitoring of the temporary wetland impact sites.

  - Jetting spoils shall be contained within the existing NC 12 easement **(outside of existing wetlands)** during the jetting operation, then, **if determined suitable**, deposited within the Pea Island National Wildlife Refuge at the direction of Refuge staff.

  - Intake pipes associated with the jetting operation will not be located on the ocean beach. Pipe locations shall be determined in conjunction with the USFWS- Pea Island National Wildlife Refuge and shall be located such that temporary impacts to wetlands and jurisdictional waters are minimized.

- Other Resource Avoidance and Minimization Issues

  - NCDOT will work with the National Park Service and the USFWS- Pea Island National Wildlife Refuge to determine if there are any viable options for the replacement of access currently provided at the New Inlet boat ramp.

  - The existing temporary bridge over the Pea Island inlet, as well as any associated shoring measures, shall be completely removed following construction of the new bridge.

  - The existing Refuge parking lot on the east side of NC 12 and the New Inlet boat ramp/parking lot on west side of NC 12 will be used as staging areas during construction. Once construction is complete, NCDOT will remove all pavement and remove or relocate any facilities associated with these areas (signs, kiosks, etc.) per the direction of USFWS- Pea Island National Wildlife Refuge staff.

The signed concurrence form is included in Appendix D. NCDOT will work with NCDENR-DMF and NMFS to determine the appropriate screening measures, if any, that are needed on the intake pipes associated with the jetting operation.

The following topics related to CP4A also were raised by Merger Team members:

- The planned temporary construction easement (TCE) was discussed, including location, total acreage, use of the parking lot and New Inlet boat ramp/parking lot for staging during construction, and removal after construction.

- USFWS-Refuge asked if it will still be able to use the small storage building located near the intake for the third jetting water source during construction. NCDOT said that USFWS-Refuge would be able to use this building during construction.

- The following issues related to pile jetting water intakes were discussed:

  - Location

  - NCDOT said it would work with NCDENR-DMF and NMFS to determine the appropriate screening measures, if any, needed for the intake pipes associated with the jetting operation.

  - In response to a question from NCDENR-DCM, NCDOT said that excavation likely will not be needed to install the jetting water intakes because the intakes will be set-up in water that is approximately 4 to 5 feet deep.

  - Use of portable light plants at jetting water intake sites. NCDOT indicated that these will not be used. If night-time construction is necessary, NCDOT will use flashlights or portable lights at the jetting water intake locations.

  - NCDOT-Division 1 discussed the water depth needed for installing the jetting water intakes.

  - NCDENR-DMF asked if there is SAV in the area where the southern-most jetting water intake will be located. NCDOT responded that it does not think there is SAV in this area.

  - USFWS-Refuge discussed the physical properties of jetting spoils with respect to their suitability for being placed in the Refuge. Text was added to the avoidance and minimization measures indicating that spoils would only be deposited within the Refuge if determined suitable by Refuge staff.

  - A meeting on the bridge rails (relating to a design that provides motorist safety while addressing USFWS concerns about protecting sea turtle hatchlings from the influence of car headlights) was briefly summarized.

- The disposition of the existing New Inlet boat ramp/parking lot once Phase IIa is built and how access for boaters would be maintained was discussed.

The following issues regarding CP 4B and CP 4C were discussed:

- NCDOT-Hydraulics Unit discussed issues related to CP 4B, including the stormwater management/drainage plans.

- NCDOT- Natural Environment Section (NES) asked if visual monitoring is sufficient for the temporary wetland impacts. NCDENR-DCM responded that visual monitoring and photo interpretation is sufficient and that its regulations do not require other methods of monitoring.

- USACE asked for confirmation that the wetland delineations have not changed from those that it recently approved. NCDOT responded that based on a recent field review, the delineated wetlands have not changed except where they were replaced by Pea Island inlet.

- NCDENR-DCM discussed that the vegetation line should be shown on the permit drawings, as well as development setbacks. This is required by the CAMA regulations. NCDENR-DCM discussed how to obtain the data needed to show the vegetation line.

- USACE said that the plans should include sufficient information about the details of proposed mitigation to allow the agencies to make a decision on the nature of the temporary impacts. For example, the timeframe and other typical details should be included.

Finally, NCDOT-Project Development and Environmental Analysis Unit (PDEA) provided an update on the current status of the PBC/TMP Alternative's on-going coastal monitoring program.

3.6.2 Endangered Species Consultation (Section 7)

A meeting was held January 17, 2013 with representatives from NCDOT, FHWA, USFWS, and SHPO to discuss bridge railing for Phase IIa. Meeting participants reviewed the relevant stipulations of the Section 106 PA, in which NCDOT agreed to allow SHPO, USFWS, and NPS to review and comment on bridge railing plans, and the 2008 Biological Opinion (BO), which states the intent to design the bridge railings on the ocean side so that the beach is shielded from direct light from headlights. USFWS explained the potential detrimental effects of artificial light sources, including vehicle headlights, on sea turtle hatchlings. The hatchlings navigate from the nest to the ocean using horizon light. Artificial light sources could confuse the hatchlings and cause them to navigate away from the ocean. SHPO stated that a tall barrier is generally undesirable aesthetically, but that it would be willing to consider a higher barrier given the situation

of the turtles. The meeting attendees were made aware that any agreement regarding bridge railing will be documented under Section 7 of the Endangered Species Act as an addendum to the 2008 BO.

NCDOT, FHWA, USFWS, and SHPO met on April 9, 2013 to further discuss the bridge railing design for Phase IIa. Two different barrier designs were discussed. Following SHPO and USFWS's review of the barrier drawings provided by NCDOT and additional communications between USFWS, SHPO, and NCDOT, the three parties reached agreement on an appropriate bridge rail design per the commitment in the 2008 BO (see Figure 3). This agreement is reflected in the 2013 first amendment to the 2010 PA (see Appendix E of this ROD).

FHWA reinitiated formal consultation with USFWS in May 2013. Based on requests made in an April 12, 2013 memorandum from NCDOT to FHWA, FHWA requested modifications to two of the original Terms and Conditions that were included in the 2008 BO. In a letter dated May 17, 2013, USFWS granted the two requested modifications to the Terms and Conditions of the 2008 BO and concluded formal consultation on the action outlined in FHWA's May 2013 request for re-initiation (see Appendix D).

FHWA also completed consultation with NMFS on impacts to marine species. FHWA provided Section 7 documentation on all the listed species to NMFS in March 2013. A series of meetings were held in August and September 2013 with representatives from the following agencies: FHWA, NMFS, USFWS, USFWS- Refuge, NPS, NCDENR-DCM, NCDENR-DMF, and NCDOT. The purpose of the meetings was to discuss issues related to Section 7 consultation with NMFS for several marine species, including the Atlantic sturgeon and the five listed species of sea turtles. NMFS issued a letter on September 30, 2013 (see Appendix D) that marked the conclusion of formal consultation with NMFS on marine species. The letter concludes that potential impacts to these species are discountable or insignificant. For sea turtles, however, this conclusion was based on NCDOT's agreement to install "no fishing" signs to not allow fishing on Bonner Bridge's catwalks during Oregon Inlet replacement bridge construction and on the portion of Bonner Bridge that will be left in place as a pier. The signs will address NMFS's concerns with the possibility of an angler having a recreational hook and line interaction with sea turtles. During construction, these signs also would be posted for safety reasons. If and when a decision is made to allow fishing on the pier, FHWA will initiate Section 7 consultation with NMFS prior to the "no fishing" signs being removed. (See Project Commitments in Appendix A and the September 30, 2013 letter from USFWS in Appendix D).

3.6.3 Essential Fish Habitat Coordination

NCDOT transmitted an EFH Assessment Addendum (February 2013) for Phase IIa to NMFS in March 2013, which documented any increases in EFH impacts resulting from the introduction of the Pea Island inlet after Hurricane Irene. The EFH Assessment

Addendum assumed the Pea Island inlet was open. EFH impacts associated with an open inlet would not occur so long as an inlet is not open in the Phase IIa project area.

3.6.4 Section 106 Coordination

As indicated in Section 3.6.2, the SHPO participated in meetings on January 17, 2013 and April 9, 2013 with NCDOT, FHWA, and USFWS discussing bridge rail design.

3.6.5 Other Agency Coordination

NCDOT met with USFWS-Refuge on February 25, 2013 to discuss issues pertaining to Phases IIa and IIb of the project. Discussions included the northern terminus of the Phase IIb bridge, compatibility and mitigation in Phase IIb, the New Inlet boat ramp/parking lot that would be bypassed by Phase IIa, the status of the coastal monitoring program, and bird mortality studies. With respect to the boat ramp that will be bypassed by the Phase IIa Selected Alternative, it was discussed that NCDOT has concerns about the ability to maintain a potential service road to access the existing boat ramp. It was decided that maintaining access to the existing ramp is likely not sustainable for the project life and relocating the boat ramp either within the Refuge or augmenting an existing boat ramp outside the Refuge are likely better options. The Refuge agreed to work with NCDOT to explore possible options for relocation. NCDOT and the Refuge met on July 2, 2013 with follow-up meetings on July 18 and August 9, 2013 to discuss this issue further. The final decision was for NCDOT to restore the New Inlet boat ramp/parking lot after construction and provide an access road to be maintained by the Refuge (see Section of 3.3 of this ROD).

4.0 Section 4(f) Statement

Section 4(f) of the US Department of Transportation (USDOT) Act of 1966, as amended (49 *United States Code* [USC] 303), states that USDOT may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site, unless a determination is made that the project will have a *de minimis* impact or unless a determination is made that:

1. There is no feasible and prudent avoidance alternative, as defined in 23 CFR 774.17, to the use of land from the property.

2. The action includes all possible planning, as defined in 23 CFR 774.17, to minimize harm to the property resulting from such use.

If analysis concludes that there is no feasible and prudent avoidance alternative, then USDOT may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose.

Phase I of the PBC/TMP Alternative will use approximately 1.15 acres of Refuge land permanently for new permanent easement; however, approximately 3.33 acres of land would be returned to the Refuge, so a net of approximately 2.18 acres of land would be gained by the Refuge for Phase I. Phase I PBC/TMP Alternative also calls for temporary use during construction of approximately 1.96 acres of Refuge land. The Phase IIa Selected Alternative would require no new permanent NC 12 easement. The temporary construction easement associated with the construction of the Phase IIa Selected Alternative would not constitute a Section 4(f) use because it meets all five conditions listed in 23 CFR 774.13(d), which are: temporary duration; minor scope of work; no anticipated permanent adverse physical impacts or interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis; the land used will be fully restored; and documented agreement has been obtained from officials with jurisdiction. This was documented in Section 5.4.2 of the Phase IIa EA, beginning on page 5-6. This conclusion is unchanged with the additional temporary easement needed for construction of mitigation for the New Inlet boat ramp/parking lot and parking lot that would be bypassed by the Phase IIa bridge. This additional easement would be 0.26 acre, which when added to the Phase IIa EA's 3.84 acres would result in for a total of 4.10 acres of temporary easement. The additional temporary easement would include intersection between the boat ramp access road and NC 12 illustrated in Figure 4. The boat ramp access road would be within the existing NC 12 easement. The New Inlet boat ramp/parking lot location is a part of the original 1.96-acre temporary easement. In addition, the existing parking lot on the east side of NC 12 that will be replaced as a site to be selected by the Refuge at a future date has 0.5 acre of pavement. It is estimated that the replacement parking lot will have a similar area of pavement on what is currently upland habitat. An associated temporary easement would by slightly larger.

Evidence that the total area of temporary easement (4.10 known acres plus that associated with the planned parking lot replacement) would meet the five conditions is as follows:

- Duration must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land.

  Although the Special Use Permit would be for the duration of Phase IIa construction, no one part of the permitted easement would be used for the duration of the project. The narrow 5-foot-wide easement would be used primarily during the installation and removal of erosion control fencing. The easement in the temporary bridge area would be used primarily during the removal of the temporary bridge. The jetting pipe easement would be used only during bridge pile placement. The paved New Inlet boat ramp/parking lot and paved parking area would not need to be used for staging (i.e., storage of equipment and supplies) or, in the case of the boat ramp area, ramp replacement construction for the entire duration of the project. The easement for the new parking lot and the intersection between the boat ramp access road and

NC 12 would only be used near the end of construction when these two mitigation features are built. The Refuge would maintain ownership of the land associated with the boat ramp/parking lot, the intersection between the boat ramp access road and NC 12, and the replacement parking lot.

- Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal.

  The scope of work for the known 4.10-acre temporary construction easement plus that associated with the planned parking lot replacement would be confined to use for a small portion of the temporary traffic maintenance road, the movement of construction personnel, the movement and storage of equipment, and construction of Refuge facility impact mitigation. No features that contribute to the eligibility of the Refuge as an historic resource would be affected.

- There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.

  No features that contribute to the eligibility of the Refuge as an historic resource would be affected either on a temporary or permanent basis.

- The land being used must be fully restored, i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project.

  The wildlife habitat used for construction activities, as well as the current parking lot site, would be restored as per the conditions of the Refuge and its Special Use Permit. The New Inlet boat ramp/parking lot location would be restored to its original use as a boat ramp and associated parking. The boat ramp access road would be within the existing NC 12 easement where the paved NC 12 exists today. The land used for the replacement public parking lot and the intersection of the boat ramp access road and NC 12 would be changed from its current use as wildlife habitat, but would be a part of mitigation features requested by the Refuge.

- There must be documented agreement of the officials (Refuge and the North Carolina State Historic Preservation Officer [SHPO] in this instance) with jurisdiction over the Section 4(f) resource regarding the above conditions.

  The Refuge agreed in an e-mail dated February 7, 2013 (see Appendix A of the 2013 Phase IIa EA) that the first four conditions were met. SHPO agreed in an e-mail dated December 14, 2012 (see of the 2013 Phase IIa EA). Taking into consideration the new parking lot and boat ramp access road, the Refuge re-affirmed their agreement with the above four conditions through their agreement to permit language. The SHPO re-affirmed their position in an e-mail on September 16, 2013.

Therefore, since all five conditions would be met, the temporary construction easement associated with the construction of the Phase IIa Preferred Alternative would not constitute a Section 4(f) use.

The Phase IIa Selected Alternative would require no permanent use of Section 4(f) land, but will constitute a constructive use of the Refuge because of the visual intrusion caused by the bridge into the Refuge's historic landscape. For future phases, all of the alternatives considered may have a use of Refuge lands.

The Revised Final Section 4(f) Evaluation for the Bonner Bridge Replacement Project (B-2500) (Appendix B of the 2010 EA) identifies the location and characteristics of Section 4(f) properties in the project area, describes the applicability of Section 4(f) to these properties, discusses avoidance alternatives, presents a least overall harm analysis, addresses the measures taken to minimize harm, and reaches conclusions for the PBC/TMP Alternative. The Section 4(f) Evaluation specific to Phase IIa (see Section 5.0 of the Phase II EA) identifies the location and characteristics of Section 4(f) properties in the Phase IIa project area, describes the applicability of Section 4(f) to these properties, discusses avoidance alternatives, re-affirms the least overall harm analysis presented in Revised Final Section 4(f) Evaluation, addresses the measures taken to minimize harm, and affirms the conclusions presented in the 2009 Revised Final Section 4(f) Evaluation.

Based on the Section 4(f) re-evaluation presented in the Phase IIa EA (Section 5.0), as well as the findings of the 2009 Revised 4(f) Evaluation that the PBC/TMP Alternative is the alternative that causes the least overall harm, the Selected Alternative (PBC/TMP Alternative) for the Bonner Bridge Replacement Project (B-2500) remains valid. There are no prudent and feasible alternatives to avoid the use of the Pea Island National Wildlife Refuge. The PBC/TMP Alternative (including the Phase IIa Selected Alternative) causes the least overall harm. The PBC/TMP Alternative (including the Phase IIa Selected Alternative) includes all possible measures to minimize harm.

5.0 Measures to Minimize Harm

Measures to minimize harm associated with the Selected Alternative that were presented in the 2010 ROD included those that are incorporated in most transportation improvement projects (relocation services, wetland compensation, etc.) as well as 28 project-specific commitments. These measures are re-affirmed, as amended in the sections below. Additional measures to minimize harm may be developed during completion of the environmental permit process for Phase IIa, and as future phases of the PBC/TMP Alternative are finalized. Any additional measures to minimize harm for future phases will be documented in the appropriate NEPA documentation for each future phase of action, as determined by FHWA and NCDOT in accordance with 23 CFR 771.129-130 (see Section 3.3.2 of the 2010 ROD).

5.1 Project-Specific Commitments

The project-specific commitments for the Bonner Bridge Replacement Project (B-2500) are presented in Appendix A, with revisions to commitments that relate to Phase IIa (see commitments #20, 25, and 26). Additional activities to minimize harm associated with Phase IIa not included in the project-specific commitments are discussed in the following sections.

5.2 Relocations

The Phase IIa Selected Alternative will involve no displacements of homes or businesses.

5.3 Parks and Recreation Facilities

Two facilities within the Pea Island National Wildlife Refuge, the public New Inlet boat ramp/parking lot on the west side of NC 12 and the public parking lot near the Pea Island inlet on the east side of NC 12, will be bypassed by the Phase IIa bridge. Motor vehicle access would be lost to these facilities during construction of the new bridge, as both facilities will be used as staging areas for construction activities. Upon completion of construction, the parking lot on the east side of NC 12 will be removed by NCDOT, along with all construction materials, including concrete, asphalt, contaminated soils, and any other material not naturally belonging on the site. NCDOT will construct a replacement parking lot at a new site near the northern terminus of the Phase IIb project. The site would be selected by the Refuge manager with input from NCDOT upon completion of the Phase IIb project. Upon project completion, the maintenance of the parking lot would be the responsibility of the Refuge.

The New Inlet boat ramp/parking lot, including the existing parking lot (New Inlet Parking Lot) and primitive boat access point on the west side of NC 12, would be fully restored upon completion of construction and an access road similar to the one for the parking lot at the Bonner Bridge would be constructed from the southern terminus of the Phase IIb bridge to the New Inlet Parking Lot within the existing easement to the greatest extent possible. In order to minimize wetland impacts while providing safe ingress and egress from the boat access drive, NCDOT would construct a turnaround on the east side of the existing easement, as well as a small area outside the easement on the west side of the existing easement, as depicted on Figure 4. Upon project completion, the maintenance of the driveway and turnaround would be the responsibility of USFWS.

5.4 Cultural Resources

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. As discussed in Section 4.0, Section 4(f) of the USDOT Act of 1966, as amended (49 USC 303), protects publicly owned public parks, publicly owned recreation areas, wildlife and waterfowl refuges, and historic sites of national, state, or local significance from

conversion to highway use using FHWA administered funds unless there is no feasible and prudent alternative and unless all possible planning is done to minimize harm. In accordance with the requirements of Section 4(f), Section 106, and the NEPA, surveys were conducted to identify the cultural resources in the project area. There is one resource listed on or eligible for inclusion in the NRHP in the Phase IIa project's Area of Potential Effect: the Pea Island National Wildlife Refuge (determined eligible).

The Phase IIa Selected Alternative will have an adverse effect to the Refuge as a historic resource because of the visual intrusion into the landscape caused by the elevation of the Phase IIa bridge. This impact was addressed in the 2008 FEIS in association with the Phased Approach Alternative. The new bridge is entirely within the existing NC 12 easement, and no new Refuge lands will be permanently impacted by Phase IIa. Any Refuge lands used under a temporary construction easement during construction will be restored to the Refuge following completion of Phase IIa.

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. In addition, the following agencies and organizations requested to be consulting parties so that it could also provide input into the Section 106 consultation process: Dare County, the North Carolina Aquarium Society, USFWS-Refuge, NPS, and the Chicamacomico Historical Association. To complete Section 106 consultation, FHWA, SHPO, ACHP, and NCDOT, along with the consulting parties, developed a PA stipulating measures that FHWA will ensure are carried out during the design and construction of the Selected Alternative to mitigate adverse impacts to the historic cultural resources. Further information about the Section 106 consultation process and the PA is presented in Section 9.0 of the 2010 ROD and this Phase IIa ROD.

5.5 Wetland Impacts

Final avoidance and minimization measures associated with wetland, SAV, and Oregon Inlet impacts for the Phase IIa Selected Alternative were discussed and agreed upon by the NEPA/Section 404 Merger Team at a Concurrence Point 4A meeting held on January 30, 2013 (see Appendix D). Minimization of harm to natural resources as a result of the Phase IIa Selected Alternative is discussed below.

Section 404 jurisdictional wetland impacts with the Phase IIa Selected Alternative will permanently impact 0.22 acre of wetlands and 0.04 acre of open water, and temporarily impact 0.90 acre of wetlands and 0.28 acre of open water. There also would be 0.40 acre of hand clearing in wetlands for the project. These impacts include the following impacts to CAMA wetlands: 0.15 acre of permanent fill, 0.20 acre of temporary fill, and 0.18 acre of hand clearing. The open water impacts resulted from the formation of the Pea Island inlet, which was not present when impacts to open water were assessed in the 2008 FEIS. As of May 2013, the Pea Island inlet has closed as a result of natural

processes. With the inlet in its current closed state, the above open water impacts no longer apply.

Efforts were made to avoid and minimize wetland impacts in developing the final design and in construction planning for the Phase IIa Selected Alternative. Phase IIa will have only 0.22 acre of permanent wetland fill, which results from the placement of a bridge bent (0.1 acre) and the boat ramp access road (0.21 acre). No mitigation is required for this type of impact (bents of spanning structures are not considered by the USACE to be a fill impact requiring mitigation). The wetlands affected by 0.90 acre of temporary wetland fill (0.08 acre of which will be used for erosion control measures), including the 0.20 acre of CAMA wetland, will be restored and visually monitored. No mitigation is required for the 0.04 acre of permanent fill in surface water, 0.28 acre of temporary fill in surface waters, or hand clearing.

As part of the Concurrence Point 4A Merger Team agreement, NCDOT committed to three measures to avoid and minimize Phase IIa wetland impacts. These are:

- Temporary wetland impacts will be minimized to the extent practicable. All temporary wetland impacts will be restored per permit conditions. NCDOT will work with the regulatory agencies on the location and scope of any post-construction monitoring of the temporary wetland impact sites.

- Jetting spoils shall be contained within the existing NC 12 easement (outside of existing wetlands) during the jetting operation, then, if determined suitable, deposited within the Pea Island National Wildlife Refuge at the direction of the Refuge staff.

- Intake pipes associated with the jetting operation will not be located on the ocean beach. Pipe locations shall be determined in conjunction with USFWS-Refuge and shall be located such that the temporary impacts to wetlands and jurisdictional waters are minimized.

5.6 Protected Species Impacts

When open, the Pea Island inlet could be used by sea turtles, as well as Atlantic sturgeon. NMFS believes that the shortnose sturgeon is unlikely to be present in the PBC/TMP project area. The shoulders of the inlet are potential nesting habitat for piping plover. The beach in the Phase IIa project area is piping plover foraging habitat and sea turtle nesting habitat (see Section 3.5.1 under "Natural Systems Impacts"). Conservation measures agreed upon during formal and informal consultation in 2008 with USFWS and NMFS remain applicable and appropriate to Phase IIa, with one change for piping plover and one change for sea turtle nesting; a new conservation measure for Phase I that is applicable to in-water sea turtles also has been added. The USFWS has agreed in relation to conservation measures for the piping plover that for Phase IIa, construction

activity outside the existing NC 12 easement, but within the temporary construction easement defined for Phase IIa, may occur as described in Section 3.3. For sea turtle nesting, USFWS has agreed to a second type of acceptable construction light. (See the Project Commitments in Appendix A and the May 17, 2013 letter from the USFWS in Appendix D.) For sea turtles in the water, NCDOT will install "no fishing" signs to not allow fishing on the catwalks during construction to satisfy NMFS concerns and for safety reasons. To satisfy NMFS concerns, "no fishing" signs also will be installed on the portion of Bonner Bridge that will be left in place as a pier. If and when a decision is made to allow fishing on the pier, FHWA will initiate Section 7 consultation with NMFS prior to the "no fishing" signs being removed. This commitment is an outcome of Section 7 consultation with NMFS in 2013. (See Project Commitments in Appendix A and the September 30, 2013 letter from USFWS in Appendix D).

5.7 Construction Impacts

Construction of the Phase IIa Selected Alternative and removal of the temporary bridge over the Pea Island inlet will be governed by:

- NCDOT's *Standard Specifications for Roads and Structures* (NCDOT, July 2006, or as current at the time of construction)

- 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 to handle any accidental waste spills. Affected geodetic survey markers in the project area will be properly relocated. A temporary construction easement (4.10 acres) will be needed in part to maintain traffic during construction, to remove the temporary bridge once the new bridge is open to traffic, and to build the intersection of the new boat ramp access road's intersection with NC 12. In the temporary bridge area, the easement would be needed to aid in the placement of temporary shoring along the edge of the existing NC 12 easement and to remove the temporary bridge and its associated shoring and riprap. NCDOT has applied for a Special Use Permit for this easement from the USFWS-Refuge. The land affected, with the exception of the pavement for the boat ramp access road's intersection with NC 12, will be restored after construction is completed.

5.8 Mitigation

Table 2 lists the current mitigation commitments proposed for impacts to historic properties, natural resources, and Section 4(f) properties with Phase IIa. FHWA and

Table 2. Project Mitigation Measures

Resource	Mitigation Measure
Section 404/401 Jurisdictional Resources (wetlands and open water)	• The wetlands affected by 0.90 acre of temporary wetland fill (0.08 acre of which will be used for erosion control measures in hand clearing areas), including the 0.20 acre of CAMA wetland, will be restored. No mitigation is required for other impacts to jurisdictional resources. While no separate mitigation is required, temporary impacts will be restored following construction, and NCDOT will work with the regulatory agencies on the appropriate post-construction monitoring. • NCDOT will finalize these jetting methods to minimize the impacts on fishes from jetting prior to construction in coordination with NCDENR-DMF and NMFS.
Section 106 Stipulations	For the Phase IIa project, NCDOT agreed with SHPO and USFWS (in association with Section 106 of the Historic Preservation Act and Section 7 of the Endangered Species Act) on a bridge rail design consisting of a 36-inch concrete parapet with two bar metal railing.
Pea Island National Wildlife Refuge Facilities	The parking lot bypassed by the Selected Alternative will be removed and replaced at another location in the Refuge. The New Inlet boat ramp/parking lot will be restored after construction. An access road will be provided. The new facilities will be maintained by the Refuge.

NCDOT will finalize mitigation in coordination with USACE, NMFS, USFWS-Refuge, and NCDENR and other agencies as appropriate.

6.0 Monitoring and Enforcement Program

Coordination will be maintained with regulatory and resource agencies during permitting and construction of the Phase IIa Selected Alternative to ensure that avoidance, minimization, and compensatory mitigation measures will be initiated, as required by law and as agreed to in the Project Commitments (see Appendix A).

NCDOT and FHWA will enforce pertinent specifications and contract provisions in accordance with the intent of the Phase IIa EA and the welfare of the public.

7.0 Corrections to the 2013 Phase IIa EA

Comments on the Phase IIa EA submitted by state and federal environmental resource and regulatory agencies require that several corrections be made to the Phase IIa EA. These comments and the associated corrections are listed below (new material is in bold text):

- In response to a comment from USFWS regarding confusion about the Phase IIa EA title, the name of Phase IIa on this Phase IIa ROD is **"NC 12 – Pea Island Long-Term Improvements."** This title will be used on other future Phase IIa-related documents.

- In response to comments from USFWS and NCWRC regarding the point of contact listed in item "c" on page vi of the Phase IIa EA, the Project Commitments contained in Appendix A of this Phase IIa ROD is revised to drop the name specifying the contact person at NCWRC. As suggested, however, NCDOT will use Sara Schweitzer as its contact until otherwise requested by the NCWRC.

- In response to a comment from USFWS regarding Sections 4.1.1 and 5.3.2 of the EA, the text in both sections that reads "The buildings were south of the inlet and were not damaged by the initial breach ..." is changed to read **"The buildings were located south of the inlet. The office/maintenance shop building closest to the new inlet and ocean was damaged with the initial inlet opening."**

- In response to a comment from USFWS related to Section 5.4.1, the text of Section 5.4.1 is clarified by changing the second sentence in the section to read **"Thus, there is no permanent incorporation of Refuge land in the NCDOT right-of-way easement beyond the area that is currently under easement."**

- In response to a comment from USFWS related to the discussion of piping plovers in Section 6.4 on page 6-14 of the Phase IIa EA, the second sentence of the second paragraph of Section 6.4 is expanded to state " **...** the *PBC/TMP* Alternative was found likely to disturb **piping plover nesting on the beach and foraging habitat**, primarily in critical habitat areas near Oregon Inlet."

8.0 Response to Comments on the 2013 Phase IIa EA

Appendix C presents responses to the comments on the Phase IIa EA received from the public, state and federal environmental resource and regulatory agencies, local agencies, and an NGO.

A total of 4,209 comments were received from the public during the comment period; in addition, a petition was received containing 1,700 signatures. The comments covered a range of issues, including the need for the project, the proposed new bridge at the Pea Island inlet, the long-term plans at Rodanthe, other needs along NC 12, and recreational use of the area. There also were comments about whether a long bridge (Pamlico Sound Corridor, or a bridge from the mainland or Roanoke Island to Rodanthe) should be considered. Individual written comments were received from 150 commenters. Most of the comments were form emails, solicited either by the Defenders of Wildlife in opposition to the project (1,597) or the Citizens Action Committee to Replace the Herbert

C. Bonner Bridge in favor of the project (2,461). The petition with 1,700 signatures was received from the North Carolina Conservation Network in opposition of the project. Many of the form emails included additional comments either for or against the project. Most comments expressed support for a long-term solution for NC 12; they just differed in what that long-term solution should be.

Given the volume of the original public correspondence, it is posted for online review on the NCDOT project website at http://www.ncdot.gov/projects/ bonnerbridgephase2/. The written correspondence received from agencies, NGOs, and public officials is included in Appendix B.

9.0 Section 106 Programmatic Agreement

The 2010 ROD describes the Section 106 PA that was developed to address adverse affects to historic properties that may result from the PBC/TMP Alternative and potential mitigation strategies (see 2010 ROD, Section 9). The PA was signed by the signatory agencies (FHWA, SHPO, ACHP, and NCDOT) on November 15, 2010, and lists eight principles that FHWA and NCDOT shall adhere to for replacement of the Bonner Bridge and development and implementation of future phases of the PBC/TMP Alternative.

The PA is applicable to the entire Project, and Stipulation #VI of the PA requires further consultation for future phases if there is:

- A change in the historic status of properties.
- Identification of a new alternative.
- Change in an existing alternative that would result in a different "effects determination" for an historic property.
- Selection of a new Preferred Alternative.

None of these conditions are met with Phase IIa or within its setting. A representative of SHPO (from NCDCR) serves on the NEPA/Section 404 Merger Team, concurred with the Phase IIa Selected Alternative, and has had an opportunity to indicate if any of the above conditions were met or indicate that additional consultation was desired.

Stipulation #IIA of the PA discusses bridge design within the Refuge, in particular the design of the bridge rail. In the context Phase IIa final design, the SHPO, USFWS, and NCDOT agreed on a bridge rail design consisting of a 36-inch concrete parapet with two bar metal railing (see Figure 3). This bridge rail design is reflected in an amended Stipulation #IIA in the 2013 first amendment to the 2010 PA presented in Appendix E of this ROD.

10.0 Next Steps

10.1 Phase IIa

Following the issuance of this Phase IIa ROD, NCDOT intends to issue a Request for Proposals from qualified contractors. NCDOT will then select a contractor and award a construction contract for Phase IIa. The final design for the Phase IIa Selected Alternative is nearly complete. The contract will include removal of the existing temporary bridge at the Pea Island inlet and environmental mitigation and restoration work. A copy of the Project Commitments (Appendix A) will be included in the construction contract to ensure that the selected contractor abides by all of the commitments. The construction contract also will require the selected contractor to abide by all applicable environmental permit conditions and stipulations. Federal-aid highway funding for the project is expressly conditioned upon NCDOT's compliance with the terms and conditions of all United States Department of the Interior permits issued for the project.

The necessary permits and approvals, listed in Section 10.3 below, will be finalized following the issuance of this Phase IIa ROD. Per the NEPA/Section 404 Merger Process, NCDOT convened the project's Merger Team on January 30, 2013 to discuss Concurrence Points 4B (30 Percent Hydraulic Review) and 4C (Permit Drawings Review). The drawings were revised based on agency review and comments, and were submitted with the permit applications to the appropriate agencies.

Phase IIa construction is expected to last approximately 2 to 3 years. Phase IIa construction will not begin until all of the necessary permits have been obtained. The issuance of this Phase IIa ROD is expressly conditioned upon NCDOT including appropriate provisions in the construction contract for Phase IIa preventing the contractor from proceeding with construction, and upon NCDOT not issuing a notice to proceed with construction, until the necessary permits are issued. Further, NCDOT must obtain FHWA's concurrence to issue a notice to proceed with construction. FHWA will not concur in the issuance of a notice to proceed with construction until the necessary permits are issued.

10.2 Later Phases (NC 12 Transportation Management Plan)

An Environmental Assessment is currently underway for Phase IIb (NC 12 – Rodanthe Long-Term Improvements). Two detailed study alternatives are under consideration for Phase IIb. After the release of the Phase IIb EA, a public hearing process focusing on Phase IIb will begin, and comments will be requested from federal, state, and local governments and agencies, NGOs, and the public.

The coastal monitoring program component of the PBC/TMP (see Section 3.3.2 of the 2010 ROD) has been funded and implemented by NCDOT, and is ongoing. New coastal conditions data for the Bonner Bridge Replacement Project (B-2500) project area were collected related to ocean and estuarine shorelines; island elevation and dune crest; beach sand volume; vegetation; erosion rate; and critical buffer and vulnerability present and forecast as it relates to storm events, NCDOT maintenance of NC 12, and the Hurricane Irene and Barrier Island breaches starting in early 2011. The updated 2011 coastal conditions data are published in the report titled *Coastal Monitoring Program, NC 12 Transportation Management Plan, TIP Project B-2500, 2011 Update* (Overton, 2013). A 2012 update to the Coastal Monitoring Program is underway.

These data are being applied to a Refuge habitat/NC 12 vulnerability forecasting study. Through this program, NCDOT and USFWS will work together to develop and assess alternative future scenarios, including possible site-specific events and remedies. The purpose of the periodic Refuge habitat/NC 12 vulnerability forecasting study is to go beyond simply monitoring conditions and instead plan for potential events, such as storms, to minimize future threats to highway infrastructure and impacts to Refuge resources. In addition, the study and selection of each future phase will be carried through the NEPA/Section 404 Merger Process.

The coastal monitoring data included new shoreline position data through the end of 2011. Based on this updated data, the forecast 2060 high-erosion shoreline included in the 2008 FEIS was updated; however, in the case of Phase IIa the new shoreline erosion data was not relevant to alternatives development. The inlet and the area susceptible to breaching were the primary coastal factors considered in alternatives development for Phase IIa. A comparison of the 2060 high-erosion shoreline forecast from the 2008 FEIS (using data through June 2004) and the updated forecast (using data through 2011) is shown in Figure D-1 in Appendix D of the Phase IIa EA.

10.3 Permits and Approvals

10.3.1 Phase IIa

Construction of Phase IIa will require the permits and approvals listed below. Federal funding for this project is expressly conditioned upon compliance with all permitting terms and conditions:

US Coast Guard Permit

Under the authority of Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946 (as well as other legislation), the US Coast Guard (USCG) is responsible for approving the locations and plans for bridges and causeways over navigable waterways. NCDOT received Advance Approval for the Phase IIa project from USCG on May 1, 2013. No other action by USCG is required for Phase IIa.

US Army Corps of Engineers Permits

Under Section 404 of the Clean Water Act, USACE is responsible for issuing permits for discharges of dredged or fill material in waters of the United States, including fill placed in connection with bridge and road construction and the disposal of construction debris. NCDOT has applied for this permit. The anticipated impacts to wetlands as a result of Phase IIa construction are discussed in Section 3.5.1.

Under the requirements of the Rivers and Harbors Act of 1899, a Section 10 permit is required for the construction of any structure in or over any navigable water of the United States, the excavation/dredging or deposition of material in these waters, or any obstruction or alteration in "navigable water." Such a permit, however, is not required for a bridge. Bridges are authorized by USCG under Section 9 of the Rivers and Harbors Act of 1899. Therefore, a Section 10 permit is not required for this project.

US Fish and Wildlife Service Permits and Approvals

A Special Use Permit would be required for the temporary construction easements necessary to construct Phase IIa. The exact terms and conditions, as well as appropriate compensatory mitigation, will be determined during the permitting process.

Coastal Area Management Act Permit

A CAMA permit is required from NCDENR-DCM since the project involves construction along the oceanfront and in Areas of Environmental Concern (AEC). This permit was issued to NCDOT by NCDENR-DCM on April 26, 2013.

NCDENR-Division of Water Quality Certification

A 401 Water Quality Certification (as mandated under Section 401 of the Clean Water Act) would be required from NCDENR-DWQ. The 401 certification process is coordinated with the 404 and CAMA processes. This certification was issued by NCDENR-DWQ on April 15, 2013.

NCDENR-Division of Water Quality Stormwater Permit

In a letter dated April 17, 2013, the NCDENR-DWQ Stormwater Unit "determined that the project proposes activities that are in compliance with [National Pollutant Discharge Elimination System (NPDES)] Permit NCS00250 and thus are excluded from additional State Stormwater permitting requirements as set forth in Section 2.(d)(1) of Session Law 2008-211, effective October 1, 2008, and the Stormwater rules under Title 15A NCAC 2H .1000, as amended."

Other Permitting/Approval Actions and Consultations

FHWA and NCDOT will continue to coordinate with the permitting agencies throughout the Phase IIa permitting process and during construction. FHWA also will coordinate with USFWS and NMFS on any Section 7 of the ESA of 1973 concerns that arise during construction; consultation under Section 7 will be re-initiated with either of these agencies if it becomes necessary. FHWA and NCDOT also will carry out the

stipulations of the Section 106 National Historic Preservation Act Programmatic Agreement (Appendix D of the 2010 ROD) and will coordinate with the other Signatory and Concurring Parties, as necessary, during completion of the permitting and during the construction processes.

10.3.2 Later Phases (NC 12 Transportation Management Plan)

The NC 12 Transportation Management Plan will guide the study and implementation of future phases of action in the project area though 2060. Future phases of the project likely will require a similar list of agency permits and approvals as Phases I and IIa. The exact approvals and permits that will be needed will depend upon future shoreline conditions and on what action is selected for implementation. FHWA will not approve a future phase of the project for construction until all necessary permits have been obtained for that particular phase.

11.0 Conclusion

Based on the above information and after consideration of the input received from other agencies, organizations, and the public, FHWA has determined that the environmental studies completed for this project are in accordance with 23 CFR and 23 USC. Specifically, FHWA has determined that implementation of the Phase IIa Selected Alternative, as described in this Phase IIa ROD, as the next phase of the PBC/TMP Alternative selected for implementation in the 2010 ROD, is environmentally preferable and in the best overall public interest. FHWA has determined that there is no feasible and prudent alternative to the use of land from the Pea Island National Wildlife Refuge for the construction of Phase IIa, that the Phase IIa Selected Alternative would cause the least overall harm as the next phase of the PBC/TMP Alternative, and that the Phase IIa Selected Alternative includes all possible planning to minimize harm to the property. In the Phase IIa EA, FHWA re-evaluated the impacts associated with the design modifications that occurred after the 2008 FEIS (taking into account changes in existing and forecast environmental conditions) and also assessed the impacts associated with the Selected Alternative. FHWA has determined that the modifications and changes assessed in the Phase IIa EA do not result in any new, significant impacts not previously identified; therefore, a Supplemental FEIS is not required. The Phase IIa Bridge within Existing NC 12 Easement Alternative is hereby approved for implementation in accordance with the provisions of this Phase IIa ROD.

10/7/2013
Date

John F. Sullivan III, P.E., Division Administrator
Federal Highway Administration

Appendix A

Project Commitments

NC 12 Replacement of the Herbert C. Bonner Bridge

(Bridge No. 11) over Oregon Inlet

Federal-Aid No. BRS-2358(15)
NCDOT Project Definition: 32635
TIP Project No. B-2500
Dare County, North Carolina

Project Commitments

The following text lists the Project Commitments for the Bonner Bridge Replacement Project. Commitments 7, 20, 25, and 26 were revised in association with Phase IIa studies, and in the cases of Commitments 25 and 26, as the result of the revision of the 2008 BO resulting from a re-initiation of Formal Section 7 Consultation with USFWS. Commitment 29 was added as a result of agreements made at Concurrence Point 4A. Commitments 30 and 31 were added to mitigate Pea Island National Wildlife Refuge facility impacts. All other commitments are the same as presented in the 2010 ROD.

Highway Design Branch and Technical Services Division

1. 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).

2. Bicycle Accommodations. The Cape Hatteras National Seashore (Seashore) management plan supports the use of bicycles along NC 12. All bridges associated with the detailed study alternatives (including the Selected Alternative[s]) would have 8-foot (2.4-meter) wide shoulders that would be safer for bicycle and pedestrian traffic than Bonner Bridge's 2-foot (0.6-meter) 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 (1.2-meter) paved shoulders, which would be safer for use by bicycle and pedestrian traffic than the existing NC 12's unpaved shoulders.

Highway Design Branch and Division 1

3. Use of Work Bridges. During construction of the project, steps taken to minimize turbidity (when possible and practicable) would include the use of work bridges (rather than barges, which would require dredging) 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 (1.8 meters) where SAV is not present. Work bridges will be used to cross SAVs. Neither dredging nor haul roads would be used in SAVs.

4. 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 North Carolina Department of Transportation (NCDOT) and permitting agencies for review.

5. 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. Potential damage to wetlands, SAV, and Oregon Inlet from jetting spoils will be minimized to the extent practicable.

6. Use of Bridge Demolition Debris for an Artificial Reef. NCDOT would work with the North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries (NCDENR-DMF) 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.

7. Oregon Inlet Fishing Access (revised). This commitment was revised as a result of ongoing Section 7 coordination with NMFS. NCDOT will install "no fishing" signs to not allow fishing on the catwalks during construction to satisfy NMFS concerns, and for safety reasons. If and when a decision is made to allow fishing on the remnant of the existing Bonner Bridge, FHWA will initiate Section 7 consultation with NMFS prior to the "no fishing" signs being removed.

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

8. Design Coordination. NCDOT would invite NPS and USFWS, as well as the other agencies represented on the project's National Environmental Policy Act/Section 404 of the Clean Water Act (NEPA/Section 404) Merger Team (a full list of agencies on the Merger Team is shown on page 8-6 of the 2008 FEIS), to participate in the development of project design and mitigation strategies as a part of the permit application process for each phase of the project.

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

10. Disposal of Dredged Material. Prior to construction, during the permit preparation process, FHWA and 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, as noted in Commitment 25c, the terms and conditions outlined in the *Biological and Conference Opinion*s (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."

11. Night-time Construction. Because construction activities could occur 24-hours-a-day, construction areas could be lit to daylight conditions at night. NCDOT would work with NCDENR-DMF, NMFS, NPS, and 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 contained within Commitment 26.a.

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

13. Sea Turtle and Smalltooth Sawfish Protection. NCDOT will comply with 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, 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.

14. Terminal Groin Removal. NCDOT would apply for a permit to retain the groin to protect the south end of the Oregon Inlet bridge. Construction will not be authorized by FHWA prior to issuance of the terminal groin permit.

    The permit to retain the *terminal groin was received from USFWS on August 9, 2012.*

15. Archaeological Resources Discovered During Construction. If any historic archaeological resources (e.g., 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.

16. Construction of Future Phases. In phasing the construction of the Parallel Bridge Corridor alternatives (including the Selected Alternative[s]), it is NCDOT's intent to place a high priority on the monitoring and need for implementation of improvements in the three potential hot spot areas. This intent recognizes the need to build in the Rodanthe 'S' Curves, Sandbag Area, and Canal Zone hot spots. Final phasing decisions will be developed through interagency collaboration and under the requirements of NEPA as project area conditions warrant.

17. Monitoring Program. NCDOT considers the 2060 high erosion shoreline a reasonable assumption for current planning purposes, but also recognizes that decisions related to implementation of future phases and the specific location of future phases would likely need to evolve with actual geomorphological change relative to the NC 12 easement. With this in mind, NCDOT would implement a monitoring and vulnerability forecasting program on Hatteras Island in the project area, as described in Section 3.3.2 of the 2010 ROD.

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

19. 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 completion of future phases, particularly before the implementation of improvements in the three hot spot areas, NCDOT would continue to work with the Refuge to reduce potential impacts to the Refuge and NC 12 resulting from NC 12 storm-related maintenance.

20. Atlantic and Shortnose Sturgeon (revised). Conservation measures to protect shortnose sturgeon would include no hopper dredging and measures to minimize

habitat degradation. Such measures would include Best Management Practices (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. The same conservation measures will be applied to the Atlantic sturgeon.

Highway Design Branch, Project Development and Environmental Analysis Unit, Division 1, Right-of-Way Branch, and Technical Services Division

21. 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 Unit, Division 1, and Geotechnical Unit

22. Use of Explosives During Construction. The use of explosives during construction is not anticipated. If explosives were needed to remove Bonner Bridge's piles, 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 Unit

23. Programmatic Agreement. As per the requirements of Section 106 of the National Historic Preservation Act of 1966, FHWA, the North Carolina State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), and NCDOT, along with the consulting parties (Dare County, the North Carolina Aquarium Society, USFWS, NPS, and the Chicamacomico Historical Association), developed a Programmatic Agreement (PA) stipulating measures that FHWA will ensure are carried out during the design and construction of the Selected Alternative to mitigate adverse impacts to the historic cultural resources. The final PA (see Appendix D of the Phase IIa EA) was signed by the signatory agencies on November 15, 2010 and amended in August 2013 (see Appendix E of this ROD). NCDOT would carry out the stipulations in this agreement.

24. 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.

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

25. Piping Plover (revised). NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the *Biological and Conference Opinion*s (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. During the construction of Phases II, III and IV of the Phased Approach/Rodanthe Bridge Alternative (*if it is implemented under the NC 12 Transportation Management Plan [Selected Alternative]*), keep all construction equipment and activity within the existing right-of-way unless granted approval by the US Fish and Wildlife Service through a revised protected species Biological Opinion.

       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 Opinion*s in Appendix E of the 2008 FEIS).

    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. 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.

26. Sea Turtles (green sea turtle, leatherback sea turtle, and loggerhead sea turtle) (revised). NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the *Biological and Conference Opinion*s (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 USFWS or a 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 amber-colored LED lights with a predominant wavelength of approximately 650

nanometers (preferred) or low pressure sodium-vapor type (with USFWS approval).

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 if developed as defined by the Phased Approach/ Rodanthe Bridge Alternative (*if it is implemented under the NC 12 Transportation Management Plan [Selected]*)**,** 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 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. NCDOT's 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 Unit

27. Submerged Aquatic Vegetation (SAV) Survey. The dynamic nature of the area around Oregon Inlet and the new Pea Island inlet (closed as of May 2013) results in ephemeral habitats, particularly in shallow water and shoreline areas. Consequently, NCDOT would obtain new SAV information for use by the contractor in construction access planning. All surveys for SAV in the vicinity of Oregon Inlet will follow protocols endorsed by the National Oceanic and Atmospheric Administration (NOAA) Fisheries.

Project Development and Environmental Analysis Unit

28. Section 4(f). If a later phase of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative (Selected) requires the use of a Section 4(f) property, then FHWA would complete an additional Section 4(f) analysis prior to FHWA's approval of the later phase. The 2009 Revised Final Section 4(f)

Evaluation would be reviewed to verify the status of Section 4(f) resources, the effects(s) from the proposed response strategies on the Section 4(f) resource, "use" determinations, and, if necessary, a revised least overall harm analysis.

Project Development and Environmental Analysis Unit and Division 1

29. Storage Shed Use During Construction (new). As agreed at Concurrence Point 4A, NCDOT commits to maintaining the ability of Refuge staff to access and use all Refuge facilities during construction of Phase IIa, including the small storage shed located near the planned intake for the third jetting water source.

30. Replacement of Public Parking Lot Near Pea Island Inlet (new). Upon completion of construction, the parking lot on the east side of NC 12 will be removed by NCDOT, along with all construction materials, including concrete, asphalt, contaminated soils, and any other material not naturally belonging on the site. NCDOT will construct a replacement parking lot at a new site near the northern terminus of the Phase IIb project per the direction of the USFWS. The site would be selected by the Refuge manager with input from NCDOT upon completion of the Phase IIb project. Upon project completion, the maintenance of the parking lot would be the responsibility of the Refuge.

31. Boat Ramp, Associated Parking, and Access to Them (new). The existing parking lot (New Inlet Parking Lot) and primitive boat access point on the west side of NC 12 would be fully restored upon completion of construction and an access road similar to the one for the parking lot at the Bonner Bridge would be constructed from the southern terminus of the Phase IIb bridge to the New Inlet Parking Lot within the existing easement to the greatest extent possible. In order to minimize wetland impacts while providing safe ingress and egress from the boat access drive, NCDOT would construct a turnaround on the east side of the existing easement, as well as a small area outside the easement on the west side of the existing easement. Upon project completion, the maintenance of the driveway and turnaround would be the responsibility of USFWS.

Appendix B

Agency and Non-Governmental Organization Comment Letters on the Phase IIa Environmental Assessment

B. Agency and Non-Governmental Organization Comment Letters on the Phase IIa Environmental Assessment

AGENCY COMMENT LETTERS **B-2**

US Department of Agriculture, Natural Resources Conservation Service **B-2**

US Department of the Interior **B-2**

National Park Service B-2
US Fish and Wildlife Service B-3

US Environmental Protection Agency, Region 4 ..... **B-5**

North Carolina Department of Administration **B-6**

North Carolina Department of Cultural Resources – State Historic Preservation Office **B-6**

North Carolina Department of Environment and Natural Resources **B-7**

Division of Coastal Management B-7
Division of Marine Fisheries B-14
Division of Water Quality B-15
Division of Water Resources – Public Water Supply Section B-16
Office of Conservation, Planning, and Community Affairs (Natural Heritage Program) B-16
Washington Regional Field Office B-17
Wildlife Resources Commission B-19

North Carolina Department of Public Safety, Division of Emergency Management **B-20**

NON-GOVERNMENTAL ORGANIZATION (NGO) COMMENT LETTER – SOUTHERN ENVIRONMENTAL LAW CENTER **B-22**

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
4407 Bland Road, Suite 117
Raleigh, North Carolina 27609

Matthew R. Flint, ASTC for Technology
Phone: (919) 873-2124
Fax: (919) 873-2154
Email: matt.flint@nc.usda.gov

March 13, 2013

RECEIVED
Division of Highways
MAR 19 2013
Preconstruction
Project Development and
Environmental Analysis Branch

Gregory J. Thorpe
PhD Manager
Project Development & Environmental Analysis Unit
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Thank you for the opportunity to provide comments on the Federal Environmental Assessment (EA), for Pea Island Long-Term Improvements (Bonner Bridge Replacement Project Phase IIa), Federal Aid No. BRNHF-002(55), TIP No. B-2500A, Dare County, North Carolina.

While the NRCS does have expertise in natural resource conservation, this agency is not able complete the requested review at this time due to the demands on our personnel for implementing Farm Bill conservation programs. Accordingly, the NRCS does not have any comments at this time.

Although we are not able to review directly the EA in Dare County, North Carolina, I would like to point out the technical interpretations of soil properties, soil suitability, and soil limitations for different land uses that are provided in the NRCS Web Soil Survey at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. This web-based resource may provide information that is useful to your project's environmental review.

If you need additional information, please feel free to contact me at (919) 873-2124.

Sincerely,

Matthew R. Flint

Matthew R. Flint
Assistant State Conservationist for Technology

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United States Department of the Interior

NATIONAL PARK SERVICE

Fort Raleigh National Historic Site Wright Brothers National Memorial
Cape Hatteras National Seashore
1401 National Park Drive
Manteo, NC 27954
252-473-2111

IN REPLY REFER TO:

L30 (CAHA-RM)

MAR 22 2013

Gregory J. Thorpe, Ph.D.
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

The National Park Service (NPS), Cape Hatteras National Seashore (CAHA) has received your request to provide comments on the Environmental Assessment (EA) for "Pea Island Long-term Improvements, Bonner Bridge Replacement Project Phase IIa."

The project proposes the construction of a bridge to replace the existing Herbert C. Bonner Bridge (B-2500) in Dare County that spans Oregon Inlet, demolition and removal of Bonner Bridge, and improvements on NC 12 between the community of Rodanthe, NC and Oregon Inlet. This EA focuses on the improvement of NC 12 in the vicinity of the New Pea Island inlet that formed during Hurricane Irene in August 2011. It identifies and assesses changes in the setting and the project in this area since the approval of the project's Record of Decision in December 2010 and identifies a preferred approach for improving NC 12 in this area. Specifically, Phase IIa addresses a long-term solution for areas subject to over wash by constructing a bridge in the Pea Island Inlet vicinity.

The NPS has been and remains an active participant in the B-2500 Merger Team process. To this end, CAHA has provided extensive comments and issued a Special Use Permit for Phase I of this project, Replacement of the Herbert C. Bonner Bridge Over Oregon Inlet. The NPS has also reviewed comments from a letter dated March 7, 2013 provided by the U.S. Fish and Wildlife Service (USFWS). While both the NPS and USFWS are housed within the Department of the Interior, Phase IIa is located within lands managed under the jurisdiction of the USFWS. Therefore, CAHA fully supports those comments provided by the USFWS.

Of particular concern is the issue of loss of access resultant from loss of the existing Refuge parking lot on the east side of NC 12 and the New Inlet boat ramp/parking area on the west side of NC 12. Concurrence Point No 4A, recently signed by NPS, indicates that NCDOT will work

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with NPS and USFWS to determine if there are viable options for replacement of access currently provided at the New Inlet boat ramp. USFWS further states in their comments on this EA that they prefer that NCDOT provide improved access somewhere in the general area to offset the loss of access at the New Inlet site. Considering the high level of concern in Dare County related to beach and water-based recreational access, we think it is incumbent on NCDOT to proactively address this concern since the subject project will be reducing such access within the Refuge.

Please include CAHA on any additional correspondence regarding activities relating to any phase of B-2500. Should you have additional questions or need additional information, please contact my office at (252) 473-2111.

Sincerely,

Barclay C. Trimble
Superintendent

cc: Mike Bryant, USFWS, Manteo, NC (Electronic copy, no hard copy to follow)
Pete Benjamin, USFWS, Raleigh, NC (Electronic copy, no hard copy to follow)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

March 7, 2013

Gregory J. Thorpe, Ph.D.
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

This letter is in response to your February 19, 2013 letter which requested comments from the U.S. Fish and Wildlife Service (Service) on the Federal Environmental Assessment (FEA) for the proposed Bonner Bridge Phase IIa improvements to NC 12 in Dare County, North Carolina (TIP No. B-2500A). These comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

The purpose of this FEA is "to identify and assess changes in the setting, project, and impacts that may have occurred since the ROD was issued on December 10, 2010." The FEA describes the alternatives screening process and assesses the effects of the Phase IIa preferred alternative. The North Carolina Department of Transportation (NCDOT) preferred alternative is to construct a 2.1 mile bridge in the vicinity of the new Pea Island Inlet within the existing NCDOT easement. This easement exists within the Pea Island National Wildlife Refuge (Refuge).

The FEA states that the Federal Highway Administration (FHWA) believes that the changes identified and assessed in the FEA "would not result in new, significant impacts not previously identified in the 2008 FEIS, 2010 EA, or 2010 ROD." The Service generally agrees with this statement. However, we offer the following specific comments on the document.

The title of the document, *Pea Island Long-Term Improvements, Bonner Bridge Replacement Project Phase IIa* is confusing as it implies that the road project will improve Pea Island or Pea Island National Wildlife Refuge (Refuge). We disagree with that implication. We suggest an appropriate title would be *NC 12 Long-Term Improvements on Pea Island, Bonner Bridge Replacement Project Phase IIa*.

The title page states that the Service is a cooperating agency. The Service was not formally requested to be a cooperating agency, and we did not assist in the development of the FEA.

However, we have performed most of the duties of a cooperating agency with our participation in the 404/NEPA Merger Process.

On page vi, point "c" addresses what NCDOT will do with dredge spoil. Although it appears that Phase IIa will not include dredging for barge access, we note that the point of contact listed is no longer valid. Sue Cameron no longer works for the North Carolina Wildlife Resources Commission.

Page 4-1 (Section 4.1.1) and 5-5 (Section 5.3.2) both state "The buildings were south of the inlet and were not damaged by the initial breach…" In fact, the office/maintenance shop building closest to the new inlet and ocean was damaged with the initial inlet opening.

The last sentence on page 4-17 and continuing on page 4-18 does not accurately reflect the causative factors associated with the loss of access to the parking lots and primitive boat access to Pamlico Sound. Access to existing parking areas is being lost due to planning and eventual construction of the new bridge. Loss of access is not due to the "…preference of the USFWS…" Contrary to what is implied in this paragraph, it is the Refuge's preference that NCDOT provide improved access somewhere in the general area to offset the loss of access at the New Inlet site.

On page 5-2 (Section 5.1) the FEA refers to the conclusion that the Refuge is a Section 4(f) property only as a historic resource in the beginning of the revised 4(f) evaluation. The first part of the evaluation meticulously distinguishes the Refuge as a historic property. The latter part of the evaluation refers to the Refuge as a 4(f) resource without reference to the distinction as a historic resource only. On page 5-7 (Section 5.4.2) there is reference to a Refuge email stating agreement with the Temporary Occupancy of Refuge land in the context of a "use". It should be noted that the same email was written and signed in the context of the Refuge being a 4(f) resource as a historic property ***and*** as a refuge. From the information as presented, it is not clear if the FHWA considers the Refuge a 4(f) property as a historic resource only or if the Refuge is considered a 4(f) property as a historic resource and as a refuge.

On page 5-6, the last sentence in Section 5.4.1 needs to be edited to state that there is no permanent incorporation of Refuge land in the NCDOT right-of-way easement beyond the area that is currently under easement.

Page 6-11 states "USFWS requested Section 7 consultation related to jetting impacts." This statement is either incorrect or needs clarification. The Service did not state any Section 7 concerns related to the direct impact of the jetting itself, but most likely our concerns referred to the location of related pumping equipment to be located on the beach and its potential effects on piping plovers (*Charadrius melodus*) and nesting sea turtles.

Presumably due to their very recent occurrence, pages 6-12 through 6-14 do not document the January 17, 2013 Section 7 meeting, subsequent coordination, and the conclusions arrived at on February 5, 2013 regarding the bridge rail design and its effects on sea turtles. NCDOT agreed to raise the concrete parapet portion of the ocean-side bridge rail to a height of 36 inches in order to block more light from vehicle headlights reaching the beach, thus further minimizing the negative effects of artificial light on sea turtles.

The discussion of piping plovers in Section 6.4 on page 6-14 needs clarification. It currently states "…the PBC/TMP Alternative was found likely to disturb nesting on the beach by the piping plover, primarily in critical habitat areas near Oregon Inlet." Not only would nesting habitat likely be disturbed, but more extensively, foraging habitat and foraging birds would likely be disturbed throughout the project area. The reference to critical habitat incorrectly implies that it is critical habitat for nesting. In fact, the designated critical habitat is for wintering piping plovers, which is not necessarily associated with nesting.

The description of the modification to one of the Terms and Conditions related to sea turtles in the 2008 Biological Opinion regarding the use of amber-colored LED lighting should also include the fact that the LED lights would have a predominant wavelength of approximately 650nm. This was a critical aspect in the decision to modify the Terms and Conditions.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,

Pete Benjamin
Field Supervisor

Electronic copy: Mike Bryant, USFWS, Manteo, NC
Thayer Broili, NPS, Manteo, NC
Chris Militscher, USEPA, Atlanta, GA
Travis Wilson, NCWRC, Creedmoor, NC
Bill Biddlecome, USACE, Wilmington, NC
John Sullivan, FHWA, Raleigh, NC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

March 26, 2012

Dr. Gregory J. Thorpe, Ph.D.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

RE: Federal Environmental Assessment for B-2500A, Pea Island Long-term Improvements, Dare County

Dear Dr. Thorpe:

The U.S. Environmental Protection Agency (EPA) Region 4 Office has reviewed the subject document and is commenting in accordance with Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The Federal Highway Administration (FHWA) and the North Carolina Department of Transportation (NCDOT) are proposing to build a new bridge in Pea Island National Wildlife Refuge (PINWR) along the NC 12 easement for an approximate distance of 2.4 miles. The proposed project is part of the Parallel Bridge Corridor (PBC) with NC 12 Transportation Management Plan (TMP) alternative identified in the 2008 Final Environmental Impact Statement (FEIS), May 2010 Environmental Assessment and December 2010 Record of Decision (ROD) for B-2500, NC 12 Bonner Bridge project.

The proposed project was included in the NEPA/Section 404 Merger team process. It is not expected that the proposed PINWR bridge segment will require an Individual Permit (IP) from the U.S. Army Corps of Engineers. As a member of the Merger Team, EPA has abstained from various concurrence points for the Phase II proposed bridges. Referenced and summarized in the EA is the Phase II Reconsideration of the Ferry Alternative Report dated January 31, 2013. This report was received under separate cover letter from the FHWA and NCDOT and reviewed as part of the EA.

EPA acknowledges the information and additional analysis concerning the Ferry Alternative and the consideration of conventional ferries and high-speed ferries. EPA acknowledges that the consideration of high-speed, passenger only ferries would not potentially meet the purpose and need for the proposed project.

The EA also addresses updated cost estimates and impacts from Phase IIa, including Table 6. The jurisdictional wetland impacts include both permanent (0.01 acres) and temporary impacts during bridge construction (1.12 acres). However, the EA also identifies an additional 0.42 acres of hand-clearing in wetlands and does not classify this impact as either temporary or permanent. This issue should be resolved and addressed in the Finding of No Significant Impact (FONSI).

The EA also identifies other potential impacts, including Essential Fish Habitat, Protected Species, Migratory Birds, other Biotic Communities, Surface Waters and Water Quality, and Visual Impacts. EPA recommends that NCDOT and FHWA continue to work with other agencies on avoidance and minimization measures regarding these potential impacts. Best management practices (BMPs), including appropriate stormwater controls from bridge drainage should be implemented for the proposed project. Similar to the recommendations to NCDOT on the R-2576, Mid-Currituck Bridge project, EPA recommends that more intensive bridge cleaning be part of the routine operation and maintenance of the PINWR Bridge to minimize water quality impacts. Direct discharges of stormwater from the new bridge to open waters of the U.S. should be avoided. Other environmental commitments identified in the EA and specific compensatory mitigation plans for wetland impacts should also be included in the FNSI.

In summary, EPA continues to have environmental concerns for building new bridges on a dynamic barrier island. However, the transportation agencies have identified in the EA the engineering, cost, and impact information that provides a basis for its proposed decision for Phase IIa under the PBC/TMP Alternative. EPA requests a copy of the FONSI when it becomes available. Thank you for the opportunity to comment and please feel free to your staff contact Mr. Christopher Militscher of my staff at (404) 562-9512 should you have any questions.

Sincerely



Heinz J. Mueller, Chief
NEPA Program Office
Office of Environmental Accountability

Cc: Merger Team agencies (via e-mail)

North Carolina
Department of Administration

Pat McCrory, Governor

Bill Daughtridge, Jr., Secretary

April 1, 2013

Ms. Beth Smyre
North Carolina Department of Transportation
Program Dev. & Env. Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1534

Re: SCH File # 13-E-4220-0331; EA; Proposal to replace the Herbert C. Bonner Bridge - Phase IIA and improvements to NC 12 between Rodanthe and Oregon Inlet. TIP No. B-2500A

Dear Ms. Smyre:

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

Crystal Best

Crystal Best
State Environmental Review Clearinghouse

Attachments

cc: Region R

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail state.clearinghouse@doa.nc.gov

Location Address:
116 West Jones Street
Raleigh, North Carolina

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B-6

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: DARE

F02: HIGHWAYS AND ROADS

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HISTORIC PRESERVATION OFFICE

STATE NUMBER: 13-E-4220-0331
DATE RECEIVED: 02/28/2013
AGENCY RESPONSE: 03/22/2013
REVIEW CLOSED: 03/27/2013

MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORDINATOR
DEPT OF CULTURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
MSC 4617 - ARCHIVES BUILDING
RALEIGH NC

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DWS 3/27/13

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MAR 2013
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DCA

PROJECT INFORMATION

APPLICANT: N.C. Department of Transportation
TYPE: National Environmental Policy Act
Environmental Assessment

DESC: Proposal to replace the Herbert C. Bonner Bridge - Phase IIA and improvements to NC 12 between Rodanthe and Oregon Inlet. TIP No. B-2500A

CROSS-REFERENCE NUMBER: 94-E-4220-0426 06-E-4220-0185 07-E-4220-0283 09-E-4220-0078

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☒ NO COMMENT ☐ COMMENTS ATTACHED

SIGNED BY: Renee Gledhill-Earley DATE: 3-13-13

NCDENR

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

MEMORANDUM

TO: Crystal Best
State Clearinghouse

FROM: Lyn Hardison
Division of Environmental Assistance and Outreach
Permit Assistance & Project Review Coordinator

RE: 13-0331 Environmental Assessment
Proposed project to replace the Herbert C. Bonner Bridge-Phase IIA and make improvements to NC 12 between Rodanthe and Oregon Inlet, TIP No. B-2500A
Dare County

Date: March 27, 2013

The Department of Environment and Natural Resources has completed its review of the proposal for the referenced project. Based on the information provided, our agencies have some specific concerns and comments for this project. Please forward this memorandum and the attachments to the applicant so the agencies concerns can be addressed and the necessary adjustments can be made to the report.

The Department encourages the applicant to continue to work with our agencies during the NEPA Merger Process and as this project moves forward.

Thank you for the opportunity to respond.

Attachment

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NCDENR

North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Pat McCrory
Governor

Braxton C. Davis
Director

John E. Skvarla, III
Secretary

March 22, 2013

Lyn Hardison, Environmental Assistance Coordinator
N.C. Department of Environment and Natural Resources
Washington Regional Office
943 Washington Square Mall
Washington, NC 27889

RE: SCH NO. 13-0331. Environmental Assessment, Proposal to Replace the Herbert C. Bonner Bridge and Improvements to NC 12 between Rodanthe and Oregon Inlet, TIP No. B-2500A, Phase IIA, Dare County.

Dear Ms. Hardison:

The N.C. Division of Coastal Management (DCM) appreciates the opportunity to comment on the Environmental Assessment (EA) for the above referenced project.

This project is being carried through the NEPA/404 Merger Process, and DCM is a member of the NEPA/404 project team. It appears as though the information contained within the EA is consistent with the information that has been provided to DCM, and upon which we have commented, through the NEPA/404 Merger Process.

A formal DCM review of the project to determine consistency with the state's Coastal Management Program will occur in conjunction with a review of the Coastal Area Management Act (CAMA) major permit application. The CAMA major permit application will be circulated to the network of state agencies that comprise North Carolina's Coastal Management Program. The statutes, rules and policies of each of these agencies must be considered during the review of the CAMA major permit application. This process will also include a final consistency review by the North East DCM District Planner of the relevant CAMA land use plans.

Attached please find a memorandum from the North East DCM District Planner dated March 18, 2013 providing a Consistency Determination with the Dare County CAMA land use plan based upon a review of the EA. The North East DCM District Planner has identified a need for additional

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Internet: www.nccoastalmanagement.net
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information concerning the replacement of public access to the Refuge. Please note that the NEPA/404 project team has already begun discussions about this issue. DCM will work with NCDOT and other members of the NEPA/404 project team to obtain the requested additional information prior to making a final decision on the CAMA major permit application. The need for additional information by DCM should not delay completion of the NEPA/N.C. SEPA requirements.

During the CAMA major permit application review process, DCM may have additional comments. DCM may also place conditions on any CAMA permit that is issued to further avoid, minimize and/or mitigate environmental impacts. The comments provided in this letter shall not preclude DCM from requesting additional information throughout the CAMA major permit application review process, and following normal permit processing procedures.

Thank you for your consideration of the North Carolina Coastal Management Program. DCM looks forward to our continued involvement with this project. Please contact me at (919) 707-9149 or via e-mail at cathy.brittingham@ncdenr.gov if you have any questions or concerns, or require additional information.

Sincerely,

Cathy Brittingham

Cathy Brittingham
Transportation Projects Coordinator

CC: Doug Huggett, DCM
Charlan Owens, DCM
Paul Williams, DCM

attachment

1638 Mail Service Center, Raleigh, NC 27699-1638
Internet: www.nccoastalmanagement.net

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NCDENR

North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Pat McCrory
Governor

Braxton C. Davis
Director

John E. Skvarla, III
Secretary

RECEIVED
MAR 21 2013
DIV. OF COASTAL MANAGEM
RALEIGH

MEMORANDUM

TO: Cathy Brittingham, DCM Transportation Project Coordinator

FROM: Charlan Owens, AICP, NE DCM District Planner

SUBJECT: Review of the Environmental Assessment (EA) for the Pea Island Long-Term Improvements Bonner Bridge Replacement Project Phase IIa submitted by the US Department of Transportation Federal Highway Administration (FHWA) and the NC Department of Transportation (NCDOT), which addresses four (4) alternatives and identifies a preferred alternative for maintenance of a 2.4 mile section of NC Highway 12 through the Pea Island National Wildlife Refuge, in Dare County.

Reference: Federal-Aid No. BRNHF-0012(55); NCDOT Project Definition 32635; STIP Project No. B-2500A

DATE: March 18, 2013

Consistency Determination: The alternatives are consistent with/not in conflict with the Dare County 2009 Land Use Plan certified by the CRC on February 24, 2011; provided that public access and transportation policies addressing public access to the Pea Island National Wildlife Refuge have been met. Additional information concerning the replacement of public access to the Refuge is needed. (See Attachment A, Page 5).

Overview: The purpose of the Environmental Assessment (EA) for Phase IIa is to identify and assess changes in setting, project, and impacts that may have occurred since the Record of Decision (ROD) approving the "Parallel Bridge Corridor with NC 12 Transportation Management Plan (PBC/TMP) Alternative" for replacement of the Herbert C. Bonner Bridge over Oregon Inlet was issued on December 10, 2010 and to provide documentation of compliance with the National Environmental Policy Act (NEPA) in accordance with the PBC/TMP Alternative. The components of the PBC/TMP Alternative are detailed in the December 2010 Record of Decision (ROD). It consists of Phase I, the replacement of the Bonner Bridge over Oregon Inlet, and future phases that provide for the long-term maintenance of NC 12 from Oregon Inlet to Rodanthe. The project phase under consideration is Phase IIa, which addresses long-term maintenance of the Pea Island Inlet area.

The project area for Phase IIa is located entirely within the Pea Island National Wildlife Refuge. The primary purpose of the Refuge is to serve as a refuge and breeding ground for migratory

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birds and other wildlife. The Refuge is comprised of ocean beach, dunes, upland, fresh and brackish water ponds, salt flats, and salt marsh. The objectives of the Refuge are to provide nesting, resting, and wintering habitat for migratory birds, including the greater snow geese and other migratory waterfowl, shorebirds, wading birds, raptors, and neotropical migrants; provide habitat and protection for endangered and threatened species, and; to provide opportunities for public enjoyment of wildlife and wildlands resources. Public use programs focus on interpretation, environmental education, wildlife observation, wildlife photography, and fishing. In addition to being a wildlife refuge, it also is a significant publicly owned recreation area and a significant historic site eligible for inclusion in the National Register of Historic Places. Beach driving is not allowed within the Refuge.

The project area for Phase IIa consists of a 2.4 mile long section of land area within and adjacent to the NC 12 right-of-way easement that extends south from the southern end of the Pea Island National Wildlife Refuge's South Pond. The section includes the new Pea Island inlet that was created in August of 2011 by Hurricane Irene. The inlet has introduced Essential Fish Habitat (EFH) and marine protected species habitat into the Phase IIa project area and piping plover nesting habitat in the form of the beaches adjoining the inlet. The section also includes the entire area identified in the 2008 Final Environmental Impact Statement (FEIS) for this project area as geologically susceptible to breaches. Floodzones within and adjacent to the right-of-way easement range from AE (EL 9) to AE (EL 10).

Existing improvements within the project area include a paved two-lane highway with 12 foot wide travel lanes crossing a 662 foot long temporary bridge over the Pea Island Inlet. Stormwater sheet flows directly into the adjacent ditches from the road. Driveway cuts connect the roadway to the former Refuge headquarters and to two (2) public access sites, the Pea Island Life Saving Beach Access and the New Inlet Access. The Pea Island Beach Access is located approximately 1,250 feet south of the inlet and provides parking for pedestrian beach access. The New Inlet Access is located approximately 3,100 feet south of the inlet and provides a boat ramp and boat trailer parking for Estuarine Access and a parking area for pedestrian access to the beach and sound. Electric riser poles are located on the west side of the NC 12 roadway. An historic resource, the southern dike around the Refuge pond, is also located within the project study area.

Four (4) alternatives have been considered as possible long-term maintenance improvements for the Phase IIa a Pea Island inlet study area and a preferred alternative is identified:

1. Beach Nourishment – 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. Regular nourishment would likely be repeated at four (4) year intervals.

2. Bridge on New Location (from All Bridge Alternative) – NC 12 would be relocated onto a bridge west of the forecast 2060 high erosion shoreline.

3. Road on New Location (from Road North/Bridge South Alternative) – NC 12 would be relocated as a road west of the forecast 2060 high-erosion shoreline.

4. Bridge within Existing NC 12 Easement (Phase III of Phased Approach Alternative) – NC 12 would be elevated in its current easement onto a 2.1 mile long bridge. The total

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approximate length (including approaches) would be 2.4 miles. The temporary bridge and unnecessary section of NC 12 roadway would be removed.

Alternative 4. Bridge within Existing NC 12 Easement is the preferred alternative. The reasons for selection of this alternative include: it would be designed to account for the potential expansion and migration of the current inlet in the future; it would bridge the entire area considered geologically susceptible to breaches in the Pea Island inlet area; it would account for shoreline movement in the area; it would bridge wetlands in the area; and it would have fewer adverse impacts than the other alternatives considered for this phase.

The Beach Nourishment alternative was eliminated because of uncertainties related to the availability of suitable sand through the life of the project; it would necessitate the closure of the Pea Island inlet by NCDOT; it would not adequately protect NC 12 from potential future breaches; it would not allow natural island processes to occur, and; based on the opinions of USFWS representatives, it is not likely to be found compatible with the Refuge's mission and purpose. The Bridge on New Location was eliminated because, based on the opinions of USFWS representatives, it is not likely to be found compatible with the Refuge's mission and purpose and would impact the southern dike historic resource. The Road on a New Location was eliminated because it would necessitate the closure of the Pea Island inlet; would not adequately protect NC 12 from the formation of future inlets; and, based on the opinions of USFWS representatives, it is not likely to be found compatible with the Refuge's mission and purpose.

The proposed bridge would consist of two (2) 12 foot wide lanes with 8 foot shoulders and a bicycle safety rail. The bridge would be located on the ocean side of the NC 12 easement except in the area of the temporary bridge, where it would be on the sound side. The bridge would consist of 110 foot to 120 foot main spans and 60 foot approach spans. Fill would be placed at each end of the bridge approach, a 200 foot long section to the north and a150 foot long section to the south, and be held within the easement with retaining walls. Clearance under most of the bridge spans would be 15.8 feet above mean high water. The bridge deck would be at an elevation of approximately 23 feet. For approximately 900 feet near the temporary bridge, the bridge deck would be at an elevation of approximately 32 feet to accommodate trucks on the traffic maintenance road passing under the new bridge deck. Runoff would be collected from the ends of the bridge and piped to a riprap apron which would drain to roadside swales to promote infiltration. Bridge drainage for the main bridge spans would be from scuppers (openings) at the outer edges of the deck. The bridge would be high enough to allow wind to disperse the scupper discharge before it reaches the ground or inlet surface.

Construction is anticipated to last from 3 to 3.5 years, including removal of the temporary bridge. Construction activity would be primarily confined to the existing NC 12 easement, including a temporary traffic maintenance road; however, approximately 3.84 acres of temporary construction easement would be needed to construct Phase IIa. Temporary easements would provide room for construction workers to erect erosion control measures, remove the temporary bridge and associated shoring, and jet in the piles. Temporary construction easements would also be requested for staging areas to be placed at the Pea Island Life Saving Beach Access and the New Inlet Access. Sedimentation and erosion control measures would adhere to the

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Design Standards in Sensitive Watersheds. 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 Pea Island inlet is anticipated to migrate south. Inlet migration could influence the stability of the temporary bridge. NCDOT is monitoring changes to the Pea Island inlet and intends to retrofit the temporary bridge and road protection systems, as needed, so that the temporary bridge can fulfill its function until a long-term project (Phase IIa) is completed.

All waters in the project area are classified as SA; HQW.

Anticipated impacts resulting from the preferred alternative include permanent and temporary impacts to Coastal Wetlands, Section 404 Wetlands, and Essential Fish Habitat (EFH). These include the permanent impact to .01 acre of wetlands and .04 acre of open waters and temporary impact to 1.12 acres of wetlands and .28 acre of open waters; the hand clearing of .42 acres of wetlands; the permanent impact of .05 acre of Essential Fish Habitat (EFH) and temporary impacts to .60 acre of EFH. Coastal Wetlands are included in the overall wetland impacts.

Phase IIa would change access within the Refuge in that there would be no direct access to the Refuge from the Phase IIa bridge. Motor vehicle access would be lost to the public boat ramp and the public parking lot near Pea Island inlet. Sacrificing direct motor vehicle access in favor of eliminating the need for artificial dunes to maintain a surface road is the preference of USFWS, which has indicated in the past that it will allow for some form of replacement access to the Refuge and its facilities where direct access from a surface road is lost in Phase IIa. New opportunities for parking will be discussed with the Refuge during impact mitigation planning. The boat ramp is not an official Refuge or Seashore facility, and it would be difficult to reach without paved road access. NCDOT will address this impact in mitigation discussions with the Refuge. (Pages 4-17 and 4-18, Phase IIa EA)

Phase IIa bridging would affect several recreational activities that occur on Hatteras Island, including fishing, hiking, surfing, wind surfing, kite boarding, swimming, ocean kayaking, and birding. Natural shoreline processes would be allowed to take place. The shoreline would erode underneath the bridge. As the beach erodes as a part of natural coastal processes, the bridge would be located first over the beach and then in the ocean, making the area unusable or unsafe for certain recreational activities.

Phase IIa bridging would result in visual impacts within the Refuge. The bridge would introduce a sizable new, elevated, linear, manmade feature through the Refuge. It would dominate views from the dunes lining the beach and, as the dunes disappear over time, it would also dominate views of the beach and, ultimately, the ocean.

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ATTACHMENT

Policy Review:

The **Dare County 2009 Land Use Plan** Land Classification Map identifies land area within the the Pea Island National Wildlife Refuge as "Conservation".

The purpose of the "Conservation" classification is to provide for the effective long-term management and protection of significant, limited, or irreplaceable areas. Development by federal agencies is exempt from local zoning regulation. However, Dare County encourages federal agencies to consider impacts on adjoining lands and Dare County's communities. Land disturbing activities should not occur unless in conjunction with an authorized development. Authorized development should include provisions and conditions that minimize impacts to any natural, cultural, historic, and scenic values of the areas authorized for development. As indicated on Page 217, this classification applies to all CAMA AECs and all federal lands except for the bombing ranges on the Mainland and some state-owned lands in Frisco and Buxton.

Listed below is a glossary of key words that are used throughout Section 2 in the policy statements. The glossary is intended to convey the specific meaning of these key words.

1. adequate: sufficient to achieve the intended purpose or prevent harm
2. advocate: to promote or encourage
3. allow, authorize, permit: official action to let something happen
4. consider: to analyze; to take under advisement
5. control: to regulate or direct
6. discourage: to not favor, to dissuade
7. encourage: to favor or foster (also see support)
8. may: provides the option, but not required; permissive
9. oppose: to not support or be against a proposed action
10. practicable: capable of being effected, feasible, likely to occur
11. preferred: the favored course among alternatives but does not preclude other options
12. prohibit: not allowed, to totally prevent
13. promote: to proactively encourage to take positive steps
14. reasonable: practical, just enough to do the job; not extreme
15. recognize: to show awareness of an issue or condition
16. require: to mandate something
17. shall: mandatory, not optional; a more formal term for "will"
18. should: preferred or recommended but not mandatory in all cases
19. significant: important; determined by quantity or relative impact
20. support: to foster; may imply financial support

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As of **March 18, 2013**, the following policies from the Dare County 2009 LUP certified by the CRC on February 24, 2011 may be applicable to this request:

Public Access:

Policy PA #1, Page 142.

"Dare County supports the preservation and protection of the public's right to access and use of the public trust areas and waters."

Policy PA #3, Page 142.

"Dare County supports North Carolina's shoreline access policies and grant programs and recognizes the importance of shoreline access to our local residents and our tourist economy. Thus, the County will continue to seek opportunities to expand access, including opportunities for the disabled, and to secure funding for beach nourishment in order to maintain wide sandy beaches."

Implementation Strategy, Page 142.

"1. ...Any new public access sites shall address the needs of handicap persons and address those needs to the maximum extent practicable in working with the natural conditions of the site."

Policy PA #4, Page 142

"The County recognizes the importance of four-wheel drive vehicles and pedestrian access to the beaches of Dare County that are under the management authority of the federal government... Management plans should emphasize the need to allow these practices to continue in an equitable manner that balances species management activities without eliminating or severely limiting vehicular and pedestrian access to the Dare County beaches."

Implementation Strategies, Page 143.

"2. Defend and assist with legal interventions that would allow continued access for federal beaches."

Policy PA #5, Page 143.

"Plans for the replacement of Bonner Bridge and for the long-term protection of NC 12 on Hatteras Island shall address the need to provide vehicular and pedestrian access for local residents and visitors to all areas of Pea Island and Hatteras Island currently (2008) open to the public. Plans to restrict or limit current levels of access shall be reviewed on a case by case basis with support or opposition offered depending on the proposal and its potential negative impacts on local residents and our tourist economy."

Policy PA #7, Page 145.

"Beach nourishment is the preferred shoreline management alternative along the ocean beaches of Dare County. Access points to beaches identified for nourishment activities shall be provided according to federal standards (every ½ mile) to allow convenient access to all persons. In addition to beach nourishment, the use of terminal groins, offshore reefs, and other similar techniques are compatible with the shoreline management goals of Dare County."

Policy PA #8, Page 146.

"Dare County supports the maintenance of wildlife preservation areas and refuges. Access by the public, including vehicular access to beaches, for wildlife harvesting and observation should not be prohibited."

Implementation Strategy, Page 146.

"1. Work with federal agencies to allow continued access to federal property in Dare County for hunting (including hunting with dogs), fishing, and other similar activities."

Land Use Compatibility:

Archaeological/Historic Resources

Policy LUC #15, Page 159.

"The Dare County Board of Commissioners supports the protection of structures, lands, and artifacts that have been identified by the NC Department of Cultural Resources, Division of Archives and History, as

archaeologically or historically significant. On a case-by-case basis individual protection/management strategies should be implemented to ensure archaeological and/or historical resources are not destroyed."

Infrastructure Carrying Capacity:

Transportation

Policy ICC #6, Page 171.

"The Bonner Bridge and NC 12 on Hatteras Island are vital to Dare County. The replacement of Bonner Bridge in its current location is the preferred alternative of the Dare County Board of Commissioners. Other alternatives that feature the elimination of public access to areas north of Rodanthe or re-routing of vehicular traffic to the federally owned lands of the Pea Island Wildlife Refuge are not reasonable alternatives due to cost factors and the decreased access to wildlife areas, ocean beaches, estuarine shorelines and other habitat areas."

Implementation Strategy, Page 171.

"1. Continue to lobby State and Federal agencies for replacement of Bonner Bridge and the long-term protection of NC 12."

Policy ICC #8, Page 172.

"Dare County supports the development and construction of sidewalks, bike paths, greenways, and other walking/jogging trails to provide a safe setting for these types of outdoor recreation and as alternative transportation routes."

Natural Hazards:

Ocean Shoreline

Policy NH #1, Page 179.

"Oceanfront shoreline development should continue to be managed to protect and preserve the natural and recreational resources along the oceanfront. The appropriate tools for this are the existing CAMA permit program and the Areas of Environmental Concerns (AECs) designated under the CAMA program..."

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Implementation Strategy, Page 179.

"1. Rely on existing CAMA AEC regulations to address development activities along the ocean beaches, estuarine shoreline, and other public trust areas in unincorporated Dare County..."

Estuarine Systems

Policy NH #2, Page 180.

"Estuarine shoreline development should continue to be managed to protect and preserve the natural resources of the estuarine waters and the estuarine shoreline. The appropriate tools for this are the existing CAMA permit program and the Areas of Environmental Concerns (AECs) designated under the CAMA program..."

Implementation Strategy, Page 180.

"1. Rely on existing CAMA AEC regulations to address development activities along the ocean beaches, estuarine shoreline, and other public trust areas in unincorporated Dare County..."

Flood Hazards

Policy NH #5, Page 181.

"Dare County supports, as minimum standards, the administration and enforcement of all applicable floodplain management regulations and the National Flood Insurance Program..."

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Water Quality:

Water Quality

Policy WQ #2, Page 188.

"Development projects shall be designed and constructed to minimize detrimental impacts on surface water quality, groundwater quality, and air quality. Structures should be designed to fit the natural topographic conditions and vegetation versus modifications to natural conditions to accommodate structures..."

Stormwater

Policy WQ #4, Page 190.

"Efforts to preserve, protect and improve water quality should be managed at the local level. Local level management allows for a regulatory approach designed to specifically address unique local needs and conditions. Existing State stormwater rules should serve as the basis for local programs with adjustments made to address local needs, conditions, and community support."

Policy WQ #5, Page 190.

"Efforts to manage stormwater runoff should be based on local conditions and natural features. Properties immediately adjacent to SA classified waters should be developed consistent with the dimensional standards and lot coverage limitations of the Dare County Zoning Ordinance. Vegetative buffers and other low–impact development methods identified by the UNC Coastal Studies Institute are appropriate tools to address stormwater runoff adjacent to SA waters."

Policy WQ #6, Page 190.

"Dare County recognizes the public health issues associated with mosquitoes and standing areas of water and the public safety issue for motorists presented by stormwater ponding on roadways."

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Wetlands

Policy WQ #7, Page 192.

"Dare County advocates the use of existing (2009) state and federal regulatory programs for protecting and preserving coastal wetland areas of environmental concern..."

Policy WQ #8, Page 192.

"Dare County supports the U.S. Army Corps of Engineers nationwide permit program as administered in 2009. This support is based on the current scope of permitting limits of the nationwide program and not any changes that may result in a different policy..."

Policy WQ #9, Page 192.

"The use of wetland mitigation to compensate for the loss of wetlands is a suitable alternative for projects identified as "public purpose projects" or projects undertaken by Dare County..."

Fisheries Resources

Policy WQ #11, Page 193.

"Dare County recognizes the importance of our surrounding waters that serve as habitats for the area's abundant fisheries resources. The continued productivity of Dare County's fisheries shall be fostered through restoration and protection of the unique ecosystems upon which they depend..."

Local Areas of Concern:

Federal/State Support

Policy LAC #4, Page 200.

"Dare County encourages federal and state regulatory agencies to consider fast-tracking of public purposes projects..."

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Policy LAC #5, Page 200.

"Dare County encourages federal and state regulatory agencies to consider impacts from activities occurring on their lands on the surrounding privately-owned land and communities. Although Dare County acknowledges that federal and state properties are exempt from local zoning and other land use ordinances, federal and state agencies should coordinate their efforts with local officials whenever practicable."

Tourism

Policy LAC #6, Page 201.

"Dare County supports the concept of combining natural resources and tourism to promote the area's ecological values, known as "eco-tourism"."

Policy LAC #7, Page 201.

"The quality of life of Dare County residents should be carefully balanced with the tourist-based economy of the Outer Banks. Maintaining a good quality of life for our permanent population and ensuring a safe and enjoyable vacation experience should be a goal of all local, state, and federal agencies responsible for the promotion of tourism in Dare County and North Carolina."

Policy LAC #8, Page 201.

"Dare County recognizes the importance of tourism to our local economy and supports efforts to maintain our status as a desirable place to live, visit, and vacation. Tourist generated revenues should be used to offset the infrastructure needs of our seasonal population and our year-round population."

cc: John Thayer, AICP, DCM Manager of Planning/Public Access

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North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries
Dr. Louis B. Daniel III
Director

Pat McCrory
Governor

John E. Skvarla, III
Secretary

TO: Doug Huggett
THROUGH: Anne Deaton
FROM: Kevin Hart
DATE: March 18, 2013
SUBJECT: B-2500A- NC12 Pea Island Long-Term Improvements

The following comments by the North Carolina Division of Marine Fisheries (NCDMF) on the subject project are offered pursuant to G.S. 113-131. The applicant is proposing to construct a new 2.1 mile long bridge on NC 12 crossing the inlet at Pea Island that resulted from Hurricane Irene. The proposed bridge will be a two lane bridge (12' travel lane with 8' shoulders) and have 98 spans. The drainage system will consist of open scuppers on the main bridge spans, grate inlets and pipe systems for the ramps and end spans, and roadside ditches for the approach pavement. The new bridge will be constructed in the same location as the current road; therefore a temporary road will be constructed to the west of the current roadway. The temporary and new bridge will result in the filling of 1.13acres (1.12acres temporary and 0.01acres permanent) fill in 404 wetlands and 0.04acres of permanent surface water fill and 0.28acres of temporary fill and 0.42acres of coastal wetlands fill (0.33acres temporary and 0.09acres of hand clearing). Piles will be installed by jetting with all spoils staying within the existing easement unless the material is compatible for use on the Pea Island Refuge. Water intakes for jetting will take place at three locations including the current refuge ramp.

The applicant has stated that they will use preventative measures (i.e. protective screens) to minimize impacts to fish species during jetting but no further information has been provided. During the January 30, 2013 avoidance and minimization meeting the NCDOT stated that they will continue to work with the NCDMF and National Marine Fisheries Service (NMFS) on ways to minimize the impacts on fishes from jetting. The NCDMF recommends that the jetting intake has 1mm mesh screens and 0.25fps intake approach velocity to minimize impingement. The NCDMF has requested information as to the approach velocity to determine if other alternatives are necessary to minimize impingement. Prior to construction these methods should be finalized as to ensure these impacts to all life stages of fishes are avoided or minimized.

The New Inlet boat ramp will be removed when the new bridge is constructed. This ramp is currently used by commercial gill net fishermen, recreational fishermen, recreational and commercial shellfish harvesters, kayakers, and kiteboarders. At this time there is limited boat access on the Outer Banks and this ramp should be replaced by constructing a new access spot. At the January 30, 2013 avoidance and minimization merger meeting, the NCDOT agreed to work with the USFWS and refuge to determine a viable alternative for this loss. If access cannot be provided on the refuge due to increased environmental impacts the applicants should seek other access alternatives outside of the refuge property.

The NCDMF has actively participated in the Merger Team meetings in the development of this project. During these meetings the applicant has been working with NCDMF and other resource agencies to avoid and minimize impacts to the resources. The applicant has minimized wetland fill by aligning the new bridge in the existing NC12 easement where practical to avoid wetland impacts.

The NCDMF appreciates the opportunity to review and comment on this project. If you have any comments or questions, please call me at (252) 948-3878 or email me at Kevin.Hart@ncdenr.gov .

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NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Charles Wakild, P. E.
Director

Pat McCrory
Governor

John Skvarla, III
Secretary

March 14, 2013

MEMORANDUM

To: Lyn Hardison, Environmental Coordinator, Office of Legislative and Intergovernmental Affairs

From: David Wainwright, Division of Water Quality, Central Office

Subject: Comments on the Environmental Assessment related for the Pea Island Permanent Improvement – Bonner Bridge Replacement Project Phase IIa, Dare County, Federal Aid Project No. BRNHF-0012(55), TIP B-2500A.
State Clearinghouse Project No. 13-0331.

This office has reviewed the referenced document dated February 2013. The NC Division of Water Quality (NCDWQ) is responsible for the issuance of the Section 401 Water Quality Certification for activities that impact Waters of the U.S., including wetlands. It is our understanding that the project as presented will result in impacts to jurisdictional wetlands and other surface waters. NCDWQ offers the following comments based on review of the aforementioned document:

Project Specific Comments:

1. This project is being planned as part of the 404/NEPA Merger Process. As a participating team member, NCDWQ will continue to work with the team on future phases of the project.

General Comments:

2. Future documentation, including the 401 Water Quality Certification application, should include an itemized listing of the proposed wetland and stream impacts with corresponding mapping.

3. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDOT should address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.

4. NCDOT is respectfully reminded that all impacts, including but not limited to, bridging, fill, excavation and clearing, and rip rap to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations. These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.

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5. Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.

6. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

7. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.

NCDWQ appreciates the opportunity to provide comments on your project. Should you have any questions or require any additional information, please contact David Wainwright at (919) 807-6405 or David.Wainwright@ncdenr.gov.

cc: Bill Biddlecome, US Army Corps of Engineers, Washington Field Office (electronic copy only)
Clarence Coleman, Federal Highway Administration
Chris Militscher, Environmental Protection Agency (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission (electronic copy only)
Cathy Brittingham, Division of Coastal Management (electronic copy only)
Garcy Ward, NCDWQ Washington Regional Office (electronic copy only)
File Copy

Hardison, Lyn

From: Roddy, Jackie
Sent: Tuesday, March 19, 2013 3:15 PM
To: Hardison, Lyn
Cc: Kaufman, Tammy
Subject: DENR Project No. 13-0331

Ms. Hardison,

Thank you for providing the Division of Water Resources (DWR) - Public Water Supply Section (PWS) an opportunity to provide comments regarding the EA – Proposal to replace the Herbert C. Bonner Bridge – Phase IIA and improvements to NC 12 between Rodanthe and Oregon Inlet. TIP No. B-2500A in Dare Counties, DENR Project No. 13-0331.

At this time, DWR-PWS has no objection to the project, but offers the following comments from David Tuten of the Washington Regional Office:

- Engineers and contractor should be aware of utility locations within the project area. Please contact the local water utility to assist with the location of existing water mains in or near the project area.
- If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources, Public Water Supply Section, Technical Services Branch, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634, (919) 707-9100, for review and approval before construction. Final approval must be issued before placing the water mains into service.

Let me know if you have any questions.

Jackie Roddy, P.E.
Environmental Engineer
Division of Water Resources
Public Water Supply Section
Raleigh, NC 27699-1634
Phone: (919) 707-9059
Fax: (919) 715-4374

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.

North Carolina Department of Environment and Natural Resources
Office of Conservation, Planning, and Community Affairs

Pat McCrory
Governor

Linda Pearsall
Director

John E. Skvarla, III
Secretary

March 13, 2013

MEMORANDUM

TO: Lyn Hardison, DENR Environmental Coordinator

FROM: Harry LeGrand, Natural Heritage Program

SUBJECT: EA – Proposal to replace the Herbert C. Bonner Bridge – Phase IIa and improvements to NC 12 between Rodanthe and Oregon Inlet; Dare County; TIP No. B-2500A

REFERENCE: 13-0331

The Natural Heritage Program has previously commented on the Bonner Bridge replacement project (Phase I), on July 31, 2012. Thus, the comments below refer to the remainder of the project (Phase II), within Pea Island National Wildlife Refuge.

The great majority of the natural heritage elements in the Phase II project area occur within the ponds/impoundments on the refuge, and they will not be impacted by the project, at least in Phase IIa Preferred Alternative (Bridge within Existing 12 Easement), which is the short bridge spanning Pea Island Inlet. The EA states that there will be "a plan to monitor conditions on NC 12 and the affected environment and modify management actions so as to minimize the adverse impacts to the Refuge resources while maintaining NC 12 as a viable transportation facility." This is detailed in the EA as consultation with the U.S. Fish and Wildlife Service regarding potential impacts to Pea Island NWR, in particular to the primary resources (understood to be primarily the refuges ponds and impoundments). Even so, it is important that this new bridge over Pea Island Inlet be constructed so as to avoid impacting the fewest acres of the refuge lands, especially wetlands, as possible.

It is also important that future proposals to move NC 12 westward toward the ponds/ impoundments be circulated through the State Clearinghouse for review. Considering the numerous impacts to this highway in just the past two years from hurricanes and other storms, there are expected to be proposals to move NC 12 westward between Oregon Inlet and Pea Island Inlet in the not-too-distant future.

Please do not hesitate to contact me at 919-707-8603 if you have questions or need further information.

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Department of Environment and Natural Resources
Project Review Form

Project Number: 13-0331 **County: Dare** **Date Received: 03/01/2013**

Due Date: 3/22/2013

Project Description: Environmental Assessment - Proposal to replace the Herbert C. Bonner Bridge - Phase IIA and improvements to NC 12 between Rodanthe and Oregon Inlet. TIP No. B-2500A

This Project is being reviewed as indicated below:

Regional Office	Regional Office Area	In-House Review	
___ Asheville	✓ Air RMR 03/08/13	___ Air Quality	✓ Coastal Management
___ Fayetteville	✓ Water [illegible]	✓ Marine Fisheries Kevin Hart	___ Military Affairs
___ Mooresville	___ Aquifer Protection	✓ Parks & Recreation	___ Water Quality
___ Raleigh	✓ Land Quality Engineer PSM 3/7/13	___ Waste Mgmt	✓ Water Quality – DOT David Wainwright
✓ Washington	___ UST	___ Water Resources Mgmt	___ Wildlife
___ Wilmington		✓ Water Supply Section	✓ Wildlife – DOT Travis Wilson
___ Winston-Salem			

Manager Sign-Off/Region:	Date:	In-House Reviewer/Agency:

Response (check all applicable)

___ No objection to project as proposed. ___ No Comment

___ Insufficient information to complete review ___ Other (specify or attach comments)

If you have any questions, please contact:
Lyn Hardison at lyn.hardison@ncdenr.gov or (252) 948-3842.

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: Washington

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS Project Number: 13-0331 Due Date: 3-22-13

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☐	Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
☑	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☐	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of **$65** for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☑	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage of the total project cost will be required upon completion.	30 days (60 days)

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
☐	State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
☐	401 Water Quality Certification	N/A	60 days (130 days)
☐	CAMA Permit for MAJOR development	$250.00 fee must accompany application	55 days (150 days)
☐	CAMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
☐	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
☐	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☐	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☐	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
☐	Tar Pamlico or Neuse Riparian Buffer Rules required.		
★	Other comments (attach additional pages as necessary, being certain to cite comment authority)		

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

☐ **Fayetteville Regional Office**
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

☐ **Mooresville Regional Office**
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

☐ **Raleigh Regional Office**
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

☑ **Washington Regional Office**
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

☐ **Wilmington Regional Office**
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

☐ **Winston-Salem Regional Office**
585 Waughtown Street
Winston-Salem, NC 27107
(336) 771-5000

North Carolina
Department of Environment and Natural Resources
Division of Air Quality
www.ncair.org

Breathe ... Don't Burn!

Smoke from Outdoor Fires is Unhealthy to Breathe and Pollutes the Air



There are a lot of misunderstandings about outdoor or open burning in North Carolina. Some people think it's OK to burn trash in barrels because they've always done it that way. It's not. Others think it's always OK to burn leaves and branches in the fall. But that's not so in cities and counties that pick up yard waste.



The N.C. Division of Air Quality enforces the state open burning rules and many local governments have additional restrictions on outdoor fires. Violating these rules can be expensive -- with fines as high as $25,000 or more for serious cases or repeat violations.

If It Doesn't Grow, Don't Burn It

The basic message of the state open burning rule is simple: Only leaves, branches and other plant growth can be burned – nothing else. That means no trash, lumber, tires or old newspapers. If local pickup is available, you can't burn even leaves and branches. Do not burn:

- Garbage, paper and cardboard
- Tires and other rubber products
- Building materials, including lumber and wood scraps
- Wire, plastics and synthetic materials
- Asphalt shingles and heavy oils
- Paints, household and agricultural chemicals
- Buildings, mobile homes and other structures
- Anything when the air quality forecast is Code Orange, Red or Purple

What is allowed under the law? Homeowners can burn yard trimmings if it's allowed under local ordinances, no public pickup is available and it doesn't cause a public nuisance. Yard waste must not include logs more than 6 inches in diameter and stumps. Other allowable burning includes campfires, outdoor barbecues and bonfires for festive occasions. Landowners or contractors also can burn vegetation to clear land or rights-of-way, provided that:

- Burning is done on the site of origin.
- Prevailing winds are away from built-up areas and roads. If winds are blowing towards public roads, fires must be at least 250 feet away.
- Fires are at least 500 feet away from occupied buildings.
- Burning is done between 8 a.m. and 6 p.m., and nothing is added outside of these hours.

Other occasions where open burning is allowed – with DAQ approval – include fires for: training fire-fighting personnel; managing forest lands or wildlife habitats; controlling agricultural diseases and pests; and disposing of materials generated by hurricanes, tornadoes and other natural disasters. You may need a permit from the N.C. Forest Service or local governments before you burn, even for allowable purposes. However, such permits do not excuse a person from following the DAQ's open-burning rules.

Smoke Can Hurt You and Others

Why does the state have such strict rules about open burning? Because smoke and soot from outdoor fires can cause serious health problems and pollute the air. Fires also can burn out of control, destroying forests and burning down homes. Smoke from a burning trash pile contains many pollutants that can cause serious health problems and damage the environment.

Although smoke from a fire may not bother you, it could be a nuisance and serious health threat for your neighbors, particularly if they have respiratory conditions such as asthma or emphysema. Potential health effects include: lung and eye irritation, headaches, dizziness, asthma attacks, coughing and even death. For more information on the health effects of pollution from open burning, see the U.S. Environmental Protection Agency's Web site, www.epa.gov/, and do a word search for "open burning."

Do not burn on "Air Quality Action Days," when forecasts are Code Orange, Red or Purple. For air quality forecasts, go to www.ncair.org or call 1(888)784-6224.

Reduce, Reuse, Recycle

A lot of open burning isn't necessary. Brush can be composted, ground up for mulch, piled up for wildlife, or just left to rot. Newspapers can be recycled. Old attic junk can be given away for someone else to reuse. By making a few sensible choices, you can reduce the amount of throw-away material you create in the first place. The possibilities are endless.

Take a look at what you've decided to burn. Isn't there something else you can do with it? For more information about reducing, reusing or recycling waste, contact the Division of Environmental Assistance and Outreach at 1(877)623-6748 or www.ncenvironmentalassistance.org

Plan Ahead

You don't need a special permit from the Division of Air Quality for allowable fires. However, you may need a permit from your town or local forest ranger. Open burning can be a nuisance, and local officials may establish rules to reduce that nuisance. Check with local officials before you burn.

Open burning that is more than 100 feet from your home and within 500 feet of a woodland normally requires a permit from the N.C. Forest Service. The Forest Service does not charge for permits. If you want to start an outdoor fire, contact a local forest ranger to find out if and how you can get a permit. You also may contact the Forest Service headquarters at (919) 857-4801 or visit its website, www.ncforestservice.gov/ The Forest Service is primarily concerned with fire danger, while the DAQ deals with air pollution. **Following one agency's regulations does not guarantee compliance with other agencies.**

The N.C. Division of Air Quality is part of the N.C. Department of Environment and Natural Resources. The DAQ is responsible for maintaining and improving the quality of North Carolina's air. For more information about the division and laws for protecting air quality, visit the DAQ's website (www.ncair.org) or call one of our regional offices shown below.

North Carolina Department of Environment and Natural Resources
Division of Air Quality - Regional Offices and Local Programs



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For additional copies of this brochure, contact the Division of Air Quality at (919)707-8445.
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January 20, 2012



North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

TO: Lyn Hardison, Environmental Assistance Coordinator
Division of Environmental Assistance and Outreach, DENR

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: March 22, 2013

SUBJECT: North Carolina Department of Transportation (NCDOT) Environmental Assessment (EA) for the proposed Herbert C. Bonner Bridge Phase IIA, Dare County, North Carolina. TIP No. B-2500A SCH Project No. 13-0331.

Staff biologists with the N. C. Wildlife Resources Commission (WRC) have reviewed the subject EA and are familiar with habitat values in the project area. The purpose of this review was to assess project impacts to fish and wildlife resources. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

NCDOT is planning Phase IIa of the Parallel Bridge Corridor within the NC 12 Transportation Management Plan Alternative, the selected alternative for the replacement of the Herbert C. Bonner Bridge. WRC is a participating agency in the coordination and planning of this project and various comments have been provided in conjunction with the NEPA/404 Merger process. However, the following comments identify specific issues in the document:

- Under Project Commitments; Commitment 11, Night-time Construction states: "NCDOT would work with NCDENR-DMF, NMFS, NPS, and USFWS to determine other areas near project construction where night lighting would need to be avoided or limited". Please add NCWRC to this list of agencies, NCWRC staff has been involved in prior night lighting coordination with this project.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

- Under Project Commitments; Commitment 25c states: "This must be accomplished as per specifications of the North Carolina Wildlife Resources Commission. The point of contact is Sue Cameron at 910-325-3602." This commitment should be updated to reflect the new NCWRC point of contact as listed below.

  Sara H. Schweitzer, Ph.D.
  Coastal Waterbird Biologist
  106 Ferret Run Lane
  Wildlife Diversity Program, NC Wildlife Resources Commission
  New Bern, NC 28562
  sara.schweitzer@ncwildlife.org

As the project progresses through the NEPA/404 Merger process we will continue to assess potential impacts associated with construction of the preferred alternative. Thank you for the opportunity to comment on this EA. If we can be of any further assistance please call me at (919) 707-0370.

Ec:

Gary Jordan, USFWS
Mike Bryant, USFWS-PINWR
Fritz Rohde, NMFS
David Wainwright, DWQ
Bill Biddlecome, USACE
Chris Militscher, USEPA
Doug Huggett, DCM
Kevin Hart, DMF
Thayer Broili, NPS
Clarence Coleman, FHWA
Renee Gledhill-Earley, SHPO

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: DARE

F02: HIGHWAYS AND ROADS

STATE NUMBER: 13-E-4220-0331
DATE RECEIVED: 02/28/2013
AGENCY RESPONSE: 03/22/2013
REVIEW CLOSED: 03/27/2013

MS CAROLYN PENNY
CLEARINGHOUSE COORDINATOR
CC&PS - DIV OF EMERGENCY MANAGEMENT
FLOODPLAIN MANAGEMENT PROGRAM
MSC # 4719
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DEPT OF AGRICULTURE
DEPT OF CULTURAL RESOURCES
DEPT OF TRANSPORTATION

PROJECT INFORMATION

APPLICANT: N.C. Department of Transportation
TYPE: National Environmental Policy Act
Environmental Assessment

DESC: Proposal to replace the Herbert C. Bonner Bridge - Phase IIA and improvements to NC 12 between Rodanthe and Oregon Inlet. TIP No. B-2500A

CROSS-REFERENCE NUMBER: 94-E-4220-0426 06-E-4220-0185 07-E-4220-0283 09-E-4220-0078

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☐ NO COMMENT ☒ COMMENTS ATTACHED

SIGNED BY: Jennifer W. Ole DATE: 3/19/2013

North Carolina Department of Public Safety

Emergency Management

Pat McCrory, Governor
Kieran J. Shanahan, Secretary

Michael A. Sprayberry, Director

March 18, 2013



State Clearinghouse
N.C. Department of Administration
1301 Mail Service Center
Raleigh, North Carolina 27699-1301

Subject: Intergovernmental Review State Number: 13-E-4220-0331
Replacement of the Existing NC 12 Bonner Bridge by NCDOT

As requested by the North Carolina State Clearinghouse, the North Carolina Department of Crime Control and Public Safety Division of Emergency Management Office of Geospatial and Technology Management (GTM) reviewed the proposed project listed above and offer the following comments:

1) The North Carolina Executive Order 123 directs NCDOT to coordinate with and follow the FHWA floodplain management requirements which are found in the Federal Executive Order 11988.

2) 44 CFR 60.3.e prohibits man-made alteration of sand dunes and mangrove stands within Zones V1-30, VE, and V on the community's FIRM which would increase potential flood damage. Grading activity within one of these zones shall be accompanied by a hydraulic study to assure there will be no increase in flood damage potential.

Thank you for your cooperation and consideration. If you have any questions concerning the above comments, please contact Dan Brubaker, P.E., CFM, the NC NFIP Engineer at (919) 825-2300, by email at dan.brubaker@ncdps.gov or at the address shown on the footer of this documents.

Sincerely,

Kenneth W. Ashe, P.E., CFM
Assistant Director
Geospatial and Technology Management Office

cc: John Gerber, NFIP State Coordinator
Dan Brubaker, NFIP Engineer

MAILING ADDRESS:
4218 Mail Service Center
Raleigh NC 27699-4218
www.ncem.org

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4105 Reedy Creek Road
Raleigh, NC 27607
Telephone: (919) 825-2341
Fax: (919) 825-0408

SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 919-967-1450 | 601 WEST ROSEMARY STREET, SUITE 220 CHAPEL HILL, NC 27516-2356 | Facsimile 919-929-9421

March 28, 2013

VIA EMAIL AND U.S. MAIL

Mr. Drew Joyner, Human Environment Section Head
N.C. Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598
djoyner@ncdot.gov

RE: Bonner Bridge Replacement Project Phase IIa Environmental Assessment
NCDOT STIP No. B-2500A

Dear Mr. Joyner:

Thank you for the opportunity to comment on the Environmental Assessment ("EA") prepared by the North Carolina Department of Transportation ("NCDOT") and Federal Highway Administration ("FHWA") for the "Phase IIa" portion of the Bonner Bridge replacement project, TIP Project Number B-2500 (the "Project"). These comments are submitted on behalf of Defenders of Wildlife, the National Wildlife Refuge Association, and the Southern Environmental Law Center.

I. The EA Illegally Segments the Project in Violation of NEPA.

NCDOT and FHWA have illegally segmented the environmental evaluation of the Project by disclosing and evaluating each of its components separately, in isolation. The record of decision ("ROD") for the Project disclosed only the "Phase I" bridge over Oregon Inlet, and the current EA addresses only the proposed "Phase IIa" permanent bridge over the new Pea Island inlet. This EA will be followed by a separate EA for another bridge in the Rodanthe breach area this summer. A beach renourishment project is also currently proceeding separately in the Rodanthe breach area, although we are not aware of any NEPA analysis having been conducted. Additional components of the Project will only be disclosed, doubtless in a similarly piecemeal fashion, after construction of these first components has begun. This procedure of piecemealed environmental assessments violates NEPA because it evades any comprehensive evaluation of the full Project's impacts and ensures that no fair comparison of the available alternatives will take place until there is already an irretrievable commitment to maintaining NC 12 through the Refuge to support the Phase I bridge, no matter the costs or damage to the human environment that will result.

Segmenting the Project in this way is impermissible under any circumstances, but it is all the more egregious because three to four so-called "phases" of this single Project are now planned for concurrent funding and construction. Despite the fact that these components all belong to a single Project and in fact are planned for concurrent construction, they are being evaluated in separate environmental documents, none of which account for the combined, cumulative effects of the Project on the Refuge and human environment.

NEPA requires that all components of the Project be evaluated together before construction commences, not piecemealed into separate environmental documents that fail to account for the combined impacts of the Project. 40 C.F.R. § 1502.4(a); *Md. Conservation Council v. Gilchrist*, 808 F.2d 1039, 1042 (4th Cir. 1986) ("compliance with NEPA is required before any portion of the road is built"); *W. N.C. Alliance v. NCDOT*, 312 F. Supp. 2d 765, 773 (E.D.N.C. 2003) (NEPA evaluation must be complete "before acting"). In this case, NCDOT and FHWA claim that the previous evaluation in the FEIS of some, but not all, of the available options exempts them from the plain-language requirements of NEPA. But the changed conditions in the Refuge vividly illustrate that NCDOT and FHWA cannot rely on the FEIS, which was not only inadequate when it was issued, but also now is significantly outdated in its analysis of the cost and funding of the available alternatives, in its estimates of the environmental consequences of the alternatives, and in its estimation of the pace and timing for the later phases.

In *Western N.C. Alliance*, the court rejected NCDOT's contention that it was not required to consider "the cumulative impacts from the other connected projects because they were not fully funded or planned." 312 F. Supp. 2d at 773. Therefore, whether the various phases of the Project are categorized properly as a single project, or as related actions or cumulative impacts, their full impacts still must be evaluated together. Because NCDOT and FHWA have failed to do so, as well as for the reasons given below, a supplemental EIS is required.

II. The Proposed Bridge Is Legally and Scientifically Unsupportable.

If it is built, the proposed Phase IIa bridge would soon be located on the beach, in the surf zone, and then in the open ocean as the shoreline erodes underneath it. As a result, the bridge and its pilings would significantly curtail recreational use of the seashore in those areas, harm sea turtle and migratory bird nesting and foraging habitat, and create serious maintenance and hurricane evacuation problems.

Numerous Merger Team agencies have pointed out that the plan to raise NC 12 onto bridges in its current easement is a bad idea. For example, the U.S. Army Corps reminded NCDOT in 2007 that an ocean bridge was rejected in 1991 because wave and storm impacts would create unjustifiably high maintenance costs. Those same problems will plague the proposed "Phase IIa" bridge when the island supporting it erodes and the bridge is left in the ocean. Similarly, EPA requested that the in-easement bridging plan be eliminated due to its "significant environmental impacts and potential permitting constraints."

On May 21, 2009, NCDOT and FHWA rejected the in-easement bridging plan, then known as the "Phased Approach," and proposed a new "least environmentally damaging

practicable alternative" ("LEDPA") for the Project because they "wanted to minimize the *extensive adverse impacts* [of the Phased Approach] that were identified by the resource agencies in their FEIS comments" (emphasis added). As noted above, these adverse impacts include harm to migratory bird and sea turtle habitat. Because NCDOT and FHWA have already admitted this plan is not the LEDPA, they have failed to satisfy the requirements for a 404 permit under the Clean Water Act.

NCDOT and FHWA are now pursuing the same in-easement bridges they rejected in 2009 in what appears to be an attempt to avoid a compatibility determination for the use of the Pea Island National Wildlife Refuge ("the Refuge"). The U.S. Fish and Wildlife Service ("FWS") and the Department of Interior ("DOI") repeatedly have explained that no alternative may be built on Refuge property outside the existing right-of-way for NC 12 because it cannot be found compatible with the Refuge and would not receive required permits. However, as explained below, the proposed in-easement bridge would cause significant harm to the Refuge as it migrates into the ocean, and thus is not compatible with the Refuge either.

Similarly, the proposed bridge cannot receive a Coastal Area Management Act ("CAMA") permit that complies with CAMA from the Division of Coastal Management ("DCM") because DCM has already determined that "construction of permanent bridges in a location that is projected to be in the ocean on or before the project's design year would be inconsistent with the most basic principles of [CAMA] and the Rules of the Coastal Resources Commission (CRC)."

Thus, NCDOT and FHWA's plan for the proposed Phase IIa bridge, and for additional in-easement bridges at the other high-erosion "hot spots" along NC 12 that NCDOT has identified within the Refuge, is legally and scientifically unsupportable. NCDOT and FHWA have continued to rely on faulty legal arguments and inadequate studies to try to justify rejecting less environmentally damaging, safer, and more reliable alternatives, such as a long bridge from Bodie Island to Rodanthe through Pamlico Sound (the "Pamlico Sound Alternative") and a system of high-speed, shallow-draft ferries. Hatteras residents, businesses, and property owners, as well as North Carolina's taxpayers, would be far better served by one of these alternatives to NCDOT and FHWA's current plan.

III. A Supplemental EIS Is Required.

An SEIS is required when significant new information or circumstances will affect the impacts of a NEPA project or the selection of an alternative. 40 C.F.R. § 1502.9(c); 23 C.F.R. § 771.130. Here, both new circumstances and new information, as well as significant impacts not adequately disclosed in the FEIS, mandate the preparation of an SEIS.

A. Impacts

The EA fails to address significant impacts on recreation and wildlife habitat resulting from the fact that the proposed bridge would soon be located in the Atlantic Ocean. It also fails

to disclose whether beach nourishment will be used to stabilize the proposed bridge and, if so, what its impacts would be.

1. Beach Nourishment

NCDOT states that "[n]atural shoreline processes would be allowed to take place" and "[t]he shoreline would erode underneath the bridge." EA at 4-15. Yet, previously, NCDOT planned to use beach nourishment and/or construct artificial dunes in conjunction with the in-easement bridge, as it briefly mentioned in the 2008 Final Environmental Impact Statement ("FEIS"). FEIS 4-70 to 4-72 (dune-building and maintenance); 4-107 (raised in-easement bridging "may require some beach nourishment"). If NCDOT does plan to do any beach nourishment or dune construction in conjunction with the Phase IIa bridge, it must disclose those plans and their impacts to the public.

2. Recreational Use

The proposed bridge would drastically limit all of the recreational uses of the Refuge and National Seashore. Most significantly, it would interfere with and in many cases prevent these recreational activities along the bridge's entire length – approximately 2.5 miles including the bridge itself and approaches at either end – once it is located in the surf zone and in the ocean, as it would be within a few years due to the rapid erosion in the area.

NCDOT's plan to construct the proposed bridge now (rather than after 2020) and its updated shoreline forecasts mean that the proposed bridge would be out in the ocean much sooner than the FEIS estimated. EA at 4-9. Moreover, even the EA's updated shoreline forecast fails to take into account accelerated sea level rise. Instead, it continues to rely on linear projections. EA at 4-8. All these factors mean that adequate assessments of the effects of shoreline erosion on the proposed bridge, and that bridge's effects on the Refuge once it is in the surf and ocean, have not been performed.

Because it would soon be left in the ocean, the proposed bridge would, in NCDOT and FHWA's own words, "eliminate[]" surfing along the miles of bridging that would be in the water. EA at 4-18. The EA notes this fact but does not analyze its significant economic consequences for tourism. Because the "human environment" that is the subject of NEPA includes "the relationship of people with that environment," the applicable regulations require that NCDOT and FHWA analyze socioeconomic impacts where they are interrelated with natural or physical environmental effects. 40 C.F.R. § 1508.14. Here, the proposed bridge's pilings in the ocean and the surf zone would not only pose the obvious collision hazard for surfers; it would also change the wave breaks, rendering the area unfit for surfing. But while the FEIS acknowledged this impact on surfing, it did not make any attempt to calculate its impact on the economy of Rodanthe and Hatteras Island generally.

And while the FEIS acknowledged that surfing would be eliminated, it did not disclose or evaluate the effect that the proposed bridge would have on all the other significant recreational activities in this area: swimming, beachcombing, sunbathing, fishing, birding, kite boarding,

ocean kayaking, etc. The FEIS states only that some of these activities "would be affected" when this bridge is in the surf and in the ocean, FEIS at 4-48, but it does not acknowledge that the effects of bridge pilings would, in practical terms, eliminate not just surfing, but swimming and many of the other activities listed above as well. It is beyond question that visitors would avoid the miles of beach underneath a highway and dominated by its massive pilings, shade, and traffic noise. The pilings would create a safety hazard for any recreational activities in the surf and ocean. And according to the FEIS, they are likely to cause rip currents that would further impede recreational activities in these areas. FEIS 4-61. Of course, use of this area would also be curtailed by the reduced access that the elevated highway would cause. However, NCDOT and FHWA have not analyzed the socioeconomic impacts of any of these effects or their role in eliminating recreational use of the beach. Accordingly, NCDOT and FHWA must evaluate all these impacts in an SEIS.

3. Impacts to Refuge Habitat

In addition to the harmful socioeconomic impacts of the proposed bridge, it would also significantly harm the wildlife habitat of the Refuge. The bridge pilings would cause erosion and scour effects on the Refuge and the ocean floor, would interfere with sediment movement along the shore, and would affect the formation of breaches and inlets. All of these impacts would degrade the beach as nesting habitat for threatened piping plovers and other shorebirds, and for endangered and threatened species of sea turtles. But none of these impacts have been analyzed, calculated, modeled, or even clearly acknowledged. The current EA relies on the 2008 FEIS's vague descriptions of what might happen to the Phased Approach bridges in the ocean, which in turn were based on irrelevant studies that used piers running perpendicular to the shoreline rather than parallel to it as the proposed bridge would do.

Moreover, even the effects that were acknowledged in the FEIS are now out of date. The analysis needs to be supplemented. NCDOT and FHWA now state that the 2060 shoreline in the area of the proposed bridge would have eroded by approximately 100 feet more than they estimated just a few years ago in the FEIS. EA at 4-9. But NCDOT and FHWA ignore the obvious corollary to this statement: the proposed bridge would, therefore, be in the ocean much sooner and would exert far greater long-term effects on the Refuge habitat over the life of the Project than the FEIS assumed. Indeed, NCDOT and FHWA did not even plan to construct this proposed bridge (which was called "Phase III" in the FEIS) until after 2020. FEIS at 2-125. The current plan to construct this bridge as soon as possible, coupled with the greater shoreline erosion rate, means that accurate, updated calculations of the miles of this bridge that would be in the ocean in each decade of the Project – as well as the calculations of the impacts of this bridge on the shoreline, the beach, the new inlet, and the wildlife habitat of the Refuge – must be provided in an SEIS.

In addition to relying on out-of-date information, the EA fails to acknowledge or analyze the significant impacts on species habitat that the proposed ocean bridge would cause. Instead, it assumes that virtually all of the impacts would be confined to the easement. EA at 4-19 to 4-25.

This ignores the long-term effects on habitat that the ocean bridge would cause: increased erosion, scour, and interference with longshore sediment transport.

For example, the FEIS acknowledged that scour from the bridge pilings would affect the ocean floor, but it claimed this effect would not occur for this bridge until 2060. Now, however, it is apparent that the bridge would be outside the breakers much sooner, so the scour area and impacts to essential fish habitat ("EFH") are likely to be much greater over the life of the bridge and must be analyzed anew. Similarly, the FEIS acknowledged that the bridge would interfere with longshore sediment transport and would increase erosion, FEIS at 4-67 to 68, but NCDOT and FHWA never calculated the effect this would have on the beach. The EA mentions that the pilings of the temporary bridge over the Pea Island inlet have already interfered with sediment transport, but again makes no attempt to calculate the greater effects of a 2.1-mile bridge on this aspect of barrier island dynamics. Previously, the FEIS also acknowledged that the presence of bridge pilings in the surf and ocean could create "focused erosional hot spots" that "*accelerate* the development of a breach," but neither the FEIS nor the EA analyzes this impact on Refuge habitat. *See* FEIS 4-67 to 68.

Similarly, NCDOT and FHWA acknowledged previously that even while the proposed bridge is still on dry land, "[s]cour around the bridge supports is expected during events that bring the water level in contact with the bridge," *i.e.*, storm surge. FEIS at 4-67. However, the extent of such scour impacts on the Refuge have not been disclosed. This omission is significant because an earlier study by NCDOT's consultant calculated that for a 100-year storm surge, bridge pilings located on the northern end of Hatteras Island would produce severe scour impacts, resulting in scouring over 40 feet deep.

In addition to these impacts, this new plan for an ocean bridge would necessitate significant maintenance activities. Maintenance on this bridge when it is located in the surf zone "would . . . represent a long-term impact" to essential fish habitat ("EFH") and federally protected species. FEIS at 4-108. Permanent, ongoing maintenance is inevitable for bridge pilings located in the high-energy surf zone, and this intrusive activity would be a major detriment to beach habitat and EFH. Again, maintenance of this bridge over the life of the Project would be greatly increased by the earlier construction date and greater shoreline erosion than previously forecast. But the EA fails to account for these impacts.

Moreover, NCDOT and FHWA have abandoned their earlier commitment to confine all maintenance to the NC 12 easement. FEIS at 4-68. Instead, they state in the Record of Decision ("ROD") that this commitment to confine maintenance to the easement "*does not exist* with the NC 12 Transportation Management Plan." ROD at C-16. Thus, the perpetual, long-term maintenance impacts of the proposed bridge are certain to be significantly greater than those contemplated in the FEIS.

In a 2007 letter to then-Governor Easley, DOI stated that the in-easement bridging plan would require actual use of Refuge land and therefore was likely incompatible with the Refuge's purpose:

> While the intent is to construct these new bridges within the existing road's right-of-way, we believe this alternative would require *continued maintenance outside of the existing road's right-of-way* through the Refuge until each subsequent phase of bridge construction along NC 12 is completed. Current information also indicates that all 4 phases would require at least 13 years of actual construction during a 28-year timeframe. Based on the information that the [FWS] currently has, *it is unlikely that we could find this alternative to be compatible with the purposes for which the refuge was established*, as required under the Refuge Improvement Act.

Letter from David Verhey, Acting Assistant Secretary for Fish and Wildlife and Parks, to Governor Easley, dated September 11, 2007 (emphasis added).

Because the proposed bridge would harm the Refuge, as described above, it is incompatible with the Refuge under the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. § 668dd(d)(3)(A)(i), and its implementing regulations. The presence of bridge pilings in the surf or on the beach would degrade the quality of nesting, foraging, and brooding habitat for the federally protected piping plover and nesting habitat for federally protected green and loggerhead sea turtles. The bridge pilings would further destroy and degrade habitat by causing erosion and scour. And once the bridge is on the beach, it would impose traffic noise, lights, and ongoing construction and maintenance activities on nesting habitat. While more detailed analysis of the extent of these harms is required under NEPA, it is already apparent that the current bridge proposal fails to "ensure no net loss of habitat quantity and quality." 50 C.F.R. § 26.41(c). Accordingly, FWS must deny this use within the existing easement.

Even if the proposed bridge qualified as maintenance of the road within the easement (which is an interpretation we contest), it would still be incompatible with the Refuge because, for the reasons given above, it would "materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge." 50 C.F.R. § 26.41(a)(10) .

Finally, safety is a significant concern with the proposed bridge. To our knowledge, the proposed bridge would be the only bridge in the world that would run for miles parallel to the shore through high-energy surf and in the open ocean. This untested and exposed stretch of elevated highway in the ocean would be the sole hurricane evacuation route for Hatteras Island. NCDOT must "fully and adequately set forth . . . [its] ability . . . to maintain the facility after completion of the project in view of the exposure to the winds and the water." *Rankin v. Coleman*, 394 F. Supp. 647, 657 (E.D.N.C. 1975). To date, it has not done so. It must satisfy this requirement before the proposed bridge – and the other in-easement bridges that will inevitably follow it – are constructed.

B. Alternatives

The analysis of alternatives in the EA and accompanying studies continues to be biased and unreliable. In essence, NCDOT and FHWA claim, implausibly, that construction costs have

dropped significantly since 2006 for *every* alternative *except* the Pamlico Sound Alternative. Nor has the funding analysis been updated to reflect the significantly higher STIP allocation for the Project. And a new ferry study created by NCDOT and FHWA claims to evaluate the use of high-speed ferries, but in fact refuses to do so.

1. Pamlico Sound Bridge

The most recent revision to NCDOT and FHWA's cost estimate for a long Pamlico Sound bridge, in which they rejected their own lower updated estimate, does not appear to have been undertaken in good faith.

In 2012, NCDOT updated its estimates for the "Phase IIa" bridge, as well as for the two "Phase IIb" bridging options at Rodanthe, from the 2007 cost estimates that were contained in the FEIS. It found the cost (now updated to 2011 dollars) had dropped significantly – by as much as 38%. Brittney D. Kelly, Summary of Feb. 9, 2012 Meeting with U.S. FWS (May 18, 2012), at 3. NCDOT noted that "a reduction in the unit price for the structure sections and a decrease in the Design-Build inflation factor are two possible reasons why there was a decrease in the cost estimates." *Id.* NCDOT appears to have considered these updates to be accurate and it did not reject them or seek an outside reevaluation.

However, NCDOT reacted very differently when it performed the same type of update for the Pamlico Sound Alternative. It found that the cost of this alternative – now updated to 2011 dollars from the previous 2007 estimate – had dropped by 39% to 55%, to a cost range of $569 million to $629 million, according to the Phase II Pamlico Sound Bridge Corridor Cost Analysis ("Pamlico Sound Bridge Cost Analysis") that accompanies the current EA. Pamlico Sound Bridge Cost Analysis at iii. NCDOT states that this estimate was developed by updating the previous estimates for inflation and by referencing bids on comparable projects. *Id.* Without adequately explaining why this updated estimate was supposedly inaccurate, NCDOT decided to reject it and sought a reevaluation by outside consultants. *Id.* In other words, it rejected its own updated estimate for the Pamlico Sound Alternative, but not for its other updated estimates for its "Phase II" bridges that used the same methodology.

This unequal treatment of the cost estimates for the various Project alternatives continues to raise serious questions about whether NCDOT has ever evaluated the Pamlico Sound Alternatives in good faith.

NCDOT's only explanation for why its updated, lower cost estimate for the Pamlico Sound Alternative supposedly was inaccurate is that it did not "account for the following design considerations" (listed in the Pamlico Sound Bridge Cost Analysis at 3-2):

- A "corrosion protection plan," which appears to be a maintenance cost and not an up-front construction cost.
- A requirement for the "Phase I" Oregon Inlet bridge request for proposals that prohibited the use of precast concrete "I" girders, which supposedly could

reduce the unit structure cost to $80-85 per square foot. But there is no indication that the lower-cost precast girders would not be allowed for the Pamlico Sound bridge. NCDOT states in its October 2012 cost estimate report that "[t]he PSBC . . . could utilize a conventional superstructure, a segmental superstructure, or a combination of the two." *Id.* at 2-3. And the FEIS stated that these precast girders "are anticipated" for use on the Pamlico Sound bridge because of their "faster construction, [. . .] higher quality of the precast elements, longer life, lower maintenance requirements, the ability to maintain segment casting production through the winter, and [avoiding] the difficulties of providing ready-mix concrete in a remote setting where water flow, wind, and exposure to the environment are constant forces." FEIS at 2-87.

- "Some economy of scale and savings through innovation . . . were also anticipated" for the original updated estimate." However, NCDOT and FHWA fail to explain why they now believe economies of scale and related savings for a project of this size were not a valid assumption in developing their own estimate.

In short, NCDOT and FHWA have failed to provide an adequate explanation of what was wrong with their own estimate for the construction cost of the Pamlico Sound Alternative. Nor have they explained why they accepted a 38% reduction in the estimated construction cost for a bridge option under their own "Selected Alternative," but rejected as invalid a 39% reduction for the Pamlico Sound Alternative.

Even taking NCDOT and FHWA's much higher, revised update to the Pamlico Sound Alternative construction cost estimate at face value, this alternative nevertheless could be funded. NCDOT and FHWA now estimate the up-front costs (including construction and right-of-way) as $896 million to $1.546 billion.

NCDOT already has $244 million programmed in the State Transportation Improvement Program ("STIP") to rebuild Bonner Bridge at its current location, and it recently allotted an additional $232 million in the STIP for "Phase II" bridging over two sections of NC 12 damaged in recent hurricanes at the Pea Island inlet and Rodanthe. The total allocation for the Project in the current STIP is thus $476 million.

NCDOT could also seek additional STIP funding for the Pamlico Sound Alternative. Previously, it refused to do so, claiming that the available STIP funding was strictly limited to the amount allocated for the "Phase I" bridge. Now, however, NCDOT has obtained hundreds of millions of dollars more for its preferred plans. NCDOT has never attempted to seek even partial additional funding for the Pamlico Sound Alternative; without doing so, it cannot claim this alternative cannot be funded.

In addition to available STIP funds for the Project, NCDOT could abandon or defer the Mid-Currituck Bridge project (currently slated for $28 million in gap funding per year for 40

years) and divert several years of that gap funding to the Pamlico Sound Alternative. Likewise, NCDOT could defer or abandon the unpopular expansion of US-64 through Dare County and the Alligator River Wildlife Refuge, for which $370 million has been designated in the STIP, and spend only what is necessary to refurbish or replace the existing Alligator River bridge, leaving the rest for the Bonner Bridge replacement project. Widening US-64 is not justified by traffic projections, is opposed by the East Lake community, and is destructive to wetlands.

These funds could be supplemented, if necessary, with TIFIA-based toll funding. NCDOT and FHWA claim in the Pamlico Sound Bridge Cost Analysis, 5-6, that tolling is not an option because a free alternative route is required, but this is a red herring. NCDOT and FHWA have already engaged in a substantial toll analysis in Appendix G of their 2009 Revised 4(f) Evaluation. A free ferry route would satisfy the alternate route requirement. In the alternative, NCDOT could seek an exemption from the requirement for a free route in light of the unusual circumstances of barrier island geography.

When NCDOT and FHWA examined the use of TIFIA bonds in conjunction with tolls, they dismissed this alternative because they claimed the toll rate would be "relatively high." Revised Final 4(f) Evaluation, App'x G at 14. However, concern about "relatively high" tolls cannot justify rejecting the Pamlico Sound Alternative as impracticable and imprudent. Indeed, the toll amount was no higher than, and on certain days was far less than, the $14-$28 tolls NCDOT has proposed for the proposed Mid-Currituck bridge. Moreover, the state is seriously considering the possibility of increasing tolls for ferries in the same geographic area already and is receiving public comments on such proposals.

But most importantly, because the STIP allocation for the Project has increased significantly to $476 million, the amount of required toll revenue – and thus the per-trip toll that would be charged – would be far lower under the current funding arrangement than NCDOT and FHWA's earlier estimate in the Revised 4(f) Evaluation. However, while NCDOT and FHWA claim they updated their funding analysis for the Pamlico Sound Alternative for this EA, in fact they have not revisited their rejection of this method of TIFIA-based toll funding. *See* Pamlico Sound Bridge Cost Analysis at 5-6. They must do so by preparing a supplemental EIS and Revised 4(f) Evaluation to reevaluate funding for the Pamlico Sound Alternative and supplemental TIFIA-based toll funding in particular.

NCDOT and FHWA previously claimed they would need to "phase" the various segments of the Project over decades and rejected the Pamlico Sound Alternative because it could not be "phased." Now, however, they propose to fund and construct at least three segments of the Project in a single funding cycle – a far larger portion of the Project than they previously claimed was possible. Thus, NCDOT and FHWA's simultaneous funding of multiple "phases" of the Project renders their previous alternatives analysis invalid.

2. High-Speed Ferries

The EA and its accompanying "Reconsideration of the Ferry Alternative Report" ("Ferry Report") do not evaluate the cost or feasibility of high-speed ferries that have been suggested by

commenters numerous times. The EPA, FWS, Defenders of Wildlife, the National Wildlife Refuge Association, SELC, other conservation groups, and members of the public have requested repeatedly that NCDOT and FHWA seriously evaluate the alternative of using high-speed, shallow-draft ferries. These modern vessels have been developed since the 1991 ferry study on which NCDOT and FHWA relied in all their previous NEPA documents, and they have significantly greater capacity (carrying up to hundreds of vehicles) than the ferries considered by NCDOT and FHWA, which hold 30-40 vehicles.

Unfortunately, NCDOT and FHWA still have not evaluated the use of high-speed ferries for the Project. The EA states that "the Ferry Alternative was reevaluated by FHWA with assistance from NCDOT," including "consider[ing] using high-capacity, high-speed ferries." EA at 2-7. However, yet again, the only cost and capacity calculations in the Ferry Report and EA are based on NCDOT's conventional 38-car River Class ferries. Ferry Report, App'x D.

The Ferry Report and EA do not evaluate high-speed ferries. Instead, they reject high-speed ferries out of hand and refuse to analyze their costs or feasibility. The only support for this rejection of the high-speed ferry alternative suggested by numerous commenters is the illogical assertion that "[b]ecause the draft depths and required channel depths for high-speed ferries *equal or exceed* those for conventional vessels, the expected dredging requirements for these vessels make further consideration unreasonable." EA at 2-10, Ferry Report at 16 (emphasis added). In other words, NCDOT and FHWA state that even though a high-speed ferry's draft may "*equal*" that of a conventional vessel, that somehow justifies rejecting it without further analysis. They also state that *any* additional draft of a high-speed vessel, even one inch, justifies rejecting this alternative. These statements defy logic and show a prejudged and biased refusal to consider the benefits of the high-speed ferry alternative.

Nowhere in the Ferry Report do NCDOT and FHWA attempt to set forth a standard or determination of the maximum draft of a viable Project vessel. Nor do they attempt to weigh the benefits (vastly higher capacity and speed) of a high-speed ferry, as compared with a conventional one, against the undefined amount of additional dredging that may or may not be required. Nor do they attempt to compare costs. Instead, they reject out of hand any vessel with a draft that "equal[s] or exceed[s] those for conventional vessels," with no objective standard or justification to support this rejection. In short, the Ferry Report's treatment of high-speed ferries could not be more plainly biased, unreasonable, arbitrary, and capricious.

Moreover, NCDOT and FHWA's refusal to consider high-speed ferries based on their supposed dredging requirements is unfounded. Even a cursory internet search reveals multiple vessels with larger capacities and higher speeds than NCDOT's conventional 38-car River Class ferry, while also featuring drafts comparable to, and even less than, the River Class's current 5.5-foot draft. A few of the many examples include:

- Sea Transport Solutions, Noord Nederland, 4.92-foot draft, 250 metric tons of trucks,[1] 16 knots (http://www.seatransport.com/products-ferries.php);
- Sea Transport Solutions, "Seascape," 5.2-foot draft, 62 cars, 18 knots (http://www.seatransport.com/products-ferries.php);
- Maritime Propulsion, MV Schleswig-Holstein, 5.7-foot draft, 75 cars, 1200 passengers, 12 knots (http://articles.maritimepropulsion.com/article/Delivery-Of-New-Shallow-Draft-Ferry-6670.aspx).

These webpages are attached as Attachment 1. NCDOT and FHWA's refusal even to consider, let alone rigorously evaluate, high-speed ferries for the Project fails to answer the concerns raised by previous commenters and does not comply with NEPA.

Similarly, NCDOT and FHWA purport to reject the suggested option of a public-private partnership or privatization of ferry routes for the Project, but again, they do so based entirely on the cost estimates for NCDOT's conventional 38-car River Class ferries. Our previous comments suggested private partners specifically to facilitate the use of high-speed ferries. Because the cost of such vessels for the Project still has not been evaluated by NCDOT, the purported rejection of the private partnership option fails to satisfy our concerns and earlier comments.

IV. A Revised Section 4(f) Evaluation Is Required.

A. Section 4(f) Applies to the Pea Island National Wildlife Refuge.

Under Section 4(f), FHWA is prohibited from approving "any program or project" that requires the use of any public parkland, unless "(1) there is no prudent and feasible alternative to using that land; *and* (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use." 49 U.S.C. § 303(c) (emphasis added). "Use" within the meaning of Section 4(f) includes uses that result in the actual incorporation of land into a transportation facility, as well as constructive uses that create proximity impacts causing substantial impairment to a resource. *See* 23 C.F.R. § 774.17, 774.15. The regulations implementing Section 4(f) clarify that FHWA "may approve only the alternative that . . . [c]auses the least overall harm" to the property. 23 C.F.R. § 774.3(c)(1). Accordingly, under Section 4(f), FHWA must first select an alternative that avoids using Section 4(f) lands altogether, and, only if no "prudent and feasible avoidance alternative" is available, FHWA must select the alternative that causes the "least overall harm" and also take steps to "minimize harm."

[1] By our calculations, at approximately 4,127 pounds per car, 250 metric tons equates to approximately 133 cars. (EPA reports that, for U.S. cars likely to be on the road today, the average weight peaked at 4,127 pounds with model year 2011. EPA, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2012, at 12 (Mar. 2013), *available at http://www.epa.gov/oms/fetrends.htm.*)

Rather than complying with these requirements, NCDOT and FHWA have assumed erroneously that the "joint planning" exception to Section 4(f), 23 C.F.R. § 774.11(i), exempted them from considering or minimizing any harm to the Refuge "as a refuge" and have considered only far lesser impacts to the Refuge "as an historic property." EA at 5-4.

This analysis is incorrect. The "joint planning" exception does not apply to the Refuge because the Refuge was not "*formally reserved* for a future transportation facility *before or at the same time* a park, recreation area, or wildlife and waterfowl refuge [was] established and concurrent or joint planning or development of the transportation facility and the Section 4(f) resource occur[red]." 23 C.F.R. § 774.11(i) (emphasis added). The Refuge was created in 1938, and the easement for NC 12 was not granted until 1954. No transportation facility was formally reserved when the Refuge was created. Indeed, all of the land condemned by the U.S. Government for the Refuge was taken from private landowners; it was never in the hands of the state of North Carolina, so no transportation facility could have been reserved when the Refuge was created. Moreover, the entire northern portion of the Refuge was explicitly taken free of any and all easements or other encumbrances of any kind, as the Judgments of Condemnation in FHWA and NCDOT's files clearly indicate.

Accordingly, the Department of Interior ("DOI") has stated definitively that the "joint planning" exception does not apply to the Refuge. DOI concluded that "there is *no support* for FHWA's ultimate conclusion that the State and the United States engaged in joint transportation and Refuge planning." Letter from Horace G. Clark, Regional Director, Office of the Solicitor to Cynthia K. Dohner, Regional Director, Fish and Wildlife Service (Apr. 9, 2010), at 5 (Attachment 2) (emphasis added).

In sum, the proposed bridge, like the rest of the Project in the Refuge, is subject to the requirements of Section 4(f), and the EA does not satisfy those requirements.

B. The Proposed In-Easement Bridge Would Use the Refuge.

As discussed above, DOI has concluded that maintenance for the proposed in-easement bridging would not be confined to the easement, would use the Refuge, and would be incompatible with its mission and purpose. In addition to the actual use of the Refuge for maintenance, the proposed bridge would constructively use Refuge property as well. "A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired." 23 C.F.R. § 774.15(a). The physical impacts of the proposed bridge on the Refuge "as a refuge" would impair the "protected activities, features, or attributes that qualify the property for protection" far more substantially than the visual intrusion on the Refuge "as a historic property" that FHWA and NCDOT do acknowledge.

The significant adverse impacts discussed in Part I above would substantially impair the Refuge as a habitat for migratory waterfowl and other wildlife. The elevated roadway would soon be located on the beach, in the surf, and eventually in the Atlantic Ocean as the island

migrates westward. Thus, the bridge would negatively affect Refuge geology and habitat by increasing erosion, interfering with longshore sediment transport, causing scour, and affecting inlet formation. Lights and traffic noise on the beach would further impair nesting habitat. And continual maintenance, which would not be confined to the easement, would constitute an additional impairment to the refuge. As discussed above, these effects of a long ocean-side bridge running parallel to the shore have not been adequately studied and may be much more significant than revealed in the FEIS.

The Refuge Act specifically mandates that a compatibility determination consider the direct, indirect, and cumulative impacts on Refuge land and any adjacent land or waters that affect the Refuge use. It is clear that the elevated roadway option would have adverse impacts on the Refuge, and it is therefore subject to a compatibility determination. For the reasons already discussed, FWS cannot approve the proposed activity because it is incompatible with the mission and purpose of the Refuge.

C. The Alternatives Analysis Fails to Satisfy the Requirements of Section 4(f).

NCDOT and FHWA claim the Pamlico Sound Alternative, which avoids the Refuge entirely, is not "prudent" within the meaning of Section 4(f) solely because of its estimated construction cost and the claimed inability to fund that up-front cost. EA at 5-10. But under Section 4(f), an alternative that avoids Section 4(f) property, such as the Pamlico Sound Alternative, may be rejected as imprudent due to cost only if it "results in *additional* construction, maintenance, or operational costs of an *extraordinary magnitude*." 23 C.F.R. § 774.17 (emphasis added).

As we have previously explained, NCDOT and FHWA's analysis of the cost and funding of the Pamlico Sound Alternative fails to satisfy that standard. NCDOT and FHWA rejected TIFIA-based toll funding for the Pamlico Sound Alternative – even though it would have allowed this alternative to be funded – on the ground that the tolls would be "relatively high," and they chose not to pursue any gap funding or additional STIP funding to supplement such tolls based solely on their own preferences. The far greater STIP allocation for the Project now means that any tolls could be significantly lower than previously calculated, and comparable to other tolls being considered for other project by NCDOT, but NCDOT and FHWA have not revised their analysis of TIFIA toll funding or the availability of gap funds. The cost of the Pamlico Sound Alternative is now estimated to be perhaps as little as $569 million. But even using NCDOT and FHWA's dubiously higher, revised version of their updated estimates, this alternative could still result in a *savings*, compared to the Selected Alternative, of $628 million.

In sum, NCDOT and FHWA unreasonably rejected funding options that would have allowed them to construct the Pamlico Sound Alternative, and they have failed to update their analyses to reflect the lower cost estimates and greater available funds that now make this alternative even easier to finance. Accordingly, NCDOT and FHWA have failed to satisfy the requirements of Section 4(f), and must prepare a Revised 4(f) analysis to correct this error.

D. The Temporary Construction Easement Would Use the Refuge.

The 3.84-acre temporary construction easement sought by NCDOT and FHWA fails to satisfy the requirements of 23 C.F.R. § 774.13(d) and thus constitutes a use of the Refuge. First, the duration of the easement is *not* "less than the time needed for construction of the project" – instead, it is the full 3.5-year construction period, as NCDOT and FHWA admit. EA at 5-6. Contrary to those claims, it is immaterial whether their construction vehicles would be present on all portions of the easement land for the entire duration; the key fact is that they would have the *right* to use the land in the form of an easement or authorization via Special Use Permit. Thus, the use in question would last the entire duration of the construction project.

There is no question that the requested construction easement would cause "interference with the protected activities, features, or attributes of the property, on *either a temporary or permanent basis.*" *Id.* § 774.13(d)(3) (emphasis added). Turning this section of the Refuge into a construction zone for 3.5 years in order to construct over two miles of a massive, 23- to 32-foot-high bridge, EA at 1-16, would interfere with the habitat conservation activities that are the purpose of the Refuge, with its features, and with its attributes as a wildlife habitat. There is also no basis for the claim that the construction would have no effect on the refuge as an historic property. *See* EA at 5-9. Moreover, the construction is also likely to cause "adverse physical impacts" to fragile habitat that may not be able to be fully restored ((d)(4)) and thus would be permanently affected ((d)(3)). Finally, NCDOT and FHWA have failed to establish that the construction activity in the easement would be "minor" ((d)(2)), given the scale of the proposed bridge and duration of the construction project.

For all these reasons, the Refuge Manager's agreement with the claims regarding this temporary construction easement was not justified and the authorization should not issue without a compatibility determination.

V. <u>Re-Initiation of Consultation Is Required Under the Endangered Species Act.</u>

Section 7(a)(2) of the Endangered Species Act ("ESA") imposes a substantive duty on each federal agency to "insure that any action authorized, funded or carried out by [an] agency is not likely to jeopardize the continued existence" of listed species. 16 U.S.C. § 1536(a)(2). Pea Island National Wildlife Refuge is home to a number of listed species, including the threatened piping plover and three species of sea turtle. An agency action will "jeopardize" a species if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02. This substantive requirement is an absolute prohibition on any action that would jeopardize a protected species' survival. *See, e.g., Sierra Club v. Marsh*, 816 F.2d 1376 (9th Cir. 1987).

The consultation requirement is triggered whenever an agency proposes to undertake an activity that "may affect" a listed species. 16 U.S.C. 1536(a)(2); 50 C.F.R. § 402.14(g). In evaluating the "effects of the action," FWS must consider the "direct and indirect effects of an action … that will be added to the environmental baseline." 50 C.F.R. § 402.02. The

environmental baseline includes "the past and present activities of all federal … actions in the action area." *Id.* Finally, the biological opinion must contain "detailed discussion of the effects of the action on the listed species." 50 C.F.R. § 402.14(h)(2).

> Re-initiation of formal consultation is required in the following circumstances:
>
> (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

50 C.F.R. § 402.16. Although FWS has prepared a Biological Opinion for Phase I – the actual replacement of the Bonner Bridge – it has not completed consultation for the proposed bridge and other additional phases of the project. FEIS at E-32. As a result, FHWA and NCDOT do not possess incidental take coverage for these new phases of the project. FWS has stated that it will update its analysis of the Project's effects through a process of appended programmatic consultation. *Id.* As each phase of the Project is developed, NCDOT and FHWA must re-initiate consultation.

Thus, FWS has not fully evaluated the impacts of the proposed bridge and additional phases of the Project because originally some of these phases were not scheduled to be reviewed and completed until 2020 or later. Specifically, FWS has not adequately considered the impacts of concurrent construction on nesting wildlife. FWS has not adequately evaluated the possibility of an increase in take of nesting wildlife and their critical habitat due to greater effects of the proposed bridge on beach habitat, over a greater portion of the life of the Project, than were previously assumed. Other effects include shading of the beach from the elevated roadway and increased traffic noise and lights from the lower bridge height. Nor has the agency reviewed the likely possibility that take could occur in the water when the road would be in the surf zone due to continued erosion and migration of the beach.

Because the proposed "Phase II" bridges may increase the amount or extent of taking of species and the modified projects may affect species in a manner and to a degree not previously considered, NCDOT and FHWA must re-initiate or complete consultation with FWS. At a minimum, FWS will need to re-evaluate its jeopardy conclusions and expand the incidental take statement to cover these additional actions.

Further, when FHWA does re-initiate consultation, we are concerned it will attempt to discount or ignore the effects of the proposed bridge on protected species. For example, the EA claims the potential effects on sea turtles would be "discountable and/or insignificant," based only on discussion of construction impacts for the Phase I bridge and potential foraging under that bridge. The EA thus ignores the most obvious impact of the proposed bridge: when the

pilings are located on the beach, they will adversely impact sea turtle nesting habitat, as will the vehicle lights and traffic noise from a highway running 23 to 32 feet above the beach for miles. The Phase I bridge, if built, would be protected by Terminal Groin from erosion. The proposed bridge, by contrast, would soon be located in beach nesting habitat for these turtles, and this would occur far sooner than previously estimated and for a greater portion of the life of the Project, commencing years earlier than earlier projections. Thus, there is no basis for the statement in the EA that the effects of the proposed bridge would be "similar to or less than the effects . . . as a result of Phase I." EA at 4-22.

The same is true for piping plover nesting habitat on the beach. NCDOT and FHWA's 2008 Biological Assessment ("BA") assumed plovers would not nest or forage in the area of the proposed bridge because there was no inlet at the time, BA at 20-21, but since the inlet formed in 2011, the area around the new inlet now has all the features of critical habitat for the piping plover. EA at 4-13. In addition, the proposed bridge would be located on the beach sooner, and for more miles, than the BA assumed. BA at 20-21. It also would not be as high as previously contemplated, bringing highway traffic noise and lights closer to the nesting and foraging habitat. Thus, the impacts of the proposed bridge would be significantly greater than assumed in the 2008 analysis, and these new circumstances and information – which were not considered previously – require a re-initiation of consultation with FWS.

Finally, FWS's 2008 Biological Opinion requires NCDOT to implement a number of "nondiscretionary" measures, EA at 6-14, that are listed at the front of the EA. Among these, item 25(b) requires that in order to protect piping plover habitat, NCDOT must "keep all construction equipment and activity within the existing right-of-way." EA at vi. However, NCDOT and FHWA now seek a 3.5 year construction easement outside the NC 12 right-of-way, totaling 3.84 acres. This is a plain violation of this condition of the Biological Opinion.

Conclusion

The damage to NC 12 wrought by Hurricanes Irene and Sandy and the resulting lengthy road closures on Hatteras Island, during which access to the island over the current Bonner Bridge was disrupted for nearly two months after each hurricane, have shown the folly of attempting to "phase" the planning of a highway route through the Refuge in an orderly manner over decades. Instead, short-term emergencies, which were nevertheless entirely predictable, have driven short-sighted decision-making, and will continue to do so. Because NCDOT and FHWA do not have alternate plans that are compatible with the Refuge, they have begun proposing what will most likely be a series of permanent bridges over the "hot spots" along NC 12. However, the island supporting these bridges will soon erode, and the bridges would be left in the ocean, in some cases within a few years. This would be a disaster for the environment, tourism, safety, and hurricane evacuation. The solution is not to persist in trying to maintain the existing easement and build a doomed and vulnerable bridge, but rather to move the transportation corridor out of the Refuge and away from the rapid and inevitable shoreline movement that will always threaten the road.

Accordingly, NCDOT, FHWA, and the rest of the Merger Team should re-evaluate their plans for the Project. However, NCDOT and FHWA have refused to give the Merger Team and the public the information they need to analyze the alternatives meaningfully. Construction costs have dropped dramatically, but the EA claims this trend somehow does not apply to the Pamlico Sound Alternative. NCDOT has secured hundreds of millions more dollars in funding for its current plan, but has refused to update its funding calculations for other alternatives to reflect this new information. And NCDOT and FHWA prepared a ferry study that once again claims to evaluate high-speed ferries but in fact refuses to do so, with no objective standard or adequate justification.

NCDOT and FHWA must prepare an SEIS and revised Section 4(f) Evaluation to address the significant new information and changes related to the Project area and the available funding for the Project, as well as to address the Project impacts that were not adequately evaluated in previous NEPA documents. They must abandon their persistent refusal to apply Section 4(f) properly to the significant impacts of the Project in the Refuge. And most importantly, they must disclose their plans for the Project as a whole so they can be evaluated by the Merger Team, governmental decision-makers, and the public.

Sincerely,



Julie Youngman
Senior Attorney
Nicholas S. Torrey
Associate Attorney
SOUTHERN ENVIRONMENTAL LAW CENTER

JFY/NST/lap
Attachments
cc (by e-mail only, with attachments):
Dr. Gregory Thorpe, Ph.D., NCDOT
John Sullivan, FHWA
Clarence Coleman, FHWA
Stacey Bosshardt, Esq., USDOJ, attorney for FHWA
Thomas H. Henry, Esq., NCDOJ, attorney for NCDOT

NAVAL ARCHITECTS, CONSULTANTS, SURVEYORS AND PROJECT MANAGERS

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Pusher Tug / Barge (ATB)
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Ferries



Sea Transport Solutions has developed catamaran ferry designs for passenger, RORO and ROPAX operations ra from 15m to 125m. These vessels offer several advantages over conventional monohull designs including:

- Shallow Draft
- Lower Fuel Consumption
- Higher Speed
- Improved Stability and Safety

MV 'Pentalina'



Operating in the Orkeny Isla
68.9m x 20m x 2.5m Draft
350 PAX, 475 DWT
4 x 969kW
18 Knots

MV 'Sea Spirit 1'



Operating in Venezuela
64m x 20m x 2.4m Draft
94 Cars, 400 PAX
4 X 750kW
18 Knots

ATTACHMENT 1

B-31

MV 'Seawind'



Operating in Bahamas
47m x 15m x 1.5m Draft
32 Cars, 250 PAX
4 X 400kW
18 Knots

MV 'Seascape'



Operating in Abu Dhabi, UA
49m x 16.5m x 1.6m Draft
62 Cars, 300 PAX
4 X 400kW
18 Knots

MV 'Noord Nederland'



Operating in Holland
45m x 15m x 1.5m Draft
250t of trucks, 12 PAX
4 X 295kW
16 Knots

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Delivery Of New Shallow Draft Ferry

By Keith Henderson at December 15, 2011 06:43
Filed Under: Company News

The German ferry company Wyker Dampfschiffs-Reederei Föhr-Amrum GmbH, (W.D.R) has been operating an inter island ferry service since 1885. The islands are located in the Wadden Sea, a shallow area of the North Sea off the German and Dutch coasts.



Caption: The MV*Schleswig-Holstein* undergoing trials in the Baltic Sea in October 2011.
Image Credit: Wyker Dampfschiffs-Reederei Föhr-Amrum GmbH

This month WDR took delivery of the latest addition to it fleet the 3,300 GT MV *Schleswig-Holstein.* A sister ship to the Uthlande, in service since last year, *Schleswig-Holstein* is the fourth vessel bearing this name, the predecessor retiring after 41 years of service. The ship was built by Neptun Werft shipyard in Rostock, Germany, part of the Meyer Neptun Group in ten months construction time at a reported cost of $22.7 million US (17.5 million Euro).

The new ferry has an LOA of 249 ft (76 m), beam of 51.8 ft(15.8 m) and the exceptionally shallow draft, fully laden, of 5.7 ft (1.75 m). This allows the ferry to operate in all tide states in the shallow Wadden Sea areaof operation. The hull is double ended with symmetrical bow and stern arrangements allowing the ferry to operate in either direction without having to waste time turning every time entering and leaving harbor.



Caption: This model of the ferry shows the location of the Voith-Schneider vertical propeller drives and how the shallow draft is achieved.
Image Credit: Wyker Dampfschiffs-Reederei Föhr-Amrum GmbH

The propulsion system features four Voith-Schneider 16 R5 EC/120-1 (2 x 2) vertical propeller drives, two at each end, giving a speed of 12 kn with outstanding manoevrability. Caterpillar engines are used throughout, providing propulsion power from four 3508C-DITA-SCAC diesels each of 758kW. Two C9 DITA gensets are rated at 200kWe at 50Hz for the on-board electrical power supply.

The ferry has a carrying capacity of 350 tons, 75 automobiles and up to 1200 passengers in the summer months, reducing to 650 passengers in winter.



Caption: Closeup of one of the four Voith-Schneider vertical propeller drives.
Image Credit: Wyker Dampfschiffs-Reederei Föhr-Amrum GmbH

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United States Department of the Interior

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IN REPLY REFER TO:

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LG-1

April 9, 2010

BRIEFING PAPER

To: Cynthia K. Dohner, Regional Director, Region 4, Fish and Wildlife Service

From: Horace G. Clark, Regional Director, Southeast Region

Subject: Pea Island National Wildlife Refuge–State Road NC 12–4(f) Analysis

You have requested this office to prepare for your use an analysis of the *Revised Final Section 4(f) Evaluation: NC 12 Replacement of Herbert C. Bonner Bridge* (October 2009), circulated by the Federal Highway Administration (FHWA). As will be explained and discussed below, FHWA concludes in this revised determination that its plans with respect to NC 12 through Pea Island National Wildlife Refuge (Refuge) do not constitute a "use" of Refuge lands under Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. § 303 and 23 U.S.C. § 138. Therefore, FHWA contends that it is not required to identify avoidance alternatives or determine the least harmful alternative with respect to the maintenance and relocation of NC 12 through the refuge. This office disagrees with the analysis and conclusions of the FHWA and offers the following comments for your use in future negotiations with FHWA and North Carolina Department of Transportation.

DISCUSSION

The Department of Transportation Act of 1966, 49 U.S.C. § 303 and 23 U.S.C. § 138, provides that:

> The Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a . . . wildlife and waterfowl refuge of national, State or local significance . . . only if--
>
> (1) there is no prudent and feasible alternative to using that land; and
>
> (2) the program or project includes all possible planning to minimize harm to the . . . wildlife and waterfowl refuge . . . resulting from the use.

49 U.S.C. § 303(c). See also 23 U.S.C. §138.

Under this Act, Refuge land may be used for transportation purposes, such as a highway right-of-way, if there is no other alternative that is prudent and feasible. Additionally, before the project is implemented, the planning exercise must minimize harm to the Refuge.[1]

Under FHWA's revised 4(f) evaluation, it distinguished between effects of the project on the Refuge as a refuge and as a historic property. It concluded that there were effects on 3.8 acres of the Refuge as a historic property, but it did not make a determination of effects of the future alignment and maintenance of NC 12 upon the Refuge "as a refuge." The reason for this is that FHWA determined that the project would not "use" Refuge land, and, therefore, it was not required to undertake an analysis of prudent and reasonable alternatives or minimization of harm.

FHWA based its conclusion that the project does not "use" Refuge land on a regulation detailing the applicability of the 4(f) requirements:

> When a property is formally reserved for a future transportation facility before or at the same time a . . . wildlife and waterfowl refuge is established and concurrent or joint planning or development of the transportation facility and the Section 4(f) resource occurs, then any resulting impacts of the transportation facility will not be considered a use as defined in § 774.17.

23 C.F.R. § 774.11(i).

In order to determine the application of this regulation to the Refuge, the historical relationship of the Refuge and NC 12 must be examined.

Historical Background

Pea Island Migratory Waterfowl Refuge was established by Executive Order 7864 (April 8, 1938), 3 F.R. 863. Initially, the lands for the refuge were acquired and administered by the Secretary of Agriculture. This function was transferred to the Department of the Interior in 1939.

The United States engaged in two condemnation proceedings in 1938 by which it acquired the interests of private individuals in Kinnekeet Township on the north end of Pea Island. As a result of these proceedings the United States acquired fee simple title, free of all liens and claims, to approximately 4,200 acres of land. No reservations on behalf of the State of North Carolina were made in the estates taken in these condemnation proceedings, nor were the condemned estates subject to any public roads or rights-of-way. In 1938, the United States' title was not encumbered by any right of the State of North Carolina to plan, construct, or maintain a road on these refuge lands.

[1] The Act does not define the terms prudent, feasible, or minimize harm. These terms are defined in regulations promulgated by the FHWA. 23 C.F.R. § 774.17.

ATTACHMENT 2

At about the same time, the United States Congress authorized the acquisition of lands for the establishment of Cape Hatteras National Seashore (National Seashore) for administration by the National Park Service. The authorities and limitations pertaining to the National Seashore are markedly different from the authorities pertaining to the Refuge.

The Park Service's acquisition authority for the National Seashore required that it receive all lands by donation from the State of North Carolina. 16 USC 459. This required the State to enact legislation providing for the purchase of privately-owned lands and donation of those lands to the United States. In State legislation enacted in 1939, North Carolina agreed to acquire lands necessary for the establishment of the National Seashore on the condition that:

> the State of North Carolina and its subdivisions expressly retain title to and control of all public roads and highways now laid out or established over and upon said lands, and the further right to lay out and establish over and upon said lands such other highways and roads as shall be deemed necessary by the State of North Carolina and political subdivisions thereof.

This language was inserted into deeds in the 1950's when the State donated and transferred lands to the United States for purposes of the National Seashore. It is important to note that this language has never appeared in any deed conveying lands to the United States for purposes of Pea Island NWR.

The absence of a right held by the State of North Carolina to establish roads in the Refuge necessitated enactment by Congress of the Act of October 29, 1951, 65 Stat. 662, which authorized the Secretary of the Interior:

> to convey to the State of North Carolina a permanent easement for the construction of a public road (together with rights for such other uses as may be customary or necessary in the State of North Carolina in connection with the construction or operation of said road) through Pea Island National Wildlife Refuge in Dare County, North Carolina, and to accept in return therefor the conveyance of any rights-of-way, easements, or other rights in or claims to land owned by the State of North Carolina not needed for use in the construction or operation of said road.

In 1952 the State proposed Project 1-9-5-205 for the construction of a road through the Refuge, which was completed in 1954. By deed dated May 20, 1954, the State of North Carolina quitclaimed to the United States its interest in all roads within the Refuge, "except for the easement of right of way for that road or public highway recently built through Pea Island National Wildlife Refuge, for which an easement of right of way had been granted [2] to the State

[2] The tense of this provision in the quitclaim deed might lead one to believe that the easement deed from the United States preceded the quitclaim deed from the State. It did not happen in that sequence. The quitclaim deed was executed first, and the easement deed from the United States to the State was executed last. There is no legal significance to the order in which the deeds were executed.

Highway and Public Works Commission 100 feet in width, being measured 50 feet on each side of the center line thereof, as constructed."

The quitclaim deed from the State was followed shortly by a Deed of Easement, dated July 21, 1954, from the Department of the Interior to the State of North Carolina. The deed conveyed to the State a "permanent easement", 100 feet in width, being 50 feet on each side of a centerline description. The deed contains no language authorizing the State of North Carolina to relocate the highway.

The easement conveyance to the State was made subject to the express condition that the United States' use of the easement lands for the protection and administration of wildlife resources would not be impaired, except to the extent that such administration is inconsistent with the right of the State to construct, operate, and maintain a public highway on the lands.

The easement granted to the State of North Carolina in 1954 established and fixed in place the highway corridor for NC 12. In 1962 a portion of the road was washed out by a storm. In order to deviate from the 100 foot highway easement and build around the eroded segment of the road, North Carolina was required to obtain from the Secretary of the Interior an additional easement under the authority of the 1951 Act of Congress. By deed dated October 1, 1963, the Secretary granted the additional easement to the State of North Carolina, and the State relinquished its interest in the portion of the 1954 easement that was washed out. After 1966, changes in the road alignment have been accomplished under the authority of the National Wildlife Refuge Administration Act, 16 U.S.C. § 668dd(d)(1)(B), by the issuance of rights-of-way permits by the Service.

Pea Island NWR is included within the boundaries of the National Seashore. This does not mean that the authorities pertaining to the National Seashore automatically apply to the Refuge. The Act which created the National Seashore expressly provides that the refuge would continue to be administered for protection of migratory birds. The Park Service is permitted to administer only the recreational uses of the refuge in a manner that is consistent with Fish and Wildlife Service's management of the lands for migratory bird and other wildlife-related purposes. 16 U.S.C. § 459a-3. The Park Service and Fish and Wildlife Service have entered into an agreement dividing their responsibilities with respect to the lands of Pea Island NWR. Nothing in this agreement delegates to the Park Service the authority to grant easements across the lands of the Refuge.

Analysis of FHWA 's Section 4(f) Conclusions

In its 4(f) analysis FHWA sees the State's 1954 quitclaim of its interests in roads as evidence that State roads existed within the Refuge at the time it was created, and as a part of joint transportation and Refuge planning, those roads were quitclaimed to the United States in exchange for the easement for NC 12. The historical record does not support FHWA's view of the matter. Certainly people were driving on the lands that ultimately became the Refuge. People lived in the area and traveled on the land. This use, however, had not ripened into a State highway in 1938 when the United States condemned the land. Otherwise, the State of North Carolina would have been as careful to preserve its rights in the Refuge lands as it did in the lands that were devoted to the National Seashore. In the absence of identifiable State roads as a matter of public record, there is no support for FHWA's ultimate conclusion that the State and the United States engaged in joint transportation and Refuge planning .

The sixteen-year gap in time between creation of the Refuge and establishment of NC 12 renders the "use" regulation, 23 C.F.R. § 774.11(i) cited by FHWA inapplicable. The transportation facility in question, NC 12, was not reserved before or at the same time the Refuge was established, and there is no evidence in the record that there was any joint planning of the Refuge and future transportation facilities. Indeed. the opposite is the case. Thirteen years after the Refuge was acquired from private parties, the State had to seek special legislation in order to obtain an easement for NC 12. Act of October 29, 1951, 65 Stat. 662. If this regulation is inapplicable, and we believe it is, then the Bonner Bridge/NC 12 project constitutes a "use" of the Refuge. In that case, FHWA must identify avoidance alternatives and determine the least harmful alternative with respect to the maintenance and relocation of NC 12 through the Refuge.

Nor is FHWA's effort to "piggy back" the Refuge onto Cape Hatteras National Seashore persuasive. Arguably, the concurrent reservation/joint planning exception to Section 4(f) applies to the National Seashore. Its deeds from the State are encumbered by a State reservation of an existing highway right-of-way, together with a right to relocate the road in the future. However, this deed language does not in any sense apply to the Refuge. Nor does the fact that Pea Island NWR is within the boundaries of the National Seashore alter this conclusion. Although the Refuge and National Seashore are closely aligned and cooperate with each other, their acquisition histories and management mandates are based upon different statutory and regulatory schemes. The effort of FHWA to conflate the two separate areas is not supported by history or law.

Finally, we note that even if FHWA undertakes an analysis of avoidance alternatives, it has already concluded that the Pamlico Sound Bridge Corridor, which would avoid use of Refuge lands for road purposes, is not feasible. Therefore, the Service may need to consider the utility of contesting FHWA's "use" determination.

Appendix C

Response to Comments on the Phase IIa Environmental Assessment

C. Comments on the EA and Responses

This section summarizes and provides responses to comments on the EA received from the public, state and federal environmental resource and regulatory agencies, and non-governmental organizations (NGOs). The written correspondence received from agencies and NGOs is included in Appendix B. The comments and responses are presented in the following sections:

C.1 Public Comments C-1
C.1.1 Oral Comments and Responses C-2
C.1.2 Written Comments and Responses C-2
C.2 Government Agency Comments and Responses C-31
C.2.1 Federal Agencies C-31
C.2.2 State Agencies C-37
C.3 Non-Governmental Organization Comments and Responses—Southern Environmental Law Center—March 28, 2013 ..... C-44

C.1 Public Comments

A series of three Combined (Corridor and Design) Public Hearings were held on the following dates:

- March 11, 2013 at the Dare County Administration Building in Manteo.
- March 12, 2013 at the Rodanthe-Waves-Salvo Community Center in Rodanthe.
- March 13, 2013 at the Ocracoke Community Center in Ocracoke.

Each meeting had an informal open-house format with no formal presentation. The same project information was presented at all three meetings. A total of approximately 382 people attended the hearings.

The hearings updated the public on the status of the project since the release of the Record of Decision (ROD) in December 2010 (2010 ROD) and presented the Preferred Alternative for Long-Term Improvements in the Pea Island inlet area (Phase IIa) of the North Carolina Department of Transportation (NCDOT). A slideshow and handouts were provided. The meeting room included multiple stations where project staff fielded questions and comments from the public. The primary station focused on the proposed Phase IIa Preferred Alternative design (Selected Alternative in this ROD). In anticipation of a high level of public interest, informational stations on other aspects of NC 12 were also provided, including: the status of NC 12 Rodanthe 'S' Curves Hot Spot long-term improvements (Phase IIb), the status of the Oregon Inlet Bridge replacement (Phase I), other future NC 12 improvement projects south of Rodanthe, and ferry service. Other stations included a social media table and an area to submit comments.

The public comment period for the Phase IIa EA ended March 28, 2013. A total of 4,209 comments were received during the comment period; in addition, a petition was received containing 1,700 signatures. The comments covered a range of issues, including the need for the project, the proposed new bridge at the Pea Island inlet, the long-term plans at Rodanthe, other needs along NC 12, and recreational use of the area. There also were comments about whether a long bridge (either the Pamlico Sound Bridge or a bridge from the mainland or Roanoke Island to Rodanthe) should be considered. Most of the comments were form emails, solicited either by the Defenders of Wildlife in opposition to the project (1,597) or The Citizens Action Committee to Replace the Herbert C. Bonner Bridge in favor of the project (2,461). The North Carolina Conservation Network submitted a petition in opposition to the project containing 1,700 signatures. Many of the form emails included additional comments either for or against the project. In addition to the form emails, NCDOT received an additional 150 individual written comments, and one oral comment was recorded during the public hearings. Of the 4,209 comments received, most comments expressed support for a long-term solution for NC 12, although they offered differing opinions about what the solution should be.

This section summarizes the oral and written comments on the EA submitted by the public and provides NCDOT and FHWA responses. These comments come from oral comments recorded at the public hearings, comment forms submitted either at the public hearings or mailed later, e-mails, and letters. The written public comments are posted for online review on the project website (www.ncdot.org/projects/bonnerbridgephase2).

C.1.1 Oral Comments and Responses

One oral comment was recorded:

John Albright:

> Mr. Albright's concern is the elimination of Pamlico Sound access. He loves to kayak and harvest shellfish. He hopes that another sound access point can be provided.
>
> ***Response:*** *NCDOT has reached an agreement with the US Fish and Wildlife Service-Pea Island National Wildlife Refuge (USFWS-Refuge) to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

C.1.2 Written Comments and Responses

Project Need and Priorities

- James and Vicki Pierson, Charles Parker, Linda Matthews, and Steve Bravar

Mr. and Mrs. Pierson feel there is a lack of concern about the issues on the Outer Banks from the governor and legislature, with few exceptions. They emphasize the fact that the ferry and NC 12 are the only connections to the mainland and point out that the ferry takes 3 hours, plus 1.5 hours to go to services located in Nags Head.

Mr. Parker and Ms. Matthews both emphasize that the tax revenue brought in by tourism in the Hatteras area justifies prioritizing access on NC 12 and the replacement of the bridge(s).

Mr. Bravar states that NC 12 needs to be reconstructed to ensure secure access to Hatteras Island – even if it becomes a toll road.

Response: *These positions are acknowledged. The Governor declared the situation on NC 12 in the area between the temporary bridge at Pea Island inlet and the village of Rodanthe a State of Emergency on March 19, 2013. This declaration is expected to facilitate the implementation of interim NC 12 stabilization at the Rodanthe 'S' Curves Hot Spot, where maintenance of NC 12 was particularly challenging during the 2012/2013 winter months.) NCDOT's current construction objectives call for being ready to construct long-term improvements at Pea Island inlet (Phase IIa) in fall 2013 and being ready to construct long-term improvements at the Rodanthe 'S' Curves Hot Spot (Phase IIb) in spring 2014. NCDOT will be ready to begin construction when relevant legal and permitting matters are resolved.*

- Joseph McNamara

Mr. McNamara makes his living working on the island and depends on the ability of tourists to come and go safely. He also points out that the island has a large community of seniors that have to be able to get off the island when necessary. He favors a long-lasting bridge.

Response: *These positions are acknowledged.*

- Shirley Mae Schoelkopf and John Harris

Ms. Schoelkopf emphasizes that NC 12 needs to be fixed "today, not in the future." She states that residents need access to bridges and roads to live.

Mr. Harris is the owner of Kitty Hawk Kites and has three stores, one restaurant, a condominium, and recreational services on the island. He remarks that since Hurricane Irene, he has lost kiteboarding customers to other locations. He supports finding a long-term solution quickly to maintain the economy, with construction starting no later than fall of 2013.

Response: *These positions are acknowledged. The Governor declared the situation on NC 12 in the area between the temporary bridge at Pea Island inlet and the village of Rodanthe a State of Emergency on March 19, 2013. This declaration is expected to facilitate the implementation of interim NC 12 stabilization at the Rodanthe 'S' Curves Hot Spot, where maintenance of NC 12 was particularly challenging during the 2012/2013 winter months. NCDOT's current construction objectives call for being ready to construct long-term improvements at Pea Island inlet (Phase IIa) in fall 2013 and being ready to construct long-term improvements at the Rodanthe 'S' Curves Hot Spot (Phase IIb) in spring 2014. NCDOT will be ready to begin construction when relevant legal and permitting matters are resolved.*

- Robert Vasko

  Mr. Vasko is in support of finding a long-term solution. He says that Phase IIa and Phase IIb are desperately needed and that more information is needed for phases beyond that.

  Response: *This position is acknowledged. NCDOT has funded and implemented an on-going coastal monitoring program on Hatteras Island as part of the NC 12 Transportation Management Plan component of the PBC/TMP Alternative within the project study area (i.e., Oregon Inlet to Rodanthe). The results are presented in the monitoring program's annual reports, which are available to the public upon request, and will aid the planning of future phases of the project.*

- Jerry Ryscavage

  Mr. Ryscavage stated that he believes that the Preferred Alternative in Phase IIa is a good beginning. He added that a larger solution must also include the "bridge within existing NC 12" alternative in Rodanthe, and a bridge that addresses the Canal Zone Hot Spot extending as far south as necessary.

  Response: *This position is acknowledged. An Environmental Assessment (EA) examining alternatives for Phase IIb (Rodanthe) is currently in preparation, and separate public hearings will be dedicated to Phase IIb. One of the options being considered in northern Rodanthe is a bridge within the existing NC 12 easement. NCDOT has funded and implemented an on-going coastal monitoring program on Hatteras Island within the project study area (i.e., Oregon Inlet to Rodanthe). The results are presented in the monitoring program's annual reports, which are available to the public upon request, and will aid the planning of future phases of the project, including the Canal Zone Hot Spot.*

- Thomas G. Harrison, Barbara Bullock, and Jenny Hooper

  Mr. Harrison commented that the priorities of the project, in order of importance, should be: 1) a bridge as a permanent fix for the Rodanthe/ 'S' Curve Hot Spot, 2) a new bridge over the new Pea Island inlet, and 3) a new Bonner Bridge.

  Ms. Bullock recognizes the need for a solution in the Pea Island area, but as a business owner, feels a greater impact to businesses from overwash in the Rodanthe area. She suggests that the best long-term solution is to erect bridges in both the Phase IIa and Phase IIb areas simultaneously. She notes that beach nourishment would be a waste of time and money because of the barrier islands' continued exposure to storms in the future.

  Ms. Hooper believes that the Phase IIb area is more urgently in need of improvements than the Phase IIa area. She notes that residents are incurring lodging costs to stay in the Nags Head area while receiving medical services and believes that the Phase IIb need is greater for tourism. She suggests that beach nourishment should be added, at least temporarily, to sustain passage on NC 12.

  Response: *These positions are acknowledged. Funding is currently in place for both Phases IIa and IIb. NCDOT's current construction objectives call for being ready to construct long-term improvements at Pea Island inlet (Phase IIa) in fall 2013 and being ready to construct long-term improvements at the Rodanthe 'S' Curves Hot Spot (Phase IIb) in spring 2014. NCDOT will be ready to begin construction when relevant legal and permitting matters are resolved. The Governor declared the situation on NC 12 in the area between the temporary bridge at Pea Island inlet and the village of Rodanthe a State of Emergency on March 19, 2013. This declaration is expected to facilitate the implementation of interim NC 12 stabilization (which could involve beach nourishment) at the Rodanthe 'S' Curves Hot Spot, prior to the implementation of a long-term improvement at this location (Phase IIb).*

- **GaeAnn Z. Gessner, Nicole Muller, Steven A. Bonniville, James M. Bielski, and David Carpenter**

  Ms. Gessner and Ms. Muller express the need that residents and visitors have for the roadway-based connection to access services on the mainland, especially emergency medical services.

  Mr. Bonniville and Mr. Bielski both relate their fond memories of visiting the Outer Banks, and urge NCDOT to find solutions to allow them to continue to visit in the future.

Mr. Carpenter says that the Outer Banks are a "gem for all of us to see for generations to come, and we North Carolinians have a[n] obligation to keep the roads open for as long as we live."

Response: *These positions are acknowledged.*

- Bernie McCants, Wallace P. Murdoch, Peter and Jane Obernesser, Michele M. Cribb, Bill Blackwell, Keith Whitener, Bill Slegel, Peggy Bowen, Frank Folb, Steve Bonday, Edie Richards, Butch Austin, Fred Marcuson, Tom Dow, Dixie Burrus Browning, Bob Eakes, and Richard Burditt

  Multiple comments were received that expressed support for the construction of the bridge(s) along NC 12 as proposed in addition to a sentiment that wildlife conservation has been given priority over the needs of residents and visitors in the Hatteras area. These commenters often alluded to a feeling that wildlife advocacy groups, Defenders of Wildlife in particular, are interfering in the affairs of people who live on, work on, or visit the island. Commenters also emphasized that the residents of the area do in fact care about and take care of the wildlife.

  Response: *These positions are acknowledged.*

Phase IIa – Pea Island Inlet

- Bob Easley, Stephen A. Farrell, Dave and Noreen Freeman, John J. Merry, Diane McKinley, Glenna G. Dimmig, Richard W. Dimmig, Bryan A. Fail, Charles Youtz, Phil DiGiulio, Paul Harris, Clifford Kiracofe, Jim Preskenis, William Keenan, Rusty West, Lynn and Marjorie Steiner, Robert Dossenbach, Jeff McIntyre, Ed Boyles, Guy Flibotte, Barbara Feeser, Raymond Grimm, Katherine Prior, Jane Broce, Thomas C. Minns, Kenneth L. Cook, Ronald and Cecile Saunders, John Fleischer, Linda Barber, Jim Milardo, Mark and Linda Bowers, Rob King, George A. Lyerly, Gregory J. Donoghue, Fred Rushin, Arthur Pape, Marion O'Brien, Francis Fitzgerald, Steve Guy, Miguel Padilla, Nancy Miller, Don and Carol Davis, Tim Medlin, Chris Updike, John Knight, Jimmie Hooper, Larry Hart, Mark Miller, Ed Kerner, Dave Vachet, Joanne Chamberlain, Ray Cheely, Colleen Crane, Linda Tolson, Karen McCreary, Rochelle Grey, Jim Brown, Troy and Karen Scroggin, Mike and Janet Straddeck, Sybil A. Skakle, Kevin Culleny, Bob Haas, Jim McCoy, and W. A. Manning

  Multiple comments were received expressing general support for the speedy construction of the bridge as proposed. Note that in some cases, commenters referred to support for "the bridge" or "the project" without specifically stating that they mean the Phase IIa bridge over the Pea Island inlet. However, based on context and timing of comment receipt, the assumption is made that in these cases, the commenters indeed meant to express support for the bridge as proposed at Pea Island.

Response: *These positions are acknowledged.*

- Dee Hardham

  Ms. Hardham expressed that she believes the Preferred Alternative in Phase IIa is not as ideal as the "Road on New Location" in terms of the eroding coastline.

  Response: *This position is acknowledged. The Road on New Location alternative does not sufficiently address the fact that the Phase IIa project area is geologically susceptible to breaches and the formation of inlets, such as those resulting from Hurricane Irene. In addition, USFWS-Refuge has indicated the Road on New Location alternative would likely be incompatible with its mission, as discussed in Section 2.4 of the Phase IIa EA on page 2-19.*

- Keith Emery

  Mr. Emery states that while he is in favor of the replacement of the Bonner Bridge, he does not support building new permanent bridges such as the Phase IIa bridge over the new inlet at Pea Island. He emphasizes that the changing landscape of the Outer Banks is not permanent and this realization should be integrated into long-term planning.

  Response: *This position is acknowledged. Consideration of long-term changes in the landscape of the project is an integral part of the Parallel Bridge Corridor with NC 12 Transportation Management Plan (PBC/TMP) Alternative. Section 3.3.2 of the 2010 ROD indicates that the PBC/TMP Alternative includes a coastal monitoring program, an on-going NC 12 vulnerability study, and a commitment to use this information to plan future phases of the PBC/TMP Alternative, including their nature and timing.*

- Brian Van Druten

  Mr. Van Druten supports the permanent bridging in the new Pea Island inlet area. However, he suggests looking at moving the bridge a bit further north to a more secure base, because the dunes at the current stepping off point have been deteriorating.

  Response: *This position and suggestion are acknowledged.*

- Robert Santella and Jacquelyn Gates

  Mr. Santella strongly favors the 2.1 mile bridge (Preferred Alternative) as a long-term solution in Phase IIa, citing that wildlife biologists he has spoken with predict that the bridge will offer a net gain of wildlife habitat after the project.

Ms. Gates, a frequent visitor to Hatteras, supports the Bonner Bridge replacement and the permanent bridge over the Pea Island inlet. She states that safe and secure access for the island's residents needs to be put first and foremost because they depend on it for their lives and well-being.

Response: *These positions are acknowledged.*

Phase IIb – Rodanthe Breach

- Natalie McIntosh

Ms. McIntosh states that an "emergency status" is needed for the Rodanthe 'S' Curves and Mirlo Beach area. She understands from conversations with Mr. Drew Joyner that there is a possibility for an emergency bridge solution prior to the implementation of Phase IIb. She states that the perception that the island is "cut off" must be avoided.

Response: *A temporary bridge is being assessed and could potentially be implemented if necessary at the Rodanthe 'S' Curves Hot Spot. Beach nourishment also is being assessed to stabilize the road in the interim prior to the construction of Phase IIb. The Governor declared the situation on NC 12 in the area between the temporary bridge at Pea Island inlet and the village of Rodanthe a State of Emergency on March 19, 2013. This declaration is expected to facilitate the implementation of interim measures to stabilize NC 12 at the Rodanthe 'S' Curves Hot Spot, prior to the construction of a long-term improvement at this location (Phase IIb).*

- Scott and Martha Caldwell

Mr. and Mrs. Caldwell are the owners of the Island Convenience Store and Midgett's Campground. They list the impacts to their businesses under each of the Phase IIb alternatives, including the loss of their convenience store with the existing easement alternative and the loss of their campground with the bypass through the sound alternative. They conclude that the sound bypass is their preference between the two, because the convenience store is their main source of income.

Response: *This position is acknowledged. An Environmental Assessment (EA) examining alternatives in Phase IIb is currently underway, and the commenters' observations on the impact of the proposed alternatives to their properties will be considered as part of the Phase IIb impact assessment.*

- Keith McCulloch and Brian Van Druten

  Mr. McCulloch is in favor of the bypass in the sound alternative and is against the existing easement alternative.

  Mr. Van Druten states that he supports the Phase IIb option that would bypass the 'S' curves by going out into the Pamlico Sound.

  Response: *These positions are acknowledged. An Environmental Assessment (EA) examining alternatives in Phase IIb is currently underway. A "sound alternative" is one of the detailed study alternatives.*

- Stephanie Joy Sweeney

  Ms. Sweeney asks NCDOT to reconsider beach nourishment using dredged sand to sustain sports and recreation in the Rodanthe area. With regard to the bridge alternatives under consideration, she asks that NCDOT consider pushing the sound side bridge farther from shore to make it less of an eyesore and to provide visuals of the side view of the bridges from a 2nd or 3rd story perspective.

  Response: *The Merger Team (NCDOT, FHWA, and federal and state environmental resource and regulatory agencies) has advanced only bridging alternatives for detailed study in a Phase IIb EA. The reasons that beach nourishment has been found not to be a reasonable long-term improvement will be addressed in the Phase IIb EA. The EA will include an analysis of impacts, including visual impacts to sound-side homes and homes along NC 12. The commenter's suggestion regarding visualizations has been considered. Visualizations are planned for inclusion in the Phase IIb EA.*

- Patrick Munson, Dhanyo Merillat-Bowers, and Janet Doll

  Dr. Munson, a physician who lives in Waves and works on the mainland, stressed that the current pace of the Bonner Bridge project is not sufficient to prevent the collapse of the communities on the Outer Banks and that a permanent solution must happen sooner. He also states that the situation at the 'S' curves has advanced beyond the ability of the phased Bonner Bridge project to address it, and supports beach nourishment as a solution between now and a permanent fix.

  Ms. Merillat-Bowers is concerned that the livelihood of the island is being held hostage by the lawsuits brought by wildlife advocates and believes that beach nourishment is needed now in addition to a permanent fix.

Ms. Doll thanks NCDOT for their hard work on maintaining the 'S' Curve Hot Spot at Rodanthe and states that while a permanent fix is needed, it will take too long to construct the bridges and roads. She states that a short-term solution needs to be planned and implemented immediately, saying that tourists need a safe way to get on and off the island in order to avert disaster for the area.

Response: *These positions and concerns are acknowledged. The Governor declared the situation on NC 12 in the area between the temporary bridge at Pea Island inlet and the village of Rodanthe a State of Emergency on March 19, 2013. This declaration is expected to facilitate interim measures to stabilize NC 12 (which could involve beach nourishment) at the Rodanthe 'S' Curves Hot Spot, prior to the implementation of a long-term improvement at this location (Phase IIb).*

- Carol Dawson

Ms. Dawson emphasizes that no beach nourishment has happened on the island in 39 years, and that dredging and beach nourishment is needed to stabilize the hot spots and secure NC 12 as safe passage to the mainland. Ms. Dawson is opposed to the easement alternative on Hatteras. She believes that the NCDOT's methods have been reactionary rather than proactive, and that NCDOT should look to neighboring states for preventative measures.

Response: *These positions are acknowledged. Section 2.4 of the Environmental Assessment (EA) on Phase IIa explains why Beach Nourishment was eliminated from further consideration as a long-term improvement for Phase IIa. An EA examining alternatives in Phase IIb is currently underway. The Merger Team (NCDOT, FHWA, and federal and state environmental resource and regulatory agencies) has advanced only bridging alternatives for detailed study in a Phase IIb EA. The reasons that beach nourishment has been found not to be a reasonable long-term improvement will be addressed in the Phase IIb EA.*

- Michael R. Martin

In reference to recent NCDOT actions of moving sand from the NC 12 right of way and using it to cover sand bags in the 'S' Curve Hot Spot area, Mr. Martin states that it is a waste of time and money to continue these short-term cosmetic fixes. Mr. Martin wonders whether the dredging permits have been obtained, and if not, who is holding up the process.

Response: *Covering the sandbag piles in the Rodanthe 'S' Curves Hot Spot area is required by state law and the permit that allowed for the placement of the sand bags. The sand used was the most readily available and its transport did not require a permit. The Governor declared the situation on NC 12 in the area between the temporary bridge at Pea Island inlet and the village of Rodanthe a State of*

Emergency on March 19, 2013. This declaration is expected to facilitate the implementation of interim NC 12 stabilization at the Rodanthe 'S' Curves Hot Spot.

- Thomas Dolina

Mr. Dolina supports a longer span avoiding the 'S' Curves.

Response: *This position is acknowledged.*

Other NC 12-Related Needs

- Sarah Whitlock

Ms. Whitlock, who is an Ocracoke resident, expressed concern that the area will no longer be accessible to tourists if NC 12 is not passable and if the free ferry is no longer available. She feels that the road should be raised in addition to beach nourishment for a permanent fix.

Response: *This position is acknowledged. Improvements to NC 12 on Ocracoke Island are being addressed under a separate project (R-3116A). Proposed changes to ferry tolling are being addressed as a separate issue with its own public input process. The most recent public hearings regarding ferry tolling were held in March 2013, including one on Ocracoke Island on March 13 following the Phase IIa EA public hearing.*

- Jan and Spyro Vulgaropulos

Mr. and Mrs. Vulgaropulos support beach nourishment on Ocracoke along with Hatteras and other parts of NC 12 and believe that it is a short-term solution needed for drivability. They fully support the long-term solutions such as the Bonner Bridge replacement. They would prefer a longer bridge that spans the washout areas. They think that NCDOT has chosen the less expensive, shorter-term option.

Response: *This position is acknowledged.*

- Steve Gnyra

Mr. Gnyra emphasizes an urgent need for beach nourishment in the area south of the 'S' curves, noting that the KOA campground has been decimated and that the next hurricane will decimate Rodanthe and Waves. He says that the help is needed now and that they cannot wait for long-term studies or solutions.

Response: *NCDOT is charged with addressing the issues relating to the NC 12 transportation corridor. NC 12 is not threatened in Rodanthe (south of the project*

area) or in Waves. While the concerns related to threats to coastal development are understood, NCDOT suggests this concern would be more appropriately directed to Dare County officials.

- William D. Whitlock

  Mr. Whitlock states that NC 12 is the best and quickest connection for accessing services in the Nags Head area. He says that residents should not be made to pay for services that other state residents get for free, and emphasizes that the improvements should be long-term.

  Response: *This position is acknowledged. It is presumed that the commenter's statement "Please do not make us pay for the same services the rest of the state enjoys free" refers to the possibility of tolling, either on ferries or on the NC 12 roadway. Proposed changes to ferry tolling are being addressed as a separate issue with its own public input process. The most recent public hearings regarding ferry tolling were held in March of 2013. There are no plans to place tolls on a new bridge between Bodie and Hatteras Island.*

- Gary Gracie

  Mr. Gracie says "Please find another way. Our state and national treasure needs to be protected as the wildlife sanctuary it was established to be."

  Response: *This position is acknowledged. NCDOT and FHWA have examined a variety of ways to meet project needs. These are documented in the 2008 Final Environmental Impact Statement (FEIS) and 2010 EA. The Selected Alternative presented in the 2010 ROD best achieves the project's purpose in light of funding limitations while also minimizing impacts to the greatest practicable extent. The 2010 Selected Alternative included a specific approach for its Phase I (a new Oregon Inlet bridge) and identified several options for later phases. A bridge within the existing NC 12 easement, as proposed for Phase IIa, was assessed as one option for later phases of the 2010 Selected Alternative.*

Long Bridge Alternative (Pamlico Sound Bridge Corridor, Bridge Between Stumpy Point and Rodanthe, or Bridge Between Roanoke Island and Rodanthe) or Ferries

- Unsigned

  This commenter says that building a bridge in the surf area is a bad idea and that the long bridge in the sound is the only long-term solution.

  Response: *This position is acknowledged. Section 2.3.3 of the Phase IIa EA and Section 5.3.2 of the Supplemental Draft Environmental Impact Statement (SDEIS) discuss why neither a long bridge between Stumpy Point and Rodanthe nor a bridge*

between Roanoke Island and Rodanthe is a reasonable alternative for the Bonner Bridge Replacement Project. Neither of these bridge options would meet the project's Purpose and Need, which calls for a "new means of access from Bodie Island to Hatteras Island." Both of these bridge options would cause community disruption because of required improvements to existing roads. A bridge from the Wanchese area on Roanoke Island would introduce traffic, take front yards, and would displace several homes along NC 345, thus causing substantial quality of life impacts for that community. A bridge from Stumpy Point to Rodanthe would cause notable impacts to the Alligator River National Wildlife Refuge and would disrupt the community of Stumpy Point on the mainland as a result of the need to improve US 264 and SR 1100 on the mainland to handle Hatteras Island traffic. In addition, the use of either of these bridge options would alter substantially the internal traffic circulation patterns of Outer Banks traffic; the travel distance between Whalebone and Rodanthe would increase by 56 percent with the Stumpy Point terminus and by 29 percent with the Wanchese terminus. Finally, the EA indicates that the long bridge between Bodie Island and Rodanthe has been determined to be unaffordable. This remains the case with the new way to fund and prioritize transportation projects passed by the General Assembly in 2013. (See the response to Southern Environmental Law Center [SELC] comment 22 below.) A bridge between Rodanthe and either Stumpy Point or Roanoke Island, at approximately 16 miles and 19 miles long, respectively, would be of comparable length and thus similar cost.

The 17-mile-long Pamlico Sound Bridge Corridor Alternative from Rodanthe to Bodie Island was analyzed in detail in the 2008 FEIS. Based on its estimated construction cost and the impacts of that cost to NCDOT's budget, it was determined not to be a practicable or prudent alternative.

- Brian Van Druten

Mr. Van Druten wishes that NCDOT would reconsider the 17-mile bridge, stating that it would avoid all the hot spots and provide the safest and most reliable form of transportation for the residents and visitors of Hatteras Island.

Response: *This position is acknowledged. As a part of the Phase IIa EA, NCDOT re-evaluated the cost of the Pamlico Sound bridge (see Section 2.3.1 of the Phase IIa EA). This updated cost analysis came to the same conclusion as previous analyses: based on its estimated construction cost and the impacts of that cost to NCDOT's budget, the 17-mile bridge is not a practicable or prudent alternative. This remains the case with the new way to fund and prioritize transportation projects passed by the General Assembly in 2013. (See the response to SELC comment 22 below.)*

- Heidi Smith

  Ms. Smith asks that NCDOT reexamine the long bridge proposal, but consider building it from Stumpy Point to Rodanthe, which is the current emergency ferry route. She believes it is the only long-term solution and will cost less in the long run. She also notes that a toll to cross the bridge (with residents exempted) would be acceptable.

  Response: *Regarding a bridge from Stumpy Point to Rodanthe, see the response to the unsigned comment above. The possibility of tolling to help finance the long bridge was analyzed in the 2009 Revised Final Section 4(f) Evaluation of the NC 12 Replacement of the Herbert C. Bonner Bridge (Appendix G). The revised Section 4(f) evaluation concludes that the tolls required to finance the bridge (in conjunction with Federal and State funding) would be so high as to present a hardship to residents and visitors, considering the absence of other transportation options.*

- Michael Morse and Helen Pisek

  Mr. Morse is in favor of the long bridge, and says that it is the cheaper option over time once the cost of building and maintaining a series of shorter bridges is taken into account. He says that the long bridge would be the safest and most dependable option.

  Ms. Pisek states that the experience of the past few years indicates that shorter bridges and subsequent NC 12 "do-overs" are not the smart way to go. She believes that more thought should be put into the long bridge, which would eliminate the need for constant man hours and equipment for maintenance. Ms. Pisek questions whether the long bridge would really be more expensive in the long run.

  Response: *The cost of a series of shorter bridges may well be similar to the long-bridge over time, as was reflected in Table 2-9 and Table 2-10 of the FEIS. However, a long bridge alternative was determined not to be a practicable or prudent alternative, as detailed in Section 2.6 of the Phase IIa EA, because it must be funded all at once. Building the Bonner Bridge Replacement Project (B-2500) in phases, as called for in the PBC/TMP Alternative, spreads the costs over many years and makes financing feasible. Each phase of the PBC/TMP Alternative will be planned to minimize NC 12 maintenance in the long term. NCDOT conducted an analysis of possible alternative financing options (such as loans, bonds, and tolls) for the long bridge during the environmental studies for the Bonner Bridge Replacement Project (B-2500) (see Appendix G of the Revised Final Section 4(f) Evaluation included in Appendix B of the 2010 EA), but these options fall short of the capital required to build a long bridge. These conclusions were reinforced by an updated cost analysis released in October of 2012 (available at http://www.ncdot.gov/projects*

/bonnerbridgephase2/). Based on these studies and NCDOT's experience to date in pursuing innovative financing, the implementation of the Pamlico Sound Bridge Corridor Alternative is still not practicable or prudent as an alternative to the PBC/TMP Alternative.

- Michael R. Martin

Mr. Martin thinks a cost analysis should be done to examine the costs of both the new Oregon Inlet bridge and the Pea Island inlet bridge, including the maintenance for both. He states that the only long-term solution would be the long bridge from Stumpy Point to Rodanthe.

Response: *Section 2.6 of the Phase IIa EA provides a detailed cost analysis for a bridge from Bodie Island to Rodanthe. This analysis also would apply to a bridge from Stumpy Point, which would be a similar length (approximately 16 miles as opposed to 17 miles). Based on its estimated construction cost and the impacts of that cost to NCDOT's budget, a long bridge alternative was determined not to be a practicable or prudent alternative. This remains the case with the new way to fund and prioritize transportation projects passed by the General Assembly in 2013. (See the response to SELC comment 22 below.) Funds are available to implement the combination of replacing the Bonner Bridge and building long-term improvements at both Pea Island Inlet and Rodanthe. Building the Bonner Bridge Replacement Project (B-2500) in phases spreads the costs over many years and makes financing feasible.*

- Rodger Fitzgerald

Mr. Fitzgerald states that the Bonner Bridge will be the ultimate "Bridge to Nowhere," and that the money from Bonner Bridge should be diverted to build a long bridge from Stumpy Point to Rodanthe. Mr. Fitzgerald also points out that NCDOT should recognize that the island will always migrate west and should design roadways accordingly. He notes that taxpayers want long-term access, but want their money spent on realistic long-term solutions, not short-term fixes.

Response: *NCDOT and FHWA disagree that the new bridge over Oregon Inlet will be a "bridge to nowhere". The selected PBC/TMP Alternative incorporates a coastal monitoring program and NC 12 vulnerability study so that long-term improvements on NC 12 between Oregon Inlet and Rodanthe can be studied, planned, and implemented as they are needed. Island migration is an important consideration in decision making related to NC 12 long-term improvements, including Phase IIa. NCDOT does not have the funding needed to build a long single-phase bridge alternative, as detailed in Section 2.6 of the recently released Phase IIa EA.*

- John Stanton & Wendy D. Stanton

  Mr. and Mrs. Stanton are long-time residents, property owners, and taxpayers of coastal North Carolina, and indicate they are uniquely qualified to provide information on coastal issues related to the development and maintenance transportation networks in this region of the State. The Stantons summarize their comments by saying that the Phase IIa preferred alternative is flawed and inadequate because it fails to fully consider the dynamic coastal environment, fails to use taxpayer dollars wisely (most efficient use of appropriated dollars), fails to safeguard the regional economy, eliminates a cultural use, and jeopardizes the way of life on the Outer Banks.

  The Stantons comment that the long bridge alternative was inappropriately removed from consideration, and it is the only realistic long-term infrastructure solution for NC 12. They state that the Phase IIa Preferred Alternative may be compromised or lost soon after construction as a result of the "dynamic and high-energy" section of beach on which it is planned to be constructed, and that a thorough analysis to model future storm events is needed to predict bridge life expectancy. They note that earlier environmental documentation referred to the inherent uncertainty of future conditions in selecting the PBC/TMP Alternative. They also say that environmental impacts for future phases of the project (Phase III, etc) have not been accounted for by the Phase IIa EA. They point to the loss of the boat ramp/access point in the Refuge as an argument against the Phase IIa Preferred Alternative.

  The Stantons believe that NCDOT's analysis of long bridge funding is incomplete and misrepresented, saying that there are viable funding sources that were not considered. They suggest the capital and maintenance cost of the Pamlico Sound Bridge Corridor (PSBC) is $1 to $1.3 billion dollars (as presented in the Phase IIa EA and earlier environmental documentation) and the correct capital and maintenance cost of the PBC/TMP alternative is $1.5 to $1.7 billion, including proposed corrected estimates for phases beyond Phase IIa and for maintenance.

  They say that the conclusion that the PSBC is neither prudent nor practicable is incomplete. They say that alternative funding sources were not fully explored and an inaccurate cost analysis was performed. They recommend the following as viable options for the partial or full funding of a long bridge alternative:

  – Solicited bids may come in lower than the estimated $700M - $1B project cost.
  – Use a state-wide referendum to approve a toll system to pay for a portion (~25%) of the bridge construction.
  – Utilize a portion of the tourism/hotel lodging tax to pay for a portion (20-40%) of the bridge construction.

- Request one-time special legislative appropriation.
- Actively pursue the MAP 21 funding now.
- Act now to request that FHWA cover a portion of the cost of the PSBC under federal Emergency Relief (ER) funding.

The Stantons argue that by not fully considering the complete range of funding opportunities, the requirements of NEPA have not been met in NCDOT's analysis. They conclude by stating that because the significant impacts that they raise have not been adequately addressed in the EA, a Supplemental FEIS is warranted.

Response: *NCDOT and FHWA disagree with the commenter's position that the Phase IIa bridge may be compromised or lost soon after its construction. The Phase IIa bridge has been designed to span the entire area that is geologically susceptible to breaching in the Pea Island Inlet area, which NCDOT considers to be the best way to address the potential impacts of future storms. The superstructure (the bridge beams and deck), would be placed above the projected height of storm surge associated with major storms so that it cannot be struck or damaged by the surge, and the depths of the supporting bridge piles will be designed to account for the possibility that the Phase IIa bridge would ultimately be off-shore as beach erosion progresses in the area. Bonner Bridge has withstood annual weather events since its construction in 1962. Thorough studies of coastal dynamics and their potential effect on the bridges associated with the PBC/TMP Alternative have been done and will continue to be done in association with the planning of future project phases. These studies are documented in Sections 3.6 and 4.6 of the 2008 FEIS and in Section 2.6.2 of the EA. A panel of coastal experts also has advised NCDOT on its Phase IIa planning. A record of their recent joint meeting, NC 12 Transportation Management Plan – Phase II Peer Exchange Meeting for NC 12 Replacement of Herbert C. Bonner Bridge, is posted online at http://www.ncdot.gov/projects/bonnerbridgephase2/. This report also was included on the compact disc that accompanied the Phase IIa EA.*

The impacts of Phase I of the PBC/TMP Alternative and a range of options for future phases were assessed in the 2008 FEIS. Because of the inherent uncertainty in predicting future conditions within the dynamic coastal barrier island environment, the 2010 ROD did not specify a particular action beyond the limits of Phase I of the PBC/TMP Alternative. In the 2010 ROD, NCDOT and FHWA committed to account for changes in environment through additional environmental analysis and documentation. The effect of implementing the Phase IIa Preferred Alternative in the context of the overall PBC/TMP Alternative was presented in Section 4.3 of the Phase IIa.

As indicated in responses to similar comments by others, *NCDOT has reached an agreement with the USFWS-Refuge to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

NCDOT and FHWA disagree that project estimates are misrepresented and lack completeness in the Phase IIa EA. The updated cost analysis prepared by NCDOT confirms that implementation of the Pamlico Sound Bridge Corridor is not practicable or prudent because of funding. This remains the case with the new way to fund and prioritize transportation projects passed by the General Assembly in 2013. (See the response to SELC comment 22 below.) NCDOT agrees that the PBC/TMP alternative, which now includes Phase IIa, will have substantial impacts on the environment. However, NCDOT and FHWA disagree with the commenter's conclusion that Phase IIa is a misuse taxpayer funds, fails to safeguard the regional economy, eliminates a traditional cultural use and jeopardizes the way of life on the Outer Banks. In close consultation with other federal and state agencies, NCDOT has identified the best available alternative when taking into consideration project need, state and federal law, estimated costs, available funding, coastal change, and community, natural, and cultural resource impacts. A Supplemental FEIS is not required.

- David Holland and Jim Lyons

Mr. Holland favors eliminating bridge access to the island, stating that replacing the bridges would still leave the problem of the northern part of Pea Island, and that the area becomes more precarious with each storm. He states that we should stop the losing battle with Nature and rely on ferry access. He goes on to say that the only other long-term option is the soundside bridge from Oregon Inlet to Rodanthe.

Mr. Lyons is a Hatteras resident who states that he does not believe that the new Oregon Inlet Bridge and the additional phase for Pea Island will work. He says, "The phased approach is only as strong as its weakest link, and there will be weak links." He suggests that the only viable option is a long bridge routed west of Hatteras Island or a ferry system.

Response: *The Selected Alternative in the 2010 ROD, which includes future phases in its NC 12 Transportation Management Plan, such as Phase IIa, does offer a long-term improvement to the challenges of maintaining NC 12 on Hatteras Island north of Rodanthe. Reasons for not pursuing a bridge from Oregon Inlet to Rodanthe (Pamlico Sound Bridge Corridor) and a ferry alternative were summarized in Sections 2.3.1 and 2.3.2 of the Phase IIa EA, with references to discussions in earlier environmental documentation. The characteristics and merits of various long bridge alternatives also were addressed in the 2008 FEIS in Sections 2.3, 2.4, 2.8, 2.9, and 2.12; Chapter 4.0; and Section 5.3.2 , as well as in Section 2.2 and Appendices B and D of the 2010 EA, and Appendix C of the Phase IIa EA. The characteristics and merits of the ferry alternative were addressed in Section 2.6 of the FEIS, Appendix C of the Phase IIa EA, and in the January 2013 Ferry Report provided on the compact disc included with the Phase IIa EA. See also the response to SELC comment 20*

regarding the Pamlico Sound Bridge Corridor and their comments 26 to 28 regarding ferries.

- Terry Hamrick

Mr. Hamrick points out that if you build a bridge in one spot, [NC 12 in its current easement] will wash out in another. He suggests that if the roadway is expected to last more than 20 years, it will need to be built west of the current easement to accommodate the movement of the coastline from the 'S' Curves north. He also states that ferries are not a viable solution for a robust tourist business on the island. He suggests moving the road as far west as makes sense, perhaps using a long bridge from the southern tip of Roanoke Island to the middle of Rodanthe.

Response: *Moving the road to the west has been considered as an alternative. A bridge is needed in the Phase IIa area to accommodate that area's susceptibility to breaches and inlet formation. A bridge from Roanoke Island to the middle of Rodanthe was considered in the past, as documented in Section 5.3.2 of the 2008 FEIS (beginning on page 5-25). In addition to its high cost, the analysis in Section 5.3.2 indicates that NC 345 between US 64 and the northern bridge terminus would need to be improved to accommodate NC 12-bound traffic, adversely affecting the Wanchese community. Other concerns also are described in Section 5.3.2 of the 2008 FEIS.*

Shoreline Stabilization Measures

- Robin Arnold and Dave Dawson

Mr. Arnold suggests alternate solutions for some of the issues on NC 12. For the flooding and stress on the temporary bridge, he suggests creating stacked rock walls on the north ocean-side and south ocean-side, which would allow the energy of the waves to pass through at a slower rate. For erosion at Mirlo Beach, he suggests that sea walls could dull wave energy if they are built out into the water with a long slow slope reaching the top of the sandbag wall. At Oregon Inlet, he suggests that the use of jetties would encourage nature to carve out the channel and avoid the need for dredging and the expense of the bridge, along with avoiding conflict with environmental groups.

Mr. Dawson states that to find a solution to the eroding shorelines, the state needs to shift their focus from the road itself to stabilizing the beaches. He states that in order to do this, the laws against hardened structures should be changed, which he states could save billions of dollars in current and future infrastructure costs.

Response: *Because of the natural resources and the publicly-held lands in the project area, this project is subject to a variety of state and federal laws, some of which prohibit the use of hardened structures along the coast (such as rock walls or jetties). NCDOT can maintain NC 12 across Oregon Inlet and south to Rodanthe over the long-term (e.g., through 2060 while abiding by current state and federal coastal laws and regulations as they apply to this project.*

- Robert Brown

Mr. Brown states that his main concern about coastal erosion is the effect on the inland areas if the Outer Banks are allowed to erode away. He is concerned about the effect of daily tidal salt water on the Pamlico and Albemarle Sounds, about what elevation the high and low tides will reach in inland rivers and sounds, what effect increased salinity will have on vegetation, and effects of storm surge flooding. He concludes that the shoreline should be maintained at all costs.

Response: *The events described are natural coastal processes and require no interference from NCDOT. NCDOT's mission is to maintain and improve the State's transportation network. On Hatteras Island, NCDOT's efforts are directed to minimizing the impacts of natural coastal processes on the NC 12 transportation link, while also minimizing NC 12's impacts on the natural coastal processes.*

- Dick Gray

Mr. Gray stated that millions have been wasted on dredging Oregon Inlet, repairing the current bridge, and building temporary dunes to stop overwash on NC 12. He suggests spending money now to build a new bridge on the sound side of Hatteras Island that would last years, as opposed to "dumping more money in the ocean to repair and band-aid the current problems."

Response: *This position is acknowledged. The PBC/TMP Alternative selected for implementation in the 2010 ROD, which includes future phases such as Phase IIa in its NC 12 Transportation Management Plan, is a long-term improvement and is neither a repair nor a band-aid. NC 12 maintenance activities will continue until this long-term improvement is implemented. The commenter's preference for a bridge on the sound side of Hatteras Island is acknowledged.*

Project Recreational Amenities

- James Charlet

Mr. Charlet says that because the new temporary bridge at the Pea Island bridge has become a tourist destination, NCDOT should consider providing amenities there, such as parking or a bath house.

Response: *NCDOT currently has no plans to provide parking or a bath house at the bridge over the Pea Island inlet. Any suggestions regarding new Refuge amenities should be raised with the USFWS.*

- Jack McCombs

  Mr. McCombs says he represents hundreds of resident and visiting cyclists that use this area. He estimates that cyclists have a large impact on the local economy and that all new bridges in the area must support cyclists, including the proposed 2.1 mile bridge in Phase IIa. He points out that the designs should include a pull-off point at the mid-way point in both directions.

  Response: *Instead of a pull-off point in the middle of the two bridges, like the Virginia Dare Bridge, NCDOT has chosen to provide wide shoulders for the full length of each bridge. Wider shoulders will benefit both bicyclists and motorists with vehicle breakdowns. The Preferred Alternatives for Phase I and Phase IIa include 8-foot wide shoulders and bicycle-safe rails on the bridges and 4-foot wide paved shoulders on the new roadway sections.*

- Stephanie Joy Sweeney, Herman Hall, Matt Walker, and Brian Van Druten

  Ms. Sweeney asks that NCDOT provide adequate parking between the new inlet and the Rodanthe bridge.

  Mr. Hall, who is the owner of Kitty Hawk Kayak & Surf School Inc., expresses his hope that NCDOT will work with US Fish and Wildlife Service to preserve the boat launch area on NC 12 for public and commercial kayaking, in addition to finding a beach-side parking solution on the south side of the bridge span.

  Mr. Walker asks that NCDOT take an opportunity to maintain access and replace lost parking for the benefit of commercial fishermen, tourism, businesses, visitors, and local residents.

  Mr. Van Druten states that he finds it appalling that NCDOT is planning to remove the inlet access point at the new inlet with no plans to replace it.

  Response: *NCDOT is working with USFWS-Refuge on potential options for the replacement of the parking lot that will be bypassed vertically by the Phase IIa Preferred Alternative. NCDOT has reached an agreement with the USFWS-Refuge to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

Other

- Margaret Lukens, Bob Fowler, Laurie B. Simpson, Joe Bough, Charles Youtz, Paul Harris, Jeff McIntyre, George Cheeky, and Jim Brown

  These commenters expressed their support for the replacement of the Herbert C. Bonner Bridge for permanent access, but did not mention a preference in the Phase IIa Pea Island inlet section.

  Response: *These positions are acknowledged.*

- Joseph Shelhorse

  Mr. Shelhorse states that NCDOT 's "standard operating procedures" include "years of engineering studies, followed by years of environmental studies, followed again by years of engineering change orders," and that meanwhile, Hatteras Island residents are suffering and tourism tax revenue is being lost. Mr. Shelhorse states that the tax revenue generated by Hatteras has not been reinvested into maintaining roadway infrastructure, which has resulted in "dangerous Bonner Bridge failures." He concludes by saying the state has let external forces, including environmental groups and large engineering firms dictate policy instead of listening to the needs of residents and visitors, and demands action now.

  Response: *Environmental and engineering studies completed for the Bonner Bridge project were needed to address the issues involved, to be responsive to the public and environmental resource and regulatory agencies, and to meet the requirements of federal and state laws and regulations. All environmental and engineering studies were commissioned by NCDOT and FHWA. The engineering and environmental firms hired by NCDOT worked under the direction of NCDOT and did not dictate NCDOT policy.*

- Laura Larson and Capt. Mike McDaniel

  Ms. Larson and Capt. McDaniel both asked whether the proceedings of the hearings would be made available online for members of the public not able to attend.

  Response: *Because the public hearings were held with a casual, open-house format and did not have any formal presentation or oral comment period, the meetings were not recorded or broadcast. However, members of NCDOT's public relations team were at the hearings and provided real-time updates via social media, including Twitter and Facebook. The handout from the public hearings is posted on the Long-Term Solutions for NC 12 Breaches website (http://www.ncdot.gov/projects /bonnerbridgephase2/). The comments received and responses thereto are included*

in this Phase IIa ROD, which is posted on the Long-Term Solutions for NC 12 Breaches website.

- Matt Levy

Mr. Levy requested more information on the timeline of the Pea Island portion of the project and asked whether it is being held up by the pending lawsuit regarding the Phase I portion of the project.

Response: *NCDOT's current construction objectives call for being ready to construct long-term improvements at Pea Island inlet (Phase IIa) in fall 2013 and being ready to construct long-term improvements at the Rodanthe 'S' Curves Hot Spot (Phase IIb) in spring 2014. NCDOT will be ready to begin construction when relevant legal and permitting matters are resolved.*

NGO Solicited E-Mails and Written Comments

- Defenders of Wildlife

NCDOT received from 1,597 senders a form e-mail provided by the Defenders of Wildlife to its members with the request that they send it to NCDOT during the Phase IIa comment period. The suggested text of the email was posted online at: https://secure.defenders.org/site/Advocacy?cmd=display&page=UserAction&id=2555. The main points of the e-mail were:

1. The Bonner Bridge replacement project fails to provide a reliable, long-term solution for Hatteras residents, tourists, and businesses.
2. Opposition to the plan to build the Phase I bridge over Oregon Inlet and to elevate NC 12 onto bridges in Phase II. They believe it will turn the Refuge into a continual construction zone, will ruin the view of the Refuge, and will destroy wildlife habitat.
3. Suggestion that the funds currently allocated for unnecessary NCDOT projects be redirected toward building a long bridge through Pamlico Sound or a system of high-speed ferries.

In addition to the three points above, 73 of these e-mails added additional comments addressing the following topics: protect wildlife (33), seek solutions that benefit both wildlife and the public (12), tourism (8), consider alternatives (9), waste of money (8), and other comments (3).

- Protect wildlife and wildlife habitat:
  - Preference for preserving the existing wildlife habitat (4).
  - Do not destroy crucial wildlife habitat (5).

  - There is no need to destroy wildlife habitat to get the Bonner Bridge project (2).
  - Find a better alternative for the environment that will not destroy the wildlife habitat (8).
  - Project would hinder the work to save the sea turtle (1).
  - Do not destroy habitats for arctic swans, tundra swans, and turtle hatching areas (2).
  - Preference for no roadway construction in this unique wildlife habitat, and keeping the island in its natural state (10).
  - Progress is an important part of the future of North Carolina, but this project spells disaster for the protected areas of Pea Island Refuge (1).

- Seek solutions that benefit both wildlife and public:

  - Need a safe, reliable, long-term transportation option to Hatteras Island that does not endanger natural wildlife habitat (3).
  - Reconsider the approach to roads accessing Hatteras Island for the benefit of both wildlife and citizens of North Carolina (4).
  - Consider a different solution that would benefit both humans and wildlife (5).

- Tourism:

  - Natural resource tourism is important (4).
  - Direct access to the Refuge would result in negative aspect of tourism because of increasing commercialization of the Outer Banks and North Carolina (3).
  - Avid birders are not going to the Outer Banks because of harsh and uninviting driving conditions; therefore, consider a solution that does not denigrate the islands even more (1).

- Consider Alternatives:

  - Look at other alternatives such as ferry service to the islands, addition to existing ferry service, and preference for the high speed ferry alternative (5).
  - Consider the long-term solution, and try harder to make a more sustainable solution (3).
  - Adding more roads is not the answer due to climate change; think outside the box, be bold and daring and offer a non-road solution (1).

- Waste of Money:

  - Stop spending money on a project that would only benefit developments in Hatteras Island (3).
  - Replacement of Bonner Bridge would endanger Pea Island and waste millions more in taxpayer dollars (1).
  - Stop spending taxpayer dollars on roads or bridges that will continually be damaged by storms (3).
  - Stop wasting money in rebuilding Bonner Bridge and NC 12 that will not survive climate change and hurricanes. Prefer a ferry to the island (1).

- Other Comments:

  - This project will ruin the entire coast, because the money is the bottom line (1).
  - This is a thinly veiled project to enable heavy equipment access to the islands in preparation to drill offshore. This administration is not concerned with the environment (1).
  - Please use sense (1).

  Response: *These positions are acknowledged.*

  Regarding the first main point, the Preferred Alternative as proposed is a reliable, long-term improvement and NCDOT and FHWA disagree with the commenter's assertion to the contrary.

  Regarding the second main point, construction of the PBC/TMP Alternative will involve several phases of construction in the Refuge. The PBC/TMP includes a coastal monitoring program and vulnerability analysis that is being used to plan future phases. It is expected that this will not result in numerous short phases, but rather a few longer phases. For example, Phase IIa is a long-term project which is designed not just for the section of NC 12 affected by Pea Island inlet, but also includes the placements of a bridge over the full length of the portion of NC 12 susceptible to breaching in the Pea Island inlet area. Phase IIb is being planned to include the entire southern end of the Refuge where shoreline erosion is expected to affect NC 12 between now and 2060, and not just the location near the Refuge's southern border, as the commenter asserts. These two projects address erosion and breaching issues for approximately 5.7 miles of the Refuge south of its ponds. This approach is expected to continue. For example, the Phased Approach, as described in the 2008 FEIS, called for four phases.

  As stated on page C-38 of Appendix C of the Phase IIa EA in response to a comment related to bridge maintenance as a permanent, on-going activity: "… the permanent, on-going maintenance referred to by the commenter would not be necessary for

bridge piles in the high-energy surf zone because the Phase IIa Preferred Alternative's bridge will be designed to account for the potential future conditions that the bridge will be exposed to." Further, this response states, "Bridge maintenance activities for a bridge in the existing NC 12 easement would primarily involve an inspection of every component of the bridge at two-year intervals (as required by federal law), as well as the following: correction of any potential problems while they are still minor; pressure washing with water in the bridge bearing area where the girders rest on the pile cap; re-sealing the deck every five years to minimize salt intrusion; and sweeping the deck and collecting dirt and debris four times a year. The bridge inspection activities for much of the bridge will be from a platform lowered from the deck. Some inspection activities will be from a boat. Debris from any maintenance activities (minor or major) would be captured and transported off site. This was done during recent Bonner Bridge rehabilitation work." Anticipated maintenance activities on existing NC 12 for the interim until each long-term phase of the PBC/TMP Alternative is implemented are described in Section 4.6.8.6 of the 2008 FEIS (beginning on page 4-68) and their impacts are assessed in Section 4.7.8 of the 2008 FEIS (beginning on page 4-115). As indicated on page 4-73 of the 2008 FEIS, one objective of the monitoring program included in the PBC/TMP Alternative (as well as related components of the TMP) is to limit the future growth of the need for storm-related maintenance to the extent practicable.

Regarding the third main point, NCDOT is responsible for identifying and prioritizing transportation needs across all 100 counties in the state. The State Transportation Improvement Program (STIP) is the mechanism for doing so while working within the limitations of the state budget. Each item included in the STIP is important to the improvement of North Carolina's transportation network. The current allocation of resources reflects both legislative mandates and comprehensive transportation planning processes. NCDOT is not aware of any "unnecessary" STIP projects whose funding could be diverted to pay for a long bridge in Pamlico Sound or for a system of high-speed ferries.

Beginning in 1989, the Equity Formula was used to allocate transportation funding throughout the state. On June 26, 2013, Governor McCrory signed into law the Strategic Transportation Investments legislation. This legislation sets forth a new way to fund and prioritize transportation projects in an effort to provide the maximum benefit to the state. It is expected that implementation of the new funding formula will change some transportation funding priorities but would not allow for the diversion of funding that would pay for a long bridge in Pamlico Sound or for a system of high-speed ferries. (See the response to SELC comment 22 below.)

For reasons outlined in Sections 2.3.2 and 2.3.3 of the Phase IIa EA, neither the long bridge through Pamlico Sound nor the ferry alternative was determined to be a practicable and prudent alternative. See also the response to the SELC comment 20

regarding the Pamlico Sound Bridge Corridor and their comments 26 to 28 by the regarding ferries.

Throughout the assessment of alternatives, minimizing impact to wildlife habitat has been an important consideration of NCDOT, FHWA, and the state and federal environmental resource and regulatory agencies that have participated in the planning process. For example, Phase I ends on Hatteras Island immediately adjacent to the existing bridge, and the existing NC 12 easement that is not needed to implement Phase I will be restored as habitat. Phase IIa is contained within the existing easement. Balancing the access needs of those who live on, work on, and visit Hatteras Island, while minimizing impacts to natural resource habitat and allowing natural coastal processes to occur, have been important considerations. In close consultation with other federal and state agencies, NCDOT has identified the best available alternative when taking into consideration project need, state and federal laws and regulations, estimated costs and available funding, coastal change, and community, natural, and cultural resource impacts.

- **North Carolina Conservation Network**

The North Carolina Conservation Network submitted a petition signed by 1,700 North Carolina citizens. The text of the petition states:

> We the undersigned do not agree with the plan to build the Phase I bridge and then elevate NC 12 onto Phase II bridges. With the frequent storm washouts and past two years' hurricane damage to NC Highway 12 north of Rodanthe, it is clear that NCDOT's plan to continue relying on NC 12 for its Bonner Bridge replacement plan fails to provide a reliable, long-term solution. That plan will not provide safe, reliable access, and it could destroy the refuge in the process. By elevating Highway 12 onto a series of bridges, the agencies will turn the refuge into a continual construction zone, ruin the viewscape of the refuge, and destroy wildlife habitat, and route the road out into the ocean, which cannot be a safe evacuation route.
>
> Please consider using funds from discontinued or unnecessary NCDOT projects to pay for a more stable, long-term connection between Hatteras Island and the mainland that would better serve residents, tourists, taxpayers, and wildlife alike. A long bridge through the Pamlico Sound that avoids the section of the island prone to washout, or a system of high-speed ferries would be possible solutions. We need a safe, reliable long-term transportation option to Hatteras Island.

Response: *The petition is acknowledged. The points made in the petition are answered above in response to the e-mail comments from the membership of the Defenders of Wildlife.*

- **Citizens Action Committee to Replace the Herbert C. Bonner Bridge**

  NCDOT received from approximately 2,461 senders a form e-mail provided by the Citizens Action Committee to Replace the Herbert C. Bonner Bridge to its members and friends with the request that they send it to NCDOT during the Phase IIa comment period. The senders identified themselves as follows:

  – 1,249 property owners
  – 903 visitors
  – 135 business owners
  – 506 Hatteras Island residents
  – 274 other Dare County residents
  – 182 no identification

  Some senders identified themselves in more than one way. Thus, the identification numbers above add up to more than the total number of senders.

  The suggested email text was posted online at: http://www.islandfreepress.org /2013Archives/03.27.2013-LocalGroupPutsOutEmergencyAppeal ForHelpOnBonnerBridgeProject.html. The main points of the e-mail are:

  1. Support of the Bonner Bridge project
  2. Support for the Preferred Alternative (Bridge in existing NC 12 easement) for Phase IIa
  3. Urges NCDOT to move forward as quickly as possible with these solutions

  Commenters using this form were encouraged to include any additional comments they wanted to add. In addition to making the three points above, 345 of these e-mails added additional comments addressing the following topics: health and welfare of residents (111), tourism and tax revenue (106), business and job impacts (21), and the interference of environmental advocacy groups (107). These comments were:

  – Health and welfare of residents:

    - Concern was expressed by 23 visitors regarding access to the island to visit relatives and the safety of the current bridge. The commenters worry that before a permanent bridge is in place, a fatal accident will happen because of Bonner Bridge's condition.

- Unreliable access to properties, homes and businesses and associated consequences was listed as a concern by 88 senders (including Hatteras Island residents, property owners, business owners, and other Dare County residents). Sender's properties have dropped in value, and they have waited hours and sometimes days to reach their homes because of unpredictable road closures. The most substantial concern of these senders is the safety of the residents during emergency situations. With needs to get to the hospital or medical appointments and need to receive medical supplies, the limited access currently available is unacceptable and a threat to the lives of these people. They refer to the Governor's Declaration of a State of Emergency as another reason to prioritize the bridge replacement(s) on Hatteras Island over other bridge replacement projects. If actions do not take place more people will be forced to leave their homes because of limited access and medical needs.

– Tourism and tax revenue:

  - Fifty property owners and 38 visitors supported the project because of tourism concerns. They indicated that Hatteras Island is a national treasure, and the tourism and tax revenue is vital for the economy of both the county and the state. Visitors commented that they will soon look elsewhere for vacation destinations and property owners have confirmed that their rental weeks are significantly decreasing.

  - The need for tourism to sustain rental properties was noted by 23 Hatteras Island residents, other Dare County residents and business owners. Senders observed that the real estate market is diminishing because businesses and future home owners are unwilling to invest and wonder whether tourists will visit anymore. Tourists support the economy of the local residents and businesses. They create much needed jobs and revenue for the residents. Senders stated that the tax revenue should be reason enough to build the bridge.

– Business and job impacts:

  Senders indicated the community is losing a lot of business when the vital link of NC 12 is disrupted. Property taxes are up and rental weeks are down. Thirteen senders, including property owners, Hatteras Island residents, other Dare County residents, and visitors, wrote about impacts to jobs. Eight business owners said they cannot operate without the proposed bridges. Businesses have had to apply for loans, transfer employees and stop business completely. Senders said that delayed vendors have said they cannot service the restaurants or hotels on the island because they simply cannot get there. Residents indicated a

concern that they will have to resort to living off the state welfare system because local businesses cannot support their jobs. Residents depend on being able to get to and from jobs to support their families and need the proposed bridges to do so.

– Interference of environmental advocacy groups

It was stated by many senders that the Defenders of Wildlife (DOW) do not live or own property on Hatteras Island. A total of 108 commenters expressed frustration with the delays to the Bonner Bridge Replacement Project, and attributed the delays to interference from the Defenders of Wildlife. These commenters included 31 property owners, 25 Hatteras Island residents, 32 visitors, and several other Dare County residents, business owners, and unidentified bridge supporters. Senders observed that this has been ongoing for years and that project opponents are misinformed about the island. They feel a well-funded small group of non-residents is imposing their will on the majority. Senders feel that the economic impacts are greater than the environmental impacts and human rights should be priority over turtle rights. The residents and visitors express their love for the environment but their need to access their properties is a priority. They explain that there is an active sea turtle program in North Carolina that is capable of protecting the turtles during the construction process and that the permanent structure will not cause harm to turtles. These senders said there needs to be a balance between human safety and environmental concerns and currently this balance is highly skewed to the environment. Residents believe that DOW has caused enough problems, making false claims and will not stop until the island is uninhabited by humans. They love and care for their wildlife but they have had enough and NCDOT needs to put the safety and livelihoods of residents first.

Response: *These positions are acknowledged. Funding is currently in place for both Phases IIa and IIb, as well as Phase I. NCDOT's current construction objectives call for being ready to construct long-term improvements at Pea Island inlet (Phase IIa) in fall 2013 and being ready to construct long-term improvements at the Rodanthe 'S' Curves Hot Spot (Phase IIb) in spring 2014. NCDOT will be ready to begin construction when relevant legal and permitting matters are resolved. NCDOT agrees that the economic, environmental, safety, and public welfare concerns are all central to the Bonner Bridge Replacement Project.*

C.2 Government Agency Comments and Responses

This section responds to written comments on the EA submitted by state and federal environmental resource and regulatory agencies, as well as local agencies. Each substantive comment requiring a response is listed below, followed by a response. The comments in this section quote the correspondence received. The original correspondence is presented in Appendix B.

C.2.1 Federal Agencies

US Department of Agriculture, Natural Resources Conservation Service—March 13, 2013

1. **Comment:** While the NRCS does have expertise in natural resource conservation, this agency is not able to complete the requested review at this time due to the demands on our personnel for implementing Farm Bill conservation programs. Accordingly, the NRCS does not have any comments at this time.

   Response: *No response necessary.*

US Department of the Interior, National Park Service, Cape Hatteras National Seashore (CAHA)—March 22, 2013

1. **Comment:** The NPS has been and remains an active participant in the B-2500 Merger Team process. To this end, CAHA has provided extensive comments and issued a Special Use Permit for Phase I of this project, Replacement of the Herbert C. Bonner Bridge Over Oregon Inlet. The NPS has also reviewed comments from a letter dated March 7, 2013 provided by the U.S. Fish and Wildlife Service (USFWS). While both the NPS and USFWS are housed within the Department of the Interior, Phase IIa is located within lands managed under the jurisdiction of the USFWS. Therefore, CAHA fully supports those comments provided by the USFWS.

   Note: *An email from NPS sent March 27, 2013 corrected a misstatement above, saying that CAHA "will issue" the Special Use Permit, rather than "has issued".*

   Response: *This position is acknowledged.*

2. **Comment:** Of particular concern is the issue of loss of access resultant from loss of the existing Refuge parking lot on the east side of NC 12 and the New Inlet boat ramp/parking area on the west side of NC 12. Concurrence Point No. 4A, recently signed by NPS, indicates that NCDOT will work with NPS and USFWS to determine if there are viable options for replacement of access currently provided at the New Inlet boat ramp. USFWS further states in their comments on this EA that they prefer that NCDOT provide improved access somewhere in the general area to offset the loss of access at the New Inlet site. Considering the high level of concern

in Dare County related to beach and water-based recreational access, we think it is incumbent on NCDOT to proactively address this concern since the subject project will be reducing such access within the Refuge.

Response: *This position is acknowledged. NCDOT has reached an agreement with USFWS-Refuge on replacing the parking lot that will be removed as part of the Phase IIa project. Upon completion of Phase IIa construction, NCDOT has agreed to construct a replacement parking lot at a new site near the northern terminus of the Phase IIb project. NCDOT also has reached an agreement with the USFWS-Refuge to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

US Department of the Interior, US Fish and Wildlife Service—March 7, 2013

1. **Comment:** The FEA states that the Federal Highway Administration (FHWA) believes that the changes identified and assessed in the FEA "would not result in new, significant impacts not previously identified in the 2008 FEIS, 2010 EA, or 2010 ROD." The Service generally agrees with this statement. However, we offer the following specific comments on the document.

   Response: *No response necessary.*

2. **Comment:** The title of the document, Pea Island Long-Term Improvements, Bonner Bridge Replacement Project Phase IIa is confusing as it implies that the road project will improve Pea Island or Pea Island National Wildlife Refuge (Refuge). We disagree with that implication. We suggest an appropriate title would be NC 12 Long-Term Improvements on Pea Island, Bonner Bridge Replacement Project Phase IIa.

   Response: *This suggestion is noted. As a result, the name of Phase IIa on this ROD has been changed to "NC 12 – Pea Island Long-Term Improvements." This title will be used on other future Phase IIa-related documents.*

3. **Comment:** On page vi, point "c" addresses what NCDOT will do with dredge spoil. Although it appears that Phase IIa will not include dredging for barge access, we note that the point of contact listed is no longer valid. Sue Cameron no longer works for the North Carolina Wildlife Resources Commission.

   Response: *Since the contact could change again, the Project Commitments contained in Appendix A of this ROD is revised to drop the name. NCDOT will, however, use Sara Schweitzer as its contact until otherwise requested by the North Carolina Wildlife Resources Commission (NCWRC).*

4. **Comment:** Page 4-1 (Section 4.1.1) and 5-5 (Section 5.3.2) both state "The buildings were south of the inlet and were not damaged by the initial breach ... " In fact, the

office/maintenance shop building closest to the new inlet and ocean was damaged with the initial inlet opening.

> ***Response:*** *This clarification is noted and included in the "Corrections to February 2013 EA" section of this ROD.*

5. **Comment:** The last sentence on page 4-17 and continuing on page 4-18 does not accurately reflect the causative factors associated with the loss of access to the parking lots and primitive boat access to Pamlico Sound. Access to existing parking areas is being lost due to planning and eventual construction of the new bridge. Loss of access is not due to the " ... preference of the USFWS ... " Contrary to what is implied in this paragraph, it is the Refuge's preference that NCDOT provide improved access somewhere in the general area to offset the loss of access at the New Inlet site.

   > ***Response:*** *The statement referenced beginning a the end of page 4-17 and ending at the top of page 4-18 says: "Sacrificing direct motor vehicle access in favor of eliminating the need for artificial dunes to maintain a surface road is the preference of USFWS, which has indicated in the past that it will allow for some form of replacement access to the Refuge and its facilities where direct access from a surface road is lost in Phase IIa and future phases of the Bonner Bridge Replacement Project (B-2500)." The statement is referring to the Bonner Bridge Replacement Project as a whole in all its phases, not just Phase IIa. In that context, NCDOT believes the statement is correct. The paragraph containing this sentence concludes with NCDOT's commitment to seek mitigation of the loss of access to the two specific Refuge facilities associated with Phase IIa. NCDOT has reached an agreement with USFWS-Refuge on replacing the parking lot that will be removed as part of the Phase IIa project. Upon completion of Phase IIa construction, NCDOT has agreed to construct a replacement parking lot at a new site near the northern terminus of the Phase IIb project. NCDOT also has reached an agreement with the USFWS-Refuge to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

6. **Comment:** On page 5-2 (Section 5.1) the FEA refers to the conclusion that the Refuge is a Section 4(f) property only as a historic resource in the beginning of the revised 4(f) evaluation. The first part of the evaluation meticulously distinguishes the Refuge as a historic property. The latter part of the evaluation refers to the Refuge as a 4(f) resource without reference to the distinction as a historic resource only. On page 5-7 (Section 5.4.2) there is reference to a Refuge email stating agreement with the Temporary Occupancy of Refuge land in the context of a "use". It should be noted that the same email was written and signed in the context of the Refuge being a 4(f) resource as a historic property and as a refuge. From the information as presented, it is not clear if the FHWA considers the Refuge a 4(f) property as a

historic resource only or if the Refuge is considered a 4(f) property as a historic resource and as a refuge.

> ***Response:*** *FHWA considers Section 4(f) applicable to the Refuge as a historic resource only. Please see the Revised Final Section 4(f) Evaluation included as Appendix B in the 2010 EA (pages B-12 to B-15).*

7. **Comment:** On page 5-6, the last sentence in Section 5.4.1 needs to be edited to state that there is no permanent incorporation of Refuge land in the NCDOT right-of-way easement beyond the area that is currently under easement.

> ***Response:*** *This clarification is noted and included in the "Corrections to February 2013 EA" section of this ROD.*

8. **Comment:** Page 6-11 states "USFWS requested Section 7 consultation related to jetting impacts." This statement is either incorrect or needs clarification. The Service did not state any Section 7 concerns related to the direct impact of the jetting itself, but most likely our concerns referred to the location of related pumping equipment to be located on the beach and its potential effects on piping plovers (Charadrius melodus) and nesting sea turtles.

> ***Response:*** *The statement is as included in the May 16, 2012 meeting minutes (Phase IIa EA, Section 6.2.5, page 6-10). NCDOT accepts USFWS's clarification that its concerns referred to the location of related pumping equipment on the beach and potential effects on piping plovers and nesting sea turtles. However, as discussed at the January 30, 2013 Merger Team meeting, it has been decided that jetting water will be taken from Pamlico Sound and the Pea Island inlet (see Appendix D of this ROD). The beach would not be affected by pumping equipment.*

9. **Comment:** Presumably due to their very recent occurrence, pages 6-12 through 6-14 do not document the January 17, 2013 Section 7 meeting, subsequent coordination, and the conclusions arrived at on February 5, 2013 regarding the bridge rail design and its effects on sea turtles. NCDOT agreed to raise the concrete parapet portion of the ocean-side bridge rail to a height of 36 inches in order to block more light from vehicle headlights reaching the beach, thus further minimizing the negative effects of artificial light on sea turtles.

> ***Response:*** *As indicated, this agreement was reached after completion of the Phase IIa EA but prior to its signing by FHWA and NCDOT. The February 5, 2013 agreement is reflected in the Project Commitments contained in Appendix A of this ROD, as well as this ROD's section on "Measures to Minimize Harm." The 2013 first amendment to the Section 106 Programmatic Agreement (PA) reflecting the bridge rail design agreement is presented as Appendix E of this ROD.*

10. **Comment:** The discussion of piping plovers in Section 6.4 on page 6-14 needs clarification. It currently states "... the PBC/TMP Alternative was found likely to disturb nesting on the beach by the piping plover, primarily in critical habitat areas near Oregon Inlet." Not only would nesting habitat likely be disturbed, but more extensively, foraging habitat and foraging birds would likely be disturbed throughout the project area. The reference to critical habitat incorrectly implies that it is critical habitat for nesting. In fact, the designated critical habitat is for wintering piping plovers, which is not necessarily associated with nesting.

    Response: *These clarifications are noted and included in the "Corrections to February 2013 EA" section of this ROD.*

11. **Comment:** The description of the modification to one of the Terms and Conditions related to sea turtles in the 2008 Biological Opinion regarding the use of amber-colored LED lighting should also include the fact that the LED lights would have a predominant wavelength of approximately 650nm. This was a critical aspect in the decision to modify the Terms and Conditions.

    Response: *The 650 nm wavelength was noted under Commitment 26c, second paragraph of the Project Commitments in the Phase IIa EA and is reflected in the Project Commitments contained in Appendix A of this ROD.*

US Environmental Protection Agency, Region 4—March 26, 2013

1. **Comment:** EPA acknowledges the information and additional analysis concerning the Ferry Alternative and the consideration of conventional ferries and high-speed ferries. EPA acknowledges that the consideration of high-speed, passenger only ferries would not potentially meet the purpose and need for the proposed project.

    Response: *USEPA's position is acknowledged.*

2. **Comment:** The EA also addresses updated cost estimates and impacts from Phase IIa, including Table 6. The jurisdictional wetland impacts include both permanent (0.01 acres) and temporary impacts during bridge construction (1.12 acres). However, the EA also identifies an additional 0.42 acres of hand-clearing in wetlands and does not classify this impact as either temporary or permanent. This issue should be resolved and addressed in the Finding of No Significant Impact (FONSI).

    Response: *The impact to the additional 0.42 acre (now 0.40 acre) is temporary. Since it will only involve cutting the vegetation low, no mitigation under Section 404 is required. The stumps and root mat will remain intact and the vegetation can grow back. As discussed in this ROD, with the addition of a boat access road to the project as mitigation, the permanent wetland impact is now 0.22 acre and the temporary impact is 0.90 acre.*

3. **Comment:** The EA also identifies other potential impacts, including Essential Fish Habitat, Protected Species, Migratory Birds, other Biotic Communities, Surface Waters and Water Quality, and Visual Impacts. EPA recommends that NCDOT and FHWA continue to work with other agencies on avoidance and minimization measures regarding these potential impacts. Best management practices (BMPs), including appropriate stormwater controls from bridge drainage should be implemented for the proposed project.

   Response: *NCDOT and FHWA have and will continue to work with other agencies on avoidance and minimization measures regarding these potential impacts. Section 7 consultation on conservation measures has been completed with USFWS and NMFS. A decision on bridge rail height was reached with the SHPO and USFWS. See the response to USFWS comment 9. See the response to the next comment related mitigation of stormwater and wetland impacts.*

4. **Comment:** Similar to the recommendations to NCDOT on the R-2576, Mid-Currituck Bridge project, EPA recommends that more intensive bridge cleaning be part of the routine operation and maintenance of the PINWR Bridge to minimize water quality impacts. Direct discharges of stormwater from the new bridge to open waters of the U.S. should be avoided. Other environmental commitments identified in the EA and specific compensatory mitigation plans for wetland impacts should also be included in the FONSI.

   Response*: Under the Phase IIa stormwater management plan, runoff would be collected from the ends of the Phase IIa bridge and piped to a riprap apron, which would drain to roadside swales to promote infiltration. Bridge drainage for the main bridge spans would be from scuppers (openings) at the outer edges of the deck. The bridge would be high enough to allow wind to disperse the scupper discharge before it reaches the ground or inlet surface (see Phase IIa EA, Section 4.2.4.1)***.*** *A stormwater management plan was developed and submitted to the NCDENR-DWQ Stormwater Unit. In a letter dated April 17, 2013, the NCDENR-DWQ Stormwater Unit "determined that the project proposes activities that are in compliance with [National Pollutant Discharge Elimination System (NPDES)] Permit NCS00250 and thus are excluded from additional State Stormwater permitting requirements as set forth in Section 2.(d)(1) of Session Law 2008-211, effective October 1, 2008, and the stormwater rules under Title 15A NCAC 2H .1000, as amended. Compensatory mitigation for the permanent wetland impacts in the current NC 12 easement are not required, and NCDOT will restore temporary wetland impacts following construction. NCDOT will work with the permitting agencies on the appropriate monitoring for these impacts.*

5. **Comment:** In summary, EPA continues to have environmental concerns for building new bridges on a dynamic barrier island. However, the transportation agencies have identified in the EA the engineering, cost, and impact information that provides a

basis for its proposed decision for Phase IIa under the PBC/TMP Alternative. EPA requests a copy of the FONSI when it becomes available.

Response: *A copy of this ROD is being provided to USEPA.*

C.2.2 State Agencies

North Carolina Department of Administration, State Clearinghouse—April 1, 2013

1. **Comment:** The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-I0, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

   If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

   Response: *Any future proposals for long-term improvements to NC 12 will be circulated through the State Clearinghouse.*

North Carolina Department of Cultural Resources, State Historic Preservation Office—March 13, 2013

1. **Comment:** No comment.

   Response: *No response necessary.*

North Carolina Department of Environment and Natural Resources—March 27, 2013

1. **Comment:** The Department [of Environment and Natural Resources] encourages the applicant to continue to work with our agencies during the NEPA Merger Process and as this project moves forward.

   Response: *The following NCDENR agencies have worked alongside NCDOT as members of the Merger Team on the Bonner Bridge Replacement Project (B-2500): Division of Coastal Management (NCDENR-DCM), Division of Marine Fisheries (NCDENR-DMF), and Division of Water Quality (NCDENR-DWQ). The NC Wildlife Resources Commission (NCWRC) is also a member of the Merger Team. NCDOT will continue to work with these Merger Team members as the project moves forward.*

North Carolina Department of Environment and Natural Resources, Division of Coastal Management—March 18 and 22, 2013

1. **Comment:** This project is being carried through the NEPA/404 Merger Process, and DCM is a member of the NEPA/404 project team. It appears as though the information contained within the EA is consistent with the information that has been provided to DCM, and upon which we have commented, through the NEPA/404 Merger Process.

   Response: *No response necessary.*

2. **Comment:** A formal DCM review of the project to determine consistency with the state's Coastal Management Program will occur in conjunction with a review of the Coastal Area Management Act (CAMA) major permit application. The CAMA major permit application will be circulated to the network of state agencies that comprise North Carolina's Coastal Management Program. The statutes, rules and policies of each of these agencies must be considered during the review of the CAMA major permit application. This process will also include a final consistency review by the North East DCM District Planner of the relevant CAMA land use plans.

   Response: *This procedure is understood.*

3. **Comment:** Attached please find a memorandum from the North East DCM District Planner dated March 18, 2013 providing a Consistency Determination with the Dare County CAMA land use plan based upon a review of the EA. The North East DCM District Planner has identified a need for additional information concerning the replacement of public access to the Refuge. Please note that the NEPA/404 project team has already begun discussions about this issue. DCM will work with NCDOT and other members of the NEPA/404 project team to obtain the requested additional information prior to making a final decision on the CAMA major permit application. The need for additional information by DCM should not delay completion of the NEPA /N.C. SEPA requirements.

   Response: *In accordance with NCDENR-DCM requirements, the additional information requested will be provided in the context of permit discussions. NCDOT also has reached an agreement with USFWS-Refuge on replacing the parking lot that will be removed as part of the Phase IIa project. Upon completion of Phase IIa construction, NCDOT has agreed to construct a replacement parking lot at a new site near the northern terminus of the Phase IIb project. NCDOT also has reached an agreement with the USFWS-Refuge to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

4. **Comment:** During the CAMA major permit application review process, DCM may have additional comments. DCM may also place conditions on any CAMA permit

that is issued to further avoid, minimize and/or mitigate environmental impacts. The comments provided in this letter shall not preclude DCM from requesting additional information throughout the CAMA major permit application review process, and following normal permit processing procedures.

> ***Response:*** *NCDOT understands that the above actions by NCDENR-DCM may occur during the CAMA major permit application review process.*

5. **Comment:** Consistency Determination: The alternatives are consistent with/not in conflict with the Dare County 2009 land Use Plan certified by the CRC on February 24, 2011; provided that public access and transportation policies addressing public access to the Pea Island National Wildlife Refuge have been met. Additional information concerning the replacement of public access to the Refuge is needed. (See Attachment A, Page 5).

> ***Response:*** *This position is acknowledged. As per NCDENR-DCM requirements, additional information on public access will be provided in the context of permit discussions.*

North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries—March 18, 2013

1. **Comment:** The applicant has stated that they will use preventative measures (i.e. protective screens) to minimize impacts to fish species during jetting but no further information has been provided. During the January 30, 2013 avoidance and minimization meeting the NCDOT stated that they will continue to work with the NCDMF and National Marine Fisheries Service (NMFS) on ways to minimize the impacts on fishes from jetting. The NCDMF recommends that the jetting intake has 1 mm mesh screens and 0.25 fps intake approach velocity to minimize impingement. The NCDMF has requested information as to the approach velocity to determine if other alternatives are necessary to minimize impingement. Prior to construction these methods should be finalized as to ensure these impacts to all life stages of fishes are avoided or minimized.

> ***Response:*** *NCDOT will finalize these methods prior to construction in coordination with NCDENR-DMF and NMFS.*

2. **Comment:** The New Inlet boat ramp will be removed when the new bridge is constructed. This ramp is currently used by commercial gill net fishermen, recreational fishermen, recreational and commercial shellfish harvesters, kayakers, and kiteboarders. At this time there is limited boat access on the Outer Banks and this ramp should be replaced by constructing a new access spot At the January 30, 2013 avoidance and minimization merger meeting, the NCDOT agreed to work with the USFWS and refuge to determine a viable alternative for this loss. If access cannot

be provided on the refuge due to increased environmental impacts the applicants should seek other access alternatives outside of the refuge property.

> ***Response:*** *NCDOT has reached an agreement with the USFWS-Refuge to provide an access road, to be maintained by the USFWS-Refuge, to the New Inlet boat ramp/parking lot.*

North Carolina Department of Environment and Natural Resources, Division of Water Quality—March 14, 2013

1. **Comment:** This project is being planned as part of the 404/NEPA Merger Process, As a participating team member, NCDWQ will continue to work with the team on future phases of the project.

   > ***Response:*** *NCDOT will continue to work with NCDENR-DWQ on future phases of the project in association with the Merger Process.*

2. **Comment:** Future documentation, including the 401 Water Quality Certification Application, should include an itemized listing of the proposed wetland and stream impacts with corresponding mapping.

   > ***Response:*** *This will be done.*

3. **Comment:** NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDOT should address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.

   > ***Response:*** *Best Management Practices (BMPs) for erosion and sediment control will be applied during project construction. Because of the use of these controls, substantial sediment and erosion impacts are thus not expected.*

4. **Comment:** NCDOT is respectfully reminded that all impacts, including but not limited to, bridging, fill, excavation and clearing, and rip rap to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations, These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.

   > ***Response:*** *All jurisdictional impacts, including construction impacts, were included as a part of the 401 Water Quality Certification Application.*

5. **Comment:** Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.

Response: *No impacts to wetlands in borrow/waste areas are expected. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT will require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material.*

6. **Comment:** If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to revegetate naturally and minimizes soil disturbance.

   Response: *This will be done. The Phase IIa EA noted 0.42 acre (now 0.40 acre) of hand clearing in wetlands. During this activity the stumps and root mat will remain intact.*

7. **Comment:** Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.

   Response: *The most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual will be followed in establishing sediment and erosion control measures.*

North Carolina Department of Environment and Natural Resources, Division of Water Resources, Public Water Supply Section—March 19, 2013

1. **Comment:** At this time, DWR-PWS has no objection to the project, but offers the following comments from David Tuten of the Washington Regional Office:

   - Engineers and contractor should be aware of utility locations within the project area. Please contact the local water utility to assist with the location of existing water mains in or near the project area.
   - If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources, Public Water Supply Section, Technical Services Branch, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634, (919) 707-9100, for review and approval before construction. Final approval must be issued before placing the water mains into service.

   Response: *The engineers and contractor will be aware of utility locations within the project area. There are no water lines in the Phase IIa project area.*

North Carolina Department of Environment and Natural Resources, Office of Conservation, Planning, and Community Affairs (Natural Heritage Program)—March 13, 2013

1. **Comment:** The Natural Heritage Program has previously commented on the Bonner Bridge replacement project (Phase I), on July 31, 2012. Thus, the comments below refer to the remainder of the project (Phase II), within Pea Island National Wildlife Refuge.

   Response: *This is understood.*

2. **Comment:** The great majority of the natural heritage elements in the Phase II project area occur within the ponds/impoundments on the refuge, and they will not be impacted by the project, at least in Phase IIa Preferred Alternative (Bridge within Existing 12 Easement), which is the short bridge spanning Pea Island Inlet. The EA states that there will be "a plan to monitor conditions on NC 12 and the affected environment and modify management actions so as to minimize the adverse impacts to the Refuge resources while maintaining NC 12 as a viable transportation facility." This is detailed in the EA as consultation with the U.S. Fish and Wildlife Service regarding potential impacts to Pea Island NWR, in particular to the primary resources (understood to be primarily the refuges ponds and impoundments). Even so, it is important that this new bridge over Pea Island Inlet be constructed so as to avoid impacting the fewest acres of the refuge lands, especially wetlands, as possible.

   Response: *NCDOT will continue to work with Refuge officials and other regulatory and resource agencies to minimize impacts. The Selected Alternative will have no permanent use of Refuge lands outside the existing NC 12 easement. It will make temporary use of 4.10 acres of Refuge land outside the existing NC 12 easement. The Selected Alternative will permanently impact 0.22 acre of wetland and temporarily impact 0.90 acre of wetland.*

3. **Comment:** It is also important that future proposals to move NC 12 westward toward the ponds/impoundments be circulated through the State Clearinghouse for review. Considering the numerous impacts to this highway in just the past two years from hurricanes and other storms, there are expected to be proposals to move NC 12 westward between Oregon Inlet and Pea Island Inlet in the not-too-distant future.

   Response: *Any future proposals for long-term improvements to NC 12 will be circulated through the State Clearinghouse.*

North Carolina Department of Environment and Natural Resources, Washington Regional Field Office—March 1, 2013

1. **Comment:** After review of this project it has been determined that the [NCD]ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law:

    - Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D 1900.
    - Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.

    Response: *This will be done in accordance with Title 15A NCAC 2D 1900 for open burning and Section 2.(d)(1) of Session Law 2008-211 and the stormwater rules under Title 15A NCAC 2H .1000, as amended for stormwater. Sedimentation and erosion control will be addressed in accordance with NCDOT's approved program.*

North Carolina Department of Environment and Natural Resources, Wildlife Resources Commission—March 22, 2013

1. **Comment:** Under Project Commitments; Commitment 11, Night-time Construction states: "NCDOT would work with NCDENR-DMF, NMFS, NPS, and USFWS to determine other areas near project construction where night lighting would need to be avoided or limited". Please add NCWRC to this list of agencies, NCWRC staff has been involved in prior night lighting coordination with this project.

    Response: *NCWRC has been added to the list of agencies in Commitment 11 in the Project Commitments contained in Appendix A of this ROD.*

2. **Comment:** Under Project Commitments; Commitment 25c states: "This must be accomplished as per specifications of the North Carolina Wildlife Resources Commission. The point of contact is Sue Cameron at 910-325-3602." This commitment should be updated to reflect the new NCWRC point of contact as listed below:

    Sara H. Schweitzer, Ph.D.
    Coastal Waterbird Biologist
    106 Ferret Run Lane
    Wildlife Diversity Program, NC Wildlife Resources Commission
    New Bern, NC 28562
    sara.schweitzer@ncwildlife.org

    Response: *Since the contact could change again, the Commitment 25c contained in the Project Commitments found in Appendix A of this ROD is revised to drop the*

name. NCDOT will, however, use Sara Schweitzer as its contact until otherwise requested by NCWRC.

North Carolina Department of Public Safety, Division of Emergency Management, Floodplain Management Program—March 19, 2013

1. **Comment:** The North Carolina Executive Order 123 directs NCDOT to coordinate with and follow the FHWA floodplain management requirements which are found in the Federal Executive Order 11988.

   Response: *This will be done in compliance with Executive Order 11988.*

2. **Comment:** 44 CFR 60.3.e prohibits man-made alteration of sand dunes and mangrove stands within Zones Vl-30, VE, and V on the community's FIRM which would increase potential flood damage. Grading activity within one of these zones shall be accompanied by a hydraulic study to assure there will be no increase in flood damage potential.

   Response: *No sand dunes or mangrove stands will be affected by Phase IIa.*

C.3 Non-Governmental Organization Comments and Responses—Southern Environmental Law Center—March 28, 2013

This section responds to written comments on the EA submitted by non-governmental organizations (NGOs). The Southern Environmental Law Center (SELC) was the only NGO to comment on the EA. Their comments were submitted on behalf of the Defenders of Wildlife, the National Wildlife Refuge Association, and SELC. Each substantive comment requiring a response is listed below, followed by a response. The comments in this section quote the correspondence received. SELC's comments often include background material, such as the citation of particular laws, regulations, or legal cases, prior to specific substantive comments. When appropriate, that background material is not included below. The original correspondence containing both the background material and the specific substantive comments are presented in Appendix B.

I. The EA Illegally Segments the Project in Violation of NEPA.

1. **Comment:** NCDOT and FHWA have illegally segmented the environmental evaluation of the Project by disclosing and evaluating each of its components separately, in isolation. The record of decision ("ROD") for the Project disclosed only the "Phase I" bridge over Oregon Inlet, and the current EA addresses only the proposed "Phase IIa" permanent bridge over the new Pea Island inlet. This EA will be followed by a separate EA for another bridge in the Rodanthe breach area this

summer. A beach renourishment project is also currently proceeding separately in the Rodanthe breach area, although we are not aware of any NEPA analysis having been conducted. Additional components of the Project will only be disclosed, doubtless in a similarly piecemeal fashion, after construction of these first components has begun. This procedure of piecemealed environmental assessments violates NEPA because it evades any comprehensive evaluation of the full Project's impacts and ensures that no fair comparison of the available alternatives will take place until there is already an irretrievable commitment to maintaining NC 12 through the Refuge to support the Phase I bridge, no matter the costs or damage to the human environment that will result.

Segmenting the Project in this way is impermissible under any circumstances, but it is all the more egregious because three to four so-called "phases" of this single Project are now planned for concurrent funding and construction. Despite the fact that these components all belong to a single Project and in fact are planned for concurrent construction, they are being evaluated in separate environmental documents, none of which account for the combined, cumulative effects of the Project on the Refuge and human environment.

NEPA requires that all components of the Project be evaluated together before construction commences, not piecemealed into separate environmental documents that fail to account for the combined impacts of the Project. 40 C.F.R. § 1502.4(a); Md. Conservation Council v. Gilchrist, 808 F.2d 1039, 1 042 (4th Cir. 1986) ("compliance with NEPA is required before any portion of the road is built"); W. N.C. Alliance v. NCDOT, 312 F. Supp. 2d 765, 773 (E.D.N.C. 2003) (NEPA evaluation must be complete "before acting"). In this case, NCDOT and FHWA claim that the previous evaluation in the FEIS of some, but not all, of the available options exempts them from the plain-language requirements of NEPA. But the changed conditions in the Refuge vividly illustrate that NCDOT and FHWA cannot rely on the FEIS, which was not only inadequate when it was issued, but also now is significantly outdated in its analysis of the cost and funding of the available alternatives, in its estimates of the environmental consequences of the alternatives, and in its estimation of the pace and timing for the later phases.

In Western NC Alliance, the court rejected NCDOT's contention that it was not required to consider "the cumulative impacts from the other connected projects because they were not fully funded or planned." 312 F. Supp. 2d at 773. Therefore, whether the various phases of the Project are categorized properly as a single project, or as related actions or cumulative impacts, their full impacts still must be evaluated together. Because NCDOT and FHWA have failed to do so, as well as for the reasons given below, a supplemental EIS is required.

> ***Response:*** *NCDOT and FHWA disagree with the assertion that the project has been illegally segmented. The reasons why the Selected Alternative identified in the*

2010 ROD does not constitute illegal segmentation were described previously in the following locations: the response to this organization's comment 3 on the scoping of potential Phase IIa alternatives (Appendix C of the Phase IIa EA, page C-13), Section 2.3.5 of the 2010 EA (beginning on page 2-31); the response to this organization's comment 9 on the Revised 4(f) Evaluation (Appendix F of the 2010 EA, beginning on page F-37); and the responses to this organization's comments 8 to 10 in the 2010 ROD (beginning on page C-48). The last paragraph of Section 2.3.5 of the 2010 EA on page 2-32 summarizes the reasons why the Selected Alternative identified in the 2010 ROD does not constitute illegal segmentation: "In summary, although the new Preferred Alternative does not immediately prescribe preferred activities beyond Phase I, FHWA and NCDOT have evaluated and assessed environmental issues to maintain transportation along the Parallel Bridge Corridor for the entire project corridor. The impacts presented for the other Parallel Bridge Corridor alternatives reflect the reasonably foreseeable range of impacts for the NC 12 Transportation Management Plan Alternative (Preferred). In addition, based on the projected shoreline conditions for Hatteras Island, the Bonner Bridge Replacement Project (B-2500) has logical termini, as the project encompasses both the bridge replacement over Oregon Inlet and the entire section of NC 12 roadway projected to be threatened in the future between Oregon Inlet and Rodanthe. As stated above, the proposed project also does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements, as improvements are proposed south of the southern limits of this project. After reviewing the limits of the study area, the limits of the Preferred Alternative, and the projected shoreline conditions, and after assessing whether the proposed project restricts future foreseeable projects, FHWA has determined that the Preferred Alternative is not segmented in its scope or in its environmental impact assessment, consistent with the 23 CFR 771.111(f) regulations."

The beach nourishment project referenced by the commenter would be an NC 12 maintenance action associated with efforts to stabilize and maintain the reliability of NC 12 at the Rodanthe 'S' Curve Hot Spot until the proposed Phase IIb long-term project is implemented. As an interim measure, it would likely involve one round of beach nourishment. The USACE is preparing an EA for an interim maintenance measures at the Rodanthe 'S' Curve Hot Spot. Options being considered are beach nourishment, a temporary bridge, or continuing to maintain the existing sandbag dune (for which a Categorical Exclusion was done in the context of obtaining the Special Use Permit for the dune from the USFWS).

The long-term project in this area is Phase IIb of the Bonner Bridge Replacement Project (B-2500). Phase IIb environmental studies are underway and an EA for Phase IIb is expected to be published for public and agency comment later in 2013. Both Phase IIb detailed study alternatives were evaluated in the 2008 FEIS and are being re-assessed taking into account current coastal data and coastal change since the release of the 2010 ROD, as planned as a part of the PBC/TMP Alternative.

The 2008 FEIS examined likely maintenance activities on NC 12 until the PBC/TMP Alternative was completed (Section 4.6.8.6, beginning on page 4-68) and their potential impacts (Section 4.7.8, beginning on page 4-115). The listing of potential maintenance activities was developed by the study team's coastal engineer; based on coastal data available at the time, the need for interim nourishment or temporary bridges were not forecast. The 2008 FEIS did, however, assess a long-term Nourishment Alternative and its impacts are addressed in Chapter 4 of the 2008 FEIS. An interim nourishment program would be essentially be one round of nourishment in one part of the Bonner Bridge Replacement Project (B-2500) project area. Therefore, the potential impacts of nourishment in the Rodanthe 'S' Curves Hot Spot area are addressed in the 2008 FEIS and were taken into consideration in the selection of the PBC/TMP Alternative in the 2010 ROD. The impact of bridges in the existing NC 12 easement also was assessed in Chapter 4 of the 2008 FEIS as a part of the Phased Approach Alternative.

As a part of the Phase IIb EA, which in light of current coastal and environmental conditions will re-visit the potential impacts of the PBC/TMP Alternative in the Rodanthe 'S' Curves Hot Spot area, NCDOT and FHWA also will re-assess these impacts taking into consideration proposed interim measures to stabilize NC 12.

II. The Proposed Bridge Is Legally and Scientifically Unsupportable.

2. **Comment:** If it is built, the proposed Phase IIa Bridge would soon be located on the beach, in the surf zone, and then in the open ocean as the shoreline erodes underneath it. As a result, the bridge and its pilings would significantly curtail recreational use of the seashore in those areas, harm sea turtle and migratory bird nesting and foraging habitat, and create serious maintenance and hurricane evacuation problems.

   Response: *NCDOT and FHWA disagree with the assertion that the proposed project is legally and scientifically unsupportable. Section 4.5.3.3 of the 2008 FEIS, beginning on page 4-47, addresses impacts to recreational activities once bridge structures of a bridge built in the existing easement are located in the surf zone. Impacts to habitat were addressed in Section 4.7.3 of the FEIS beginning on page 4-84. A bridge off-shore would not create evacuation problems. This comment also was made by this organization during Phase II scoping and it was answered on page C-32 of the Phase IIa EA (under this organization's comment 7).*

3. **Comment:** Numerous Merger Team agencies have pointed out that the plan to raise NC 12 onto bridges in its current easement is a bad idea. For example, the U.S. Army Corps reminded NCDOT in 2007 that an ocean bridge was rejected in 1991 because wave and storm impacts would create unjustifiably high maintenance costs. Those same problems will plague the proposed "Phase IIa" bridge when the island supporting it erodes and the bridge is left in the ocean. Similarly, EPA requested

that the in-easement bridging plan be eliminated due to its "significant environmental impacts and potential permitting constraints."

> **Response:** *The USACE comment referenced by the commenter appears on page 8-44 of the 2008 FEIS with the associated response. The "ocean bridge" upon which the USACE commented is the East Bridge Corridor Alternative, a bridge across Oregon Inlet east of Bonner Bridge and not a bridge off-shore of Hatteras Island. A similar comment also was made by this organization during Phase II scoping and it was answered on page C-19 of the Phase IIa EA (under this organization's comment 5). As stated on page 2-8 of the 2008 FEIS: "… cost savings resulting from a shorter structure would be offset by costs related to risks introduced by construction in an area of greater wave activity, faster currents during storm surges, and less protected from storms." The factor addressed with the East Bridge Alternative was construction cost and not maintenance cost or storm evacuation. NCDOT and FHWA considered USEPA's position on the "in-easement bridging plan" in selecting the PBC/TMP Alternative in the 2010 ROD.*

4. **Comment:** On May 21, 2009, NCDOT and FHWA rejected the in-easement bridging plan, then known as the "Phased Approach," and proposed a new "least environmentally damaging practicable alternative" ("LEDPA") for the Project because they "wanted to minimize the *extensive adverse impacts* [of the Phased Approach] that were identified by the resource agencies in their FEIS comments" (emphasis added). As noted above, these adverse impacts include harm to migratory bird and sea turtle habitat. Because NCDOT and FHWA have already admitted this plan is not the LEDPA, they have failed to satisfy the requirements for a 404 permit under the Clean Water Act.

> ***Response:*** *NCDOT did not reject the Phased Approach Alternative, but chose the PBC/TMP Alternative instead of the Phased Approach Alternative. The PBC/TMP was developed, agreed to by the Merger Dispute Resolution Board, and chosen as the Selected Alternative in recognition of the complexity of the project area, the constantly changing nature of the shoreline, and difficulty in predicting future storm events. As a potential part of a future phase of the PBC/TMP Alternative, the Phased Approach remains a possible long-term improvement on NC 12. Its impacts are addressed in the 2008 FEIS and summarized along with impacts of other potential approaches to future PBC/TMP Alternative phases in Table 1 of the 2010 ROD (page 17). The quotation in the comment "wanted to minimize the extensive adverse impacts that were identified by the resource agencies in their FEIS comments" comes from the May 21, 2013 Merger Meeting handout and was one of three reasons listed for pursuing the PBC/TMP Alternative as the project's LEDPA. This reason reflects FHWA and NCDOT's position that additional opportunities to minimize impacts in the Parallel Bridge Corridor (PBC) could be taken advantage of by a Preferred Alternative that delayed final decisions on the features of future phases until closer to the time the phases are needed. On January 1, 2010, the Merger*

Dispute Resolution Board amended their August 27, 2007 agreement on the Least Environmentally Damaging Practicable Alternative (LEDPA). They agreed that the Merger Team would be reconvened for phases beyond Phase I "when data collected as part of the coastal and natural resource monitoring indicate that action on a future phase should occur." It indicated that that January 2010 amendment "does not change the intent of the original August 27, 2007 Merger Dispute Resolution Board agreement beyond the understanding that the Phased Approach/Rodanthe Bridge Alternative is no longer considered and identified in the Record of Decision (ROD) as the LEDPA." The August 27, 2007 agreement stated that the Pamlico Sound Bridge Corridor is not the LEDPA, indicated agreement that Phase I of the Parallel Bridge Corridor should be constructed as soon as possible, and that at the time of permit application for later phases that all reasonable, practicable, and feasible alternatives will be considered and evaluated.

5. **Comment:** NCDOT and FHWA are now pursuing the same in-easement bridges they rejected in 2009 in what appears to be an attempt to avoid a compatibility determination for the use of the Pea Island National Wildlife Refuge ("the Refuge"). The U.S. Fish and Wildlife Service ("FWS") and the Department of Interior ("DOI") repeatedly have explained that no alternative may be built on Refuge property outside the existing right-of-way for NC 12 because it cannot be found compatible with the Refuge and would not receive required permits. However, as explained below, the proposed in-easement bridge would cause significant harm to the Refuge as it migrates into the ocean, and thus is not compatible with the Refuge either.

   Response: *NCDOT expects USFWS-Refuge will issue a Special Use Permit for the temporary easements associated with Phase IIa, including a finding of compatibility. A compatibility determination is not required for NCDOT's use of the existing easement for Phase IIa. Impacts to the Refuge associated with a bridge in the existing easement both on land and in the ocean are addressed in the 2008 FEIS in association with the Phased Approach Alternative and in the Phase IIa EA to the extent they differ from those presented in the 2008 FEIS.*

6. **Comment:** Similarly, the proposed bridge cannot receive a Coastal Area Management Act ("CAMA") permit that complies with CAMA from the Division of Coastal Management ("DCM") because DCM has already determined that "construction of permanent bridges in a location that is projected to be in the ocean on or before the project's design year would be inconsistent with the most basic principles of [CAMA] and the Rules of the Coastal Resources Commission (CRC)."

   Response: *CAMA issued a permit for Phase IIa on April 26, 2013. NCDOT clarified the commenter's CAMA permit issue with NCDENR-DCM during Merger Team meetings in October 18, 2011 (see meeting minutes beginning on page A-13 of the Phase IIa EA) and March 21, 2012 (see meeting minutes beginning on page A-43 of the Phase IIa EA). NCDENR-DCM indicated there is a concern with the Bridge*

within Existing NC 12 Easement at the Pea Island inlet being located in the surf zone in the future, but stated that this does not mean NCDENR-DCM will not issue a permit. NCDENR-DCM voiced concerns about the ocean setback requirement for the roadway, indicating that if setbacks cannot be met, a variance would be required from the Coastal Resources Commission, and clarified that retaining walls would not be considered hardened erosion control structures.

7. **Comment:** Thus, NCDOT and FHWA's plan for the proposed Phase IIa bridge, and for additional in-easement bridges at the other high-erosion "hot spots" along NC 12 that NCDOT has identified within the Refuge, is legally and scientifically unsupportable. NCDOT and FHWA have continued to rely on faulty legal arguments and inadequate studies to try to justify rejecting less environmentally damaging, safer, and more reliable alternatives, such as a long bridge from Bodie Island to Rodanthe through Pamlico Sound (the "Pamlico Sound Alternative") and a system of high-speed, shallow-draft ferries. Hatteras residents, businesses, and property owners, as well as North Carolina's taxpayers, would be far better served by one of these alternatives to NCDOT and FHWA's current plan.

   Response: *NCDOT and FHWA disagree with the assertion that Phase IIa is legally and scientifically unsupportable and that conclusions related to the Pamlico Sound Bridge Corridor and ferry service are based on faulty legal arguments and inadequate studies. The selection of the Phase IIa Selected Alternative was based both on the findings of the 2008 FEIS and the Phase IIa EA, including the Phase IIa EA's additional Pamlico Sound Bridge Corridor cost and ferry analyses (Sections 2.3.3 and 2.6.1, respectively) and the findings of the expert panel Peer Exchange Meeting held October 24 and 25, 2011 (Section 2.6.2).*

   The detailed study alternatives in the Phase IIa EA were selected with no objections from state and federal environmental resource and regulatory agencies on the project's Merger Team (members listed in Section 8.3.1 of the FEIS). The Phase IIa EA addressed a reasonable range of alternatives that were evaluated and from which a Preferred Alternative was selected. The NC 12 Transportation Management Plan component of the PBC/TMP Alternative has been implemented and the Merger Team has considered additional alternatives before deciding to concur or not object (abstain) on the Bridging within the NC 12 Easement Alternative for Phase IIa (Phase IIa Selected Alternative).

III. A Supplemental EIS Is Required.

8. **Comment:** An SEIS is required when significant new information or circumstances will affect the impacts of a NEPA project or the selection of an alternative. 40 C.F.R. § 1502.9(c); 23 C.F.R. § 771.130. Here, both new circumstances and new information, as well as significant impacts not adequately disclosed in the FEIS, mandate the preparation of an SEIS.

Response: *The Phase IIa EA provides documentation of compliance with NEPA in accordance with the Selected Alternative in the 2010 ROD, the PBC/TMP Alternative. While the Phase IIa EA identifies new circumstances and new information considered relevant to the selection of a Preferred Alternative, it has been determined that the new information and circumstances would not result in significant environmental impacts not previously evaluated. Also, it has been determined that no new changes in the proposed action have resulted in significant environmental changes not previously evaluated. Therefore, it has been determined that the preparation of a Supplementary FEIS (SFEIS) is not necessary, consistent with 23 CFR 771.130.*

A. Impacts:

9. **Comment:** The EA fails to address significant impacts on recreation and wildlife habitat resulting from the fact that the proposed bridge would soon be located in the Atlantic Ocean. It also fails to disclose whether beach nourishment will be used to stabilize the proposed bridge and, if so, what its impacts would be.

Response: *See the responses to the detailed comments on these issues presented below.*

1. Beach Nourishment

10. **Comment:** NCDOT states that "[n]atural shoreline processes would be allowed to take place" and "[t]he shoreline would erode underneath the bridge." EA at 4-15. Yet, previously, NCDOT planned to use beach nourishment and/or construct artificial dunes in conjunction with the in-easement bridge, as it briefly mentioned in the 2008 Final Environmental Impact Statement ("FEIS"). FEIS 4-70 to 4-72 (dune-building and maintenance); 4-107 (raised in-easement bridging "may require some beach nourishment"). If NCDOT does plan to do any beach nourishment or dune construction in conjunction with the Phase IIa bridge, it must disclose those plans and their impacts to the public.

Response: *No beach nourishment or dune construction is planned as a part of the Phase IIa Selected Alternative. In the Rodanthe 'S' Curve Hot Spot area, NCDOT is considering, in association with USACE, additional proposed measures to stabilize NC 12 until a Phase IIb project can be completed. The USACE is preparing an EA for an interim maintenance measure at the Rodanthe 'S' Curve Hot Spot. Options being considered are beach nourishment, a temporary bridge, or continue to maintain the existing sandbag dune (for which a Categorical Exclusion was done in the context of obtaining the Special Use Permit for the dune from the USFWS). Regarding the beach nourishment, also see the response to this commenter's comment 1.*

2. Recreational Use

11. **Comment:** The proposed bridge would drastically limit all of the recreational uses of the Refuge and National Seashore. Most significantly, it would interfere with and in many cases prevent these recreational activities along the bridge's entire length - approximately 2.5 miles including the bridge itself and approaches at either end - once it is located in the surf zone and in the ocean, as it would be within a few years due to the rapid erosion in the area.

    Response: *The impacts to Refuge recreational uses, including those listed by the commenter, resulting from a bridge in the existing easement ultimately being on the beach or off-shore were addressed in Section 4.5.3.3 (beginning on page 4-47) of the 2008 FEIS. These impacts were affirmed for the Phase IIa Preferred Alternative in Section 4.2.3 (beginning on page 4-17) of the Phase IIa EA.*

12. **Comment:** NCDOT's plan to construct the proposed bridge now (rather than after 2020) and its updated shoreline forecasts mean that the proposed bridge would be out in the ocean much sooner than the FEIS estimated. EA at 4-9. Moreover, even the EA's updated shoreline forecast fails to take into account accelerated sea level rise. Instead, it continues to rely on linear projections. EA at 4-8. All these factors mean that adequate assessments of the effects of shoreline erosion on the proposed bridge, and that bridge's effects on the Refuge once it is in the surf and ocean, have not been performed.

    Response: *Various potential accelerated sea level rise scenarios are described in Section 3.6.3.3 of the 2008 FEIS (beginning on page 3-58). The impact of accelerated sea level rise on PBC alternatives is addressed in Section 4.6.6 (beginning on page 4-54) of the 2008 FEIS. These findings apply to the new 2060 shoreline forecasts.*

    Figure D-1d in Appendix D of the Phase IIa EA does show that the shoreline in the area near Pea Island inlet is forecast to erode faster than in the original 2060 shoreline forecasts. However, the updated 2060 shoreline does not show increased erosion uniformly throughout the Phase IIa project area or through the entire PBC/TMP project area. The shoreline forecasts shown on Figures D-1a to D-1g show that for the 12 miles of the PBC in the Refuge:

    - *9 miles of the shoreline in 2060 is now forecast to experience less erosion than the 2008 FEIS forecast.*
    - *2 miles of the shoreline in 2060 is now forecast to experience more erosion than the 2008 FEIS forecast.*
    - *1 mile of the shoreline in 2060 is now forecast to be about the same as the 2008 FEIS forecast.*

Therefore, NCDOT and FHWA disagree with the commenter's contention that adequate assessments of the effects of shoreline erosion on the proposed bridge, and that the bridge's effects on the Refuge once it is in the surf and ocean, have not been performed.

13. **Comment:** Because it would soon be left in the ocean, the proposed bridge would, in NCDOT and FHWA's own words, "eliminate []" surfing along the miles of bridging that would be in the water. EA at 4-18. The EA notes this fact but does not analyze its significant economic consequences for tourism. Because the "human environment" that is the subject of NEPA includes "the relationship of people with that environment," the applicable regulations require that NCDOT and FHWA analyze socioeconomic impacts where they are interrelated with natural or physical environmental effects. 40 C.F.R. § 1508.14. Here, the proposed bridge's pilings in the ocean and the surf zone would not only pose the obvious collision hazard for surfers; it would also change the wave breaks, rendering the area unfit for surfing. But while the FEIS acknowledged this impact on surfing, it did not make any attempt to calculate its impact on the economy of Rodanthe and Hatteras Island generally.

    And while the FEIS acknowledged that surfing would be eliminated, it did not disclose or evaluate the effect that the proposed bridge would have on all the other significant recreational activities in this area: swimming, beachcombing, sunbathing, fishing, birding, kite boarding, ocean kayaking, etc. The FEIS states only that some of these activities "would be affected" when this bridge is in the surf and in the ocean, FEIS at 4-48, but it does not acknowledge that the effects of bridge pilings would, in practical terms, eliminate not just surfing, but swimming and many of the other activities listed above as well. It is beyond question that visitors would avoid the miles of beach underneath a highway and dominated by its massive pilings, shade, and traffic noise. The pilings would create a safety hazard for any recreational activities in the surf and ocean. And according to the FEIS, they are likely to cause rip currents that would further impede recreational activities in these areas. FEIS 4-61. Of course, use of this area would also be curtailed by the reduced access that the elevated highway would cause. However, NCDOT and FHWA have not analyzed the socioeconomic impacts of any of these effects or their role in eliminating recreational use of the beach. Accordingly, NCDOT and FHWA must evaluate all these impacts in a SEIS.

    Response: *The economic impact of eliminating the paved road access to the Refuge was assessed (2008 FEIS, Section 4.1.5.3, beginning on page 4-12). It was determined that on average, the losses of tourism associated with loss of access to the Refuge "would not have a major economic impact on the Outer Banks/Dare County area." Recreational user surveys conducted for the economic analysis, as documented in Section 3.5.2.4 of the 2008 FEIS (beginning on page 3-43), observed fishing (particularly from the catwalks on Bonner Bridge and the terminal groin/sea walls at*

Oregon Inlet), birding, surfing, beach use (sunbathing), walking, and kayaking as activities in the Refuge (see Table 3-10 of the 2008 FEIS, page 3-44). Visitors also visited the Refuge's visitor center. As indicated in the 2008 FEIS study, the key question in terms of the economic impact to the Outer Banks economy is what resource/activity is lost, or to which access is reduced or lost, and whether there is no other location on the Outer Banks to participate in the activity. Visitor survey results in Section 4.1.5.3 of the FEIS (page 4-12) found that without any paved road access to the Refuge, 9 percent of Refuge visitors would not visit the Refuge and had no other location on the Outer Banks to conduct their activity. They would thus not visit the Outer Banks and this loss of visitors would have an economic impact.

Of the Refuge activities listed above, three can occur only in the Refuge: 1) fishing from the catwalks on Bonner Bridge and terminal groin/seawalls at Oregon Inlet, 2) birding at the managed impoundments and Oregon Inlet, and 3) visiting the visitor center. The first is a unique place to fish. The managed impoundments are unique in terms of the habitat provided and the diversity and number of bird species using these areas. In addition to the impoundments, both sides of Oregon Inlet and adjacent habitats often attract unusual birds and are targeted by visiting birders. The visitor center is inherent to USFWS-Refuge's mission. None of these locations are associated with the beach. There are other locations on the Outer Banks, including Hatteras Island, and specifically the Cape Hatteras National Seashore where one can surf, use a beach (sunbathing), walk, kayak, and go birding along a beach and other natural habitats. Thus, the loss of use of beach area as a recreational resource in the Refuge because of bridge piles on the beach or offshore is not expected to have a notable economic impact on Dare County beyond the 9 percent loss of Refuge visitors associated with changed access.

Regarding fishing from the catwalks, as discussed in Section 4.5.3.2 of the 2008 FEIS (beginning on page 4-46) and revisited in Section 2.3.2.1 of the 2010 EA (page 2-17), Phase I of the PBC/TMP Alternative will leave a part of Bonner Bridge in place as a pier that could be used for recreation (specifically, fishing) and provide direct road access to an existing parking lot used by those who fish at Oregon Inlet, whether from the existing catwalks or terminal groin/seawalls, or do birding at Oregon Inlet. Formal consultation with NMFS in 2013 yielded a new concern related to the effect of existing fishing at Oregon Inlet on protected sea turtles. NMFS indicated that there is evidence that at least four sea turtles have been hooked during recreational fishing in Oregon Inlet since 1989 and one hooking occurred from the existing bridge catwalks in 2012. As such, NCDOT will install "no fishing" signs to not allow fishing on the catwalks during Oregon Inlet replacement bridge construction to satisfy NMFS concerns and for safety reasons. To satisfy NMFS concerns, "no fishing" signs also will be installed on the portion of Bonner Bridge that will be left in place as a pier. If and when a decision is made to allow fishing on the pier, FHWA will initiate Section 7 consultation with the NMFS prior to the "no fishing" signs being removed. If fishing is not allowed on the pier, there could be an economic

impact on Dare County because fishing at Oregon Inlet is a unique fishing opportunity that cannot be found elsewhere in Dare County. That impact, however, is accounted for within the 9 percent loss of Refuge visitors associated with changed access presented in the 2008 FEIS in Section 4.1.5.3.

From the perspective of birding at the impoundments, none of the alternatives assessed in the 2008 FEIS that are a part of the PBC/TMP Alternative would preclude birding at the impoundments, although to the extent direct road access is lost as future phases of the PBC/TMP Alternative are built, users will have to rely on alternate access provided by USFWS-Refuge, as USFWS-Refuge has indicated it would do. This is documented in the second paragraph of page 4-12 of the 2008 FEIS.

Finally, the visitor center could be moved. In any event, the visitor center must eventually be moved because its site is forecast to be in the ocean by 2060.

As noted above, if paved road access to the Refuge were lost completely, such as with the Pamlico Sound Bridge Alternative, 9 percent of Refuge visitors may choose not to come to the Outer Banks, which would have the associated economic impact documented in 2008 FEIS Section 4.1.5.3 (page 4-12). A full 9 percent loss of Refuge visitors would not be the case with the PBC/TMP Alternative in that it would retain direct road access in at least two locations: at Oregon Inlet and between Phase IIa and Phase IIb where no improvements to NC 12 are needed. However, at this time there is a possibility that fishing would not be allowed from the part of Bonner Bridge left as a pier because of a past history of protected sea turtles being hooked by fishing at Oregon Inlet. Overall, from the perspective of access, the loss of visitors to the Refuge would be less than 9 percent with the PBC/TMP Alternative.

3. Impacts to Refuge Habitat

14. **Comment:** In addition to the harmful socioeconomic impacts of the proposed bridge, it would also significantly harm the wildlife habitat of the Refuge. The bridge pilings would cause erosion and scour effects on the Refuge and the ocean floor, would interfere with sediment movement along the shore, and would affect the formation of breaches and inlets. All of these impacts would degrade the beach as nesting habitat for threatened piping plovers and other shorebirds, and for endangered and threatened species of sea turtles. But none of these impacts have been analyzed, calculated, modeled, or even clearly acknowledged. The current EA relies on the 2008 FEIS's vague descriptions of what might happen to the Phased Approach bridges in the ocean, which in turn were based on irrelevant studies that used piers running perpendicular to the shoreline rather than parallel to it as the proposed bridge would do.

Response: *Responses to the commenter's specific comments on potential scour, sediment transport, and erosion impacts are presented in the commenter's remaining comments on impacts to Refuge habitat.*

Regarding the pier data, the pier data used for analysis is relevant. The observations at the two research piers were used to support differentiation of scour characteristics for different flow (wave and current) conditions considering typical conditions in the surf zone and seaward of the breakers (breaking waves). These observations are relevant since scour holes around piles develop as a function of waves and currents and the fundamental characteristics of the waves and currents vary from deep water through the breakers, surf, and swash zone (zone of wave action on a beach). The relevant consideration is the relationship of the scour characteristics observed to the wave and current characteristics at the location of the pile. The observations of scour around the base of the pier pilings were that persistent scour holes develop seaward of the breaker zone.

These observations are supported by the recent studies of Sumer, et al (2013). The research findings are that backfilling (or filling in) of a scour hole occurs when the flow regime changes from steady currents to waves, from steady current to waves and currents, and from a higher wave climate to a lower wave climate. The constantly changing flow characteristics in the surf zone would tend to create periods of scour and periods of backfilling. Persistent scour holes (ones that persist in time) will develop in flow regimes that create scour and that are temporally constant, generally seaward of the surf zone.

With an understanding of the potential for persistent scour holes around piers using research pier data, estimates of the depths and areal extent of such scour holes with an off-shore bridge were then developed based on findings in Fredsoe and Sumer (2002). In order to consider the impact of the piles running parallel to the shoreline, the impact of the piles on the overall wave field was considered, as well as the potential for changes to the profile of the ocean bottom leading up to the shoreline and changes to the shoreline itself. The ratio of the diameter of the piles to the wavelength was used to determine that since the bridge would have slender piles (as defined by Fredsoe and Sumer, 2002), it would not generally affect the overall wave form, other than in the immediate vicinity of each pile group (piles grouped to form a single bent or bridge foundation at the end of each bridge span). It was found, however, that the presence of local scour around the piles could create local wave effects and potentially produce changes in the ocean bottom profile and in the shoreline. These impacts to the shoreline are described in Sections 4.6.8.2 and 4.6.8.4 of the FEIS (on pages 4-66 and 4-67).

Sumer, B. M. and J. Fredsøe. 2002. The Mechanics of Scour in the Marine Environment, Advanced Series on Ocean Engineering, Volume 17. World Scientific Publishing Co.

Sumer, B. M., Petersen, T. U., Fredsøe, J., Musumeci, R. and Foti, E. (2013). "Backfilling of a Scour Hole around a Pile in Waves and Current." Journal of Waterway, Port, Coastal, and Ocean Engineering, 139(1), 9–23.

15. **Comment:** Moreover, even the effects that were acknowledged in the FEIS are now out of date. The analysis needs to be supplemented. NCDOT and FHWA now state that the 2060 shoreline in the area of the proposed bridge would have eroded by approximately 100 feet more than they estimated just a few years ago in the FEIS. EA at 4-9. But NCDOT and FHWA ignore the obvious corollary to this statement: the proposed bridge would, therefore, be in the ocean much sooner and would exert far greater long-term effects on the Refuge habitat over the life of the Project than the FEIS assumed. Indeed, NCDOT and FHWA did not even plan to construct this proposed bridge (which was called "Phase III" in the FEIS) until after 2020. FEIS at 2-125. The current plan to construct this bridge as soon as possible, coupled with the greater shoreline erosion rate, means that accurate, updated calculations of the miles of this bridge that would be in the ocean in each decade of the Project – as well as the calculations of the impacts of this bridge on the shoreline, the beach, the new inlet, and the wildlife habitat of the Refuge – must be provided in an SEIS.

    In addition to relying on out-of-date information, the EA fails to acknowledge or analyze the significant impacts on species habitat that the proposed ocean bridge would cause. Instead, it assumes that virtually all of the impacts would be confined to the easement. EA at 4-19 to 4-25. This ignores the long-term effects on habitat that the ocean bridge would cause: increased erosion, scour, and interference with longshore sediment transport.

    For example, the FEIS acknowledged that scour from the bridge pilings would affect the ocean floor, but it claimed this effect would not occur for this bridge until 2060. Now, however, it is apparent that the bridge would be outside the breakers much sooner, so the scour area and impacts to essential fish habitat ("EFH") are likely to be much greater over the life of the bridge and must be analyzed anew. Similarly, the FEIS acknowledged that the bridge would interfere with longshore sediment transport and would increase erosion, FEIS at 4-67 to 68, but NCDOT and FHWA never calculated the effect this would have on the beach. The EA mentions that the pilings of the temporary bridge over the Pea Island inlet have already interfered with sediment transport, but again makes no attempt to calculate the greater effects of a 2.1-mile bridge on this aspect of barrier island dynamics. Previously, the FEIS also acknowledged that the presence of bridge pilings in the surf and ocean could create "focused erosional hot spots" that *"accelerate* the development of a breach," but neither the FEIS nor the EA analyzes this impact on Refuge habitat. *See* FEIS 4-67 to 68.

    Response: *The analysis of the 2060 shoreline in the 2008 FEIS was updated and documented in the Phase IIa EA for the entire PBC/TMP Alternative project area*

(from Rodanthe to Oregon Inlet). (See Appendix D of the Phase IIa EA.) While the revised 2060 shoreline estimates indicate more erosion than previously forecast in some areas, the majority of the project length is actually now predicted to erode at a slower rate than forecast in the 2008 FEIS.

Impacts to open water habitat and protected species were updated as needed from those presented in the 2008 FEIS and Appendix A of the 2008 Biological Assessment (BA) and described in Section 4.2.4 of the Phase IIa EA beginning on page 4-18.

A series of different habitats were presented in Table 4-23 (Bridge Length and Area beneath Bridge by Habitat and Year) of the 2008 FEIS (page 4-93). This table was developed to illustrate in general terms that shading effects on different habitat types would change over time. The text of the 2008 FEIS on page 4-92 indicates that the table illustrates how the length of future phases in the ocean would increase over time while the length over the beach would decrease, and that during construction the bridge would neither be over the beach or the ocean. This pattern of impact is still expected with the 2060 shoreline forecasts.

In terms of impacts from piles in the water, an impact resulting from scouring starts to occur when the pilings are exposed to waves and currents. The effect, however, is not necessarily greater if it occurs sooner rather than later, i.e. that the holes would be larger and/or deeper. When the piles are landward of the breakers, scour holes would develop and backfill in response to changing flow conditions. Farther offshore, the scour holes would persist, but would reach an equilibrium condition relative to wave and current characteristics. Longshore sediment transport occurs primarily in the vicinity of and landward of the breakers, in the zone where scour holes are not expected to be persistent and thus would not interfere with overall longshore sediment transport capacity of the system. The final sentence of Section 4.6.8.3 of the 2008 FEIS (page 4-67) refers to a localized impact to longshore sediment transport with resulting erosion and accretion patterns along the shoreline in the immediate vicinity of the piles. The specifics of this impact to the beach are then described in the section that follows (Section 4.6.8.4).

In reference to the potential for Pea Island inlet to close, the Phase IIa EA in Section 4.1.2.2 on page 4-5 says that the October 2011 Peer Exchange panel "suggested that the inlet may close rapidly, because the pilings of the temporary bridge could influence sediment transport behavior resulting in inlet closure." This is referring to sediment transport under the temporary bridge and not longshore sediment transport. The panel did agree that "future performance of the inlet, whether movement or closure, would depend on storm activity, storm surge and direction, sand placement/displacement, and tide range." It appears that natural longshore sediment was a major contributor to the closing of Pea Island inlet in May 2013.

On page 4-68 of the 2008 FEIS it says that "it is possible that the presence of the structure could accelerate the development of a breach during these [storm] events." A breach in the Refuge can occur when a storm is powerful enough and water flow (hydraulics) is great enough to create a channel across the island. The location of that channel depends on geology, terrain (including low elevations in general and lower points in any shoreline dunes), and man-made features such as parking lots and buildings. These factors appear to be involved in the creation of Pea Island inlet, which was at a low point in terrain south of the Refuge pond's dikes and north of the buildings and pavement associated with a Refuge maintenance area. If a channel forms in an area where the water flowing through it passes bridge piers in the existing NC 12 easement, the water in the channel could flow faster as it passes around the piers, which could accelerate the deepening of an inlet whose formation is already underway. The presence of the piers, however, would be only one of many factors involved in the formation of the breach. Thus, the end result of a breach forming, including the effect on habitat, would be similar with or without the presence of the bridge piers.

There is no way to predict the precise change in habitat associated with a breach because the set of circumstances that lead to a breach are rare and unique to the breach. The opening of Pea Island breach does, however, provide an indication. Essentially, habitat in the area of Pea Island inlet changed. Some wetlands and uplands became open water. Additional nesting bird habitat was created. No new habitat types were created different from those that already exist elsewhere in the Refuge. Local wildlife populations in the changed habitat were affected, but the changed habitat was not unique and was small in relation to the land area of entire Refuge. Thus, there was little or no effect to wildlife populations in the Refuge as a whole. For some species, the habitat change created new opportunities, such as new colonial bird and piping plover nesting habitat.

The purpose of the EA was to identify the potential for significant new impacts either because of changes in the alternatives under consideration or changes in the setting. Impacts of the Phase IIa Selected Alternative once it is in the ocean are addressed in Section 4.7 of the FEIS beginning on page 4-92. Impacts on EFH are addressed in Section 4.7.6.2 of the FEIS, beginning on page 4-104. These are not new significant impacts.

16. **Comment:** Similarly, NCDOT and FHWA acknowledged previously that even while the proposed bridge is still on dry land, "[s]cour around the bridge supports is expected during events that bring the water level in contact with the bridge," *i.e.*, storm surge. FEIS at 4-67. However, the extent of such scour impacts on the Refuge have not been disclosed. This omission is significant because an earlier study by NCDOT's consultant calculated that for a 100-year storm surge, bridge pilings located on the northern end of Hatteras Island would produce severe scour impacts, resulting in scouring over 40 feet deep.

Response: *It is assumed regarding scouring 40 feet deep that the commenter is referring to the Bridge Hydraulic Report (OEI, 2012) for the new Oregon Inlet bridge (Phase I). It considers the potential for scour around bridge foundations of the planned new bridge. This analysis was done so that scour was considered in selecting the length of bridge piles. In that report, scour is considered in three parts: 1) ambient or long-term scour because of Oregon Inlet channel migration, 2) contraction scour because of an increase in water velocity as a function of a reduction in water flow resulting from the partial obstruction of flow by bridge piers, and 3) local scour resulting from water flow around the piers. Bents (pile groups at the end of each span) are numbered on the new Oregon Inlet bridge design south to north. The first 11 bents of the new bridge are on the northern end of Hatteras Island above mean the water level and thus over what today is dry land under normal conditions. Analysis of scour resulting from the 100-year storm, the 500-year storm, and a Class IV Nor'easter determined that no storm induced local scour (e.g. scour around individual piles, piers, or abutments) would occur at bents 1 through 11 (see Table 5.2, OEI, 2012). The 40 feet of scour identified in the report for bents 7 through 11 (see Table 5.3, OEI, 2012) is an indication of possible Oregon Inlet channel realignment and contraction scour. This scour is not storm induced and not relevant to the concern raised by the commenter.*

Local scour can develop around any land-based structure subjected to a storm surge. Whether such local scour occurs depends on the storm surge and wave flow velocity and soil erodibility.

Federal flood insurance rate mapping maps the 100 year storm surge and associated risk zones. VE zones are those likely to see high velocities during a 100-year storm surge and are generally within several hundred feet of the shoreline. AE zones represent the balance of the area subject to 100-year flooding. All of the Refuge is in either a VE zone or an AE zone. Most VE zones in the Refuge are confined to areas along the east and west shorelines with a notable AE zone in between. Note that first 11 bents of the new Oregon Inlet bridge are in an AE zone and the bridge design analysis of scour resulting from the 100-year storm, the 500-year storm, and a Class IV Nor'easter determined that no storm induced local scour would occur at bents 1 through 11.

Currently, most of the NC 12 easement is not in a VE zone. Sections that are in a VE zone include an approximately 500-foot section centered at the Refuge visitor center, an approximately 0.5 mile section at the southern end of the southernmost Refuge impoundment, and three sections totaling 1.1 miles at the 'S' curves and northern Rodanthe. The last three sections are in areas geologically susceptible to breaching. In those areas, the 100 year storm surge is likely to open a breach. The effect of bridge piles on breaching was described in the response to the commenter's comment 15 above.

The future extent of possible local scour at the bents during a 100 year storm cannot be determined since the future topography of the island is unknown, and thus, the landward extent of the high velocity zone of the storm surge is unknown. However, the projected

shoreline position (2060 high erosion shoreline) can provide insights to locations within the project area that could become susceptible to local scour because of high water velocities based on proximity to the shoreline. The two sections that have been identified as currently in a VE zone and not in an area geologically susceptible to breaching are in areas of eroding shorelines; thus, it is expected that the alongshore extent of these areas will increase with time. Using the projected 2060 shoreline as an indicator of the extent of the area, the section centered at the Refuge visitor center could expand to approximately 1.0 mile and the section at the southernmost pond could expand to approximately 0.85 mile. This 1.85 miles is the area where it is most likely that at some point in time, local scour would occur during a 100-year storm while a bridge in the existing easement would be on land.

In addition, if the area north of the ponds experiences high shoreline erosion, it is likely that the VE zone could extend across the easement for a distance of 1.0 mile measured about 1.25 miles south of Oregon Inlet. A location geologically susceptible to breaching also is in this area. Thus, here high water velocities associated with the 100-year storm are likely to open a breach. South of the ponds, the project area consists of locations that are geologically susceptible to breaching (Pea Island Breach area and 'S' curves/northern Rodanthe area) and a location where no improvements are proposed for NC 12.

The depth of scour is generally a function of the diameter of the piles (approximately two times the pile diameter for a single pile and six times the single pile diameter for a pile group); however, post storm observations have suggested that the soils of some geographic areas are more susceptible to scour than others. The key critical parameters cited are whether the soil type is silty and whether the structure is within several hundred feet of the shoreline (Coastal Construction Manual, 2011). Layers of peat (or other less erodible materials) could resist the scour potential of the storm and the scour holes would not develop as deep.

Other factors to note when considering the formation and extent of local scour holes around bridge bents on land are:

- *Whether or not the local scour holes would exist after the storm depends on the sediment transport capacity of the storm surge flow and the availability of sediment during the storm. It is possible that overwash processes (both as storm advances and retreats) could reduce by backfilling the depths and areal extent of the holes left after the surge passes.*

- *The 100-year storm has a 1 in 100 (1 percent) chance of occurring in any one year and a 38 percent chance of occurring between 2013 and 2060.*

Finally, the 100-year storm surge would cause other types of change to Refuge habitat over a far larger area than that which might be affected by local scour holes. The area affected by the storm surge would include both AE and VE areas. With a 100-year storm

surge, overwash sediments could be deposited throughout the Refuge in wetland, impoundment, other open water, and upland habitat. Even around locations where local scour holes develop, the habitat would be changed over a far larger area than the specific locations with scour holes. The area of the Refuge affected by the 100-year storm surge would be similar with or without the presence of bridge bents. This is because the area of effect is dependent on the characteristics of the surge and the terrain, not the presence of bridge bents around which the surge would easily pass.

Given the above factors related to the potential extent of impact, likelihood of impact, and contribution to the impact, potential local scour holes at bridge bents on land are not expected to have a notable effect on the Refuge or its operations.

FEMA. 2011. Coastal Construction Manual, 4th Edition.

FEMA. 2009. "Erosion, Foundation, and Scour Design, Hurricane Ike Recovery Advisory."

OEI. 2012. Bridge Hydraulic Report.

17. **Comment:** In addition to these impacts, this new plan for an ocean bridge would necessitate significant maintenance activities. Maintenance on this bridge when it is located in the surf zone "would ... represent a long-term impact" to essential fish habitat ("EFH") and federally protected species. FEIS at 4-108. Permanent, ongoing maintenance is inevitable for bridge pilings located in the high-energy surf zone, and this intrusive activity would be a major detriment to beach habitat and EFH. Again, maintenance of this bridge over the life of the Project would be greatly increased by the earlier construction date and greater shoreline erosion than previously forecast. But the EA fails to account for these impacts.

    Moreover, NCDOT and FHWA have abandoned their earlier commitment to confine all maintenance to the NC 12 easement. Instead, they state in the Record of Decision ("ROD") that this commitment to confine maintenance to the easement *"does not exist* with the NC 12 Transportation Management Plan." ROD at C-16. Thus, the perpetual, long-term maintenance impacts of the proposed bridge are certain to be significantly greater than those contemplated in the FEIS.

    In a 2007 letter to then-Governor Easley, DOI stated that the in-easement bridging plan would require actual use of Refuge land and therefore was likely incompatible with the Refuge's purpose:

    "While the intent is to construct these new bridges within the existing road's right-of-way, we believe this alternative would require *continued maintenance outside of the existing road's right-of-way* through the Refuge until each subsequent phase of bridge construction along NC 12 is completed. Current information also indicates that all 4 phases would require at least 13 years of actual

construction during a 28-year timeframe. Based on the information that the [FWS] currently has, *it is unlikely that we could find this alternative to be compatible with the purposes for which the refuge was established*, as required under the Refuge Improvement Act."

Letter from David Verhey, Acting Assistant Secretary for Fish and Wildlife and Parks, to Governor Easley, dated September 11, 2007 (emphasis added).

Because the proposed bridge would harm the Refuge, as described above, it is incompatible with the Refuge under the National Wildlife Refuge System Improvement Act of 1997,16 U.S.C. § 668dd(d)(3)(A)(i), and its implementing regulations. The presence of bridge pilings in the surf or on the beach would degrade the quality of nesting, foraging, and brooding habitat for the federally protected piping plover and nesting habitat for federally protected green and loggerhead sea turtles. The bridge pilings would further destroy and degrade habitat by causing erosion and scour. And once the bridge is on the beach, it would impose traffic noise, lights, and ongoing construction and maintenance activities on nesting habitat. While more detailed analysis of the extent of these harms is required under NEPA, it is already apparent that the current bridge proposal fails to "ensure no net loss of habitat quantity and quality." 50 C.F.R. § 26.41(c). Accordingly, FWS must deny this use within the existing easement.

Even if the proposed bridge qualified as maintenance of the road within the easement (which is an interpretation we contest), it would still be incompatible with the Refuge because, for the reasons given above, it would "materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge." 50 C.F.R. § 26.41(a)(10).

> ***Response:*** *NCDOT and FHWA disagree with the commenter's conclusion from NCDOT's response to comment C.2.1.2 on page C-16 of the 2010 ROD that "perpetual, long-term maintenance impacts of the proposed bridge are certain to be significantly greater than those contemplated in the FEIS." As indicated in NCDOT's response to this organization's scoping comment 7, beginning on page C-34 of the Phase IIa EA, since the release of the 2010 ROD, NCDOT has minimized the impact of NC 12 maintenance activities on the Refuge in several ways. Also as presented in the response, on the occasions when work outside the easement has occurred it has been done under the terms of a Special Use Permit from USFWS-Refuge and NEPA requirements were met, as needed, with a Categorical Exclusion. Appropriate coordination with environmental regulatory agencies occurred. As noted in the response, the on-going coastal monitoring program, which is a part of the PBC/TMP Alternative, has the objective of minimizing future NC 12 maintenance activities by using the coastal monitoring results in planning future phases. The NCDOT and the US Department of Interior, as represented by Refuge staff, have worked closely together since 2007 on all aspects of NC 12 maintenance*

and PBC/TMP Alternative implementation, including Refuge compatibility. A compatibility determination is not required for NCDOT's use of the existing NC 12 easement. A permit would be required for the temporary construction easements necessary to construct Phase IIa. The exact terms and conditions, as well as appropriate compensatory mitigation, will be determined during the permitting process.

18. **Comment:** Finally, safety is a significant concern with the proposed bridge. To our knowledge, the proposed bridge would be the only bridge in the world that would run for miles parallel to the shore through high-energy surf and in the open ocean. This untested and exposed stretch of elevated highway in the ocean would be the sole hurricane evacuation route for Hatteras Island. NCDOT must "fully and adequately set forth ... [its] ability ... to maintain the facility after completion of the project in view of the exposure to the winds and the water." *Rankin* v. *Coleman*, 394 F. Supp. 647, 657 (E.D.N.C. 1975). To date, it has not done so. It must satisfy this requirement before the proposed bridge - and the other in-easement bridges that will inevitably follow it are constructed.

Response: *NCDOT and FHWA disagree that safety is a significant concern with the proposed Phase IIa bridge. The commenter's concerns about safety during an evacuation were addressed on page C-32 of the Phase IIa EA. In Dare County the goal is to complete hurricane evacuations before the arrival of gale force winds, which are defined as sustained winds at 39 to 54 mph. The Phase IIa bridge has been designed to span the entire area that is geologically susceptible to breaching in the Pea Island Inlet area, which NCDOT considers to be the best way to address the potential for future storms to move the Pea Island inlet south or create a new breach or inlet. The superstructure (the bridge beams and deck), would be placed above the projected storm surge associated with major storms so that it cannot be struck or damaged by the surge, and the depths of the supporting bridge piles will be designed to account for the possibility that the Phase IIa bridge would ultimately be off-shore as beach erosion progresses in the area. Bonner Bridge has withstood annual weather events since its construction in 1962.*

B. Alternatives

19. **Comment:** The analysis of alternatives in the EA and accompanying studies continues to be biased and unreliable. In essence, NCDOT and FHWA claim, implausibly, that construction costs have dropped significantly since 2006 for every alternative except the Pamlico Sound Alternative. Nor has the funding analysis been updated to reflect the significantly higher STIP allocation for the Project. And a new ferry study created by NCDOT and FHWA claims to evaluate the use of high-speed ferries, but in fact refuses to do so.

Response: *NCDOT and FHWA disagree with these general comments and addresses specific points below.*

1. Pamlico Sound Bridge

20. **Comment:** The most recent revision to NCDOT and FHWA's cost estimate for a long Pamlico Sound bridge, in which they rejected their own lower updated estimate, does not appear to have been undertaken in good faith.

Response: *NCDOT prepares all cost estimates in good faith using the best information available. As discussed in the report entitled Pamlico Sound Bridge Corridor Cost Analysis (2012 Cost Report) that was included on the compact disc (CD) that accompanied the Phase IIa EA, NCDOT employs professional staff to generate periodic construction cost estimates of all its projects, using both site-specific and nationwide data. The 2012 Cost Report details NCDOT's methodology for conducting cost estimates, as well as the factors that influence each estimate. In developing the 2012 estimate for the Pamlico Sound Bridge Corridor alternatives, NCDOT sought additional input from three independent consulting firms with experience in large-scale bridge design and design-build projects and used existing information from the winning design-build team for Phase I of the project.*

21. **Comment:** In 2012, NCDOT updated its estimates for the "Phase IIa" bridge, as well as for the two "Phase IIb" bridging options at Rodanthe, from the 2007 cost estimates that were contained in the FEIS. It found the cost (now updated to 2011 dollars) had dropped significantly - by as much as 38%. Brittney D. Kelly, Summary of Feb. 9, 2012 Meeting with U.S. FWS (May 18, 2012), at 3. NCDOT noted that "a reduction in the unit price for the structure sections and a decrease in the Design-Build inflation factor are two possible reasons why there was a decrease in the cost estimates." Id. NCDOT appears to have considered these updates to be accurate and it did not reject them or seek an outside reevaluation.

Response: *As part of the planning process for Phase II of the PBC/TMP Alternative, NCDOT drafted construction cost estimates for the three proposed detailed study alternatives for Phase II: the Pea Island- Bridge within Existing NC 12 Easement Alternative, the Rodanthe- Bridge within Existing NC 12 Easement Alternative, and the Rodanthe- Bridge on New Location Alternative. Because each of the three alternatives was based on portions of the Parallel Bridge Corridor alternatives studied in the 2008 FEIS, the cost estimate for each of the three alternatives was completed by updating the corresponding portion of the 2008 FEIS cost estimate. As stated in the memorandum that is referenced by the commenter, the estimated cost of the two Bridge within Existing NC 12 Easement options decreased between 11 and 14 percent, while the cost of the Bridge on New Location option decreased between 34 and 38 percent. Consistent with the cost estimates in the 2008 FEIS, a low and high cost for each estimate was prepared for each option. The*

reduction in the design-build inflation factor referenced in the comment was appropriate for the 2012 estimate of the Phase II options based on data compiled on design-build project bids nationwide, as well as the estimated construction time of the Phase II options. These estimates were deemed reasonable at the time based on the amount of design information available for each option, with the understanding that further estimates would be prepared as more design information became available.

As discussed in Section 2.5 on page 2-20 of the Phase IIa EA, NCDOT prepared an updated Phase IIa construction cost estimate in May 2012 (after the estimate referenced by the commenter) based the proposed final design of the Preferred (now Selected) Alternative (Pea Island- Bridge within Existing NC 12 Easement). The updated construction cost estimate is $98 million, and it includes construction of the new bridge and removal of the existing temporary bridge. This estimate is within the projected cost estimate range included in the memorandum cited by the commenter. Further cost estimates for the Phase IIb alternatives will be prepared once more design information is available.

The estimating process is a professional, predictive tool that employs a combination of data analysis and expert judgment in order to approximate the cost of a project. As discussed in the 2012 Cost Report, cost estimates can be influenced by a variety of factors, including the scope and location of the project, as well as nationwide construction material costs. NCDOT incorporates the estimating process into the overall development of any particular project using the design and construction material information available at the time so that reasonable assumptions can be made about the project's impact on NCDOT's financial resources. Of course, ultimately, the final cost of the project is dependent upon the bids received from prospective construction contractors and does not become a certainty until a construction contract is awarded. For example, in the 2010 ROD, NCDOT estimated the cost of Phase I to be between $265 million and $315 million. The actual construction bids for Phase I, received in July 2011, ranged between $215.8 million and $306 million, showing notable overlap between NCDOT's estimate range and the range of bids ultimately received. NCDOT has reviewed and updated its estimates for the Pamlico Sound Bridge Corridor alternatives, as well as for the Phase II proposed alternatives, and has confidence in its latest estimates.

22. **Comment:** However, NCDOT reacted very differently when it performed the same type of update for the Pamlico Sound Alternative. It found that the cost of this alternative - now updated to 2011 dollars from the previous 2007 estimate - had dropped by 39% to 55%, to a cost range of $569 million to $629 million, according to the Phase II Pamlico Sound Bridge Corridor Cost Analysis ("Pamlico Sound Bridge Cost Analysis") that accompanies the current EA. Pamlico Sound Bridge Cost Analysis at iii. NCDOT states that this estimate was developed by updating the previous estimates for inflation and by referencing bids on comparable projects. Id. Without adequately explaining why this updated estimate was supposedly

inaccurate, NCDOT decided to reject it and sought a reevaluation by outside consultants. Id. In other words, it rejected its own updated estimate for the Pamlico Sound Alternative, but not for its other updated estimates for its "Phase II" bridges that used the same methodology.

This unequal treatment of the cost estimates for the various Project alternatives continues to raise serious questions about whether NCDOT has ever evaluated the Pamlico Sound Alternatives in good faith.

> ***Response:*** *NCDOT conducted a thorough review of the cost estimates and potential funding sources for the Pamlico Sound Bridge Corridor alternatives. As explained in the 2012 Report, NCDOT prepared a construction cost estimate in November 2011 that was 39 to 55 percent lower than the previous estimate prepared in 2007. In a letter dated January 5, 2012, the USACE recommended a review of the cost estimates and potential funding sources for the Pamlico Sound Bridge Corridor alternatives and the Phase II alternatives. In line with these requests, NCDOT prepared updated estimates for both the Pamlico Sound Bridge Corridor alternatives and the Phase II alternatives. For the Pamlico Sound Bridge Corridor alternatives, NCDOT commissioned three consulting firms with experience in bridge design and construction to prepare estimates. The three contractors were each asked to prepare two estimates; the first was an update of the 2007 construction cost estimate, and the second was an update of the 2007 costs along with consideration of additional design factors (see the response to the commenter's comment 23 below). NCDOT then used the information from the three contractors, as well as relevant information from the winning design-build bid for Phase I of the project, to develop an updated estimate. As discussed in the response to the commenter's comment 21 above, NCDOT also prepared updated cost estimates for all Phase II alternatives; in addition, the estimate for the Phase IIa Selected Alternative was updated again in May 2012.*
>
> *This level of independent analysis is consistent with past efforts on this project. As discussed in Section 2.12.1.2 of the 2008 FEIS (beginning on page 2-135), NCDOT conducted a similar independent review of the estimated construction costs of the Pamlico Sound Bridge Corridor alternatives. An independent analysis of construction cost estimates, both in 2007 and in 2012, was warranted given the magnitude of a bridge in the Pamlico Sound Bridge Corridor and its potential impact to NCDOT's financial resources. A bridge in the Pamlico Sound Bridge Corridor would be approximately 17.5 miles in length, making it one of the longest bridges in the world (the longest bridge is the 24-mile Lake Pontchartrain Causeway in New Orleans). As discussed in the 2012 Cost Report, the construction of the bridge would utilize at least 94 percent of the current total Division 1 seven-year projected budget from 2014 to 2020, meaning that only a few small bridge replacements or other small projects could be funded within the same budget period—and only if the construction bids received by NCDOT were at the low end of the range of estimated construction*

costs. Even a small percentage change in the cost of a bridge in the Pamlico Sound Bridge Corridor could have substantial impacts on NCDOT's financial resources, while the same percentage change in the cost of any of the Phase II alternatives would not.

Beginning in 1989, the Equity Formula was used to allocate transportation funding throughout the state. On June 26, 2013, Governor McCrory signed into law the Strategic Transportation Investments legislation[1]. This legislation sets forth a new way to fund and prioritize transportation projects in an effort to provide the maximum benefit to the state. The prioritization formula is driven by various data as determined by the NC General Assembly, as well as input from Metropolitan Planning Organizations, Rural Planning Organizations, and NCDOT Division Engineers. All modes of transportation will compete for the same funding under the new legislation.

Transportation project funding will be divided into three categories – Statewide, Regional, and Division. Forty percent of the funding will be distributed to projects of Statewide importance, 30 percent will be allocated to Regional projects, and the remaining 30 percent of transportation funds will be distributed to Division projects. Transportation initiatives will be classified as Statewide, Regional, or Division projects according to the definitions set forth in the legislation (see N.C.G.S. § 136-189.10(1)–(3)). Based on these definitions as determined by the NC General Assembly, the Pamlico Sound Bridge Corridor Alternative would be eligible for funding under only the Regional or Division categories.

Transportation funds allocated under the Regional category will be dispersed through seven Distribution Regions. (See N.C.G.S. §136-189.10(4).) As with the Equity Formula, under the new legislation two NCDOT transportation divisions are paired to form one Distribution Region; the transportation division pairings are based on population. Distribution Region A is comprised of Division 1, where the proposed Bonner Bridge Replacement Project (B-2500) would be located, and Division 4[2]. (See N.C.G.S. §136-189.10(4)(a)). Preliminary revenue estimates indicate that this funding Region may receive approximately $445 million over a 10-year period. However, Division 1 is not guaranteed any funding under the Regional category. Rather, transportation projects in Division 1 will compete for Regional funding against projects in Division 4. Only the highest ranked projects in Distribution Region A will be selected for funding.

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[1] House Bill 817 [Ratified] to be codified as N.C.G.S. §§ 136-189.10 through 136-89.215.

[2] Distribution Region A consists of the following counties: Bertie, Camden, Chowan, Currituck, Dare, Gates, Hertford, Hyde, Martin, Northampton, Pasquotank, Perquimans, Tyrrell, Washington (Division 1); Edgecombe, Halifax, Johnston, Nash, Wayne, and Wilson (Division 4).

Funds allocated under the Division category will be equally apportioned to each of the state's 14 transportation divisions. Preliminary revenue estimates indicate that Division 1 may receive approximately $360 million in this category over a 10-year period. Only the highest ranked projects in the Division will be selected for funding.

According to preliminary revenue estimates, the maximum amount of Regional and Division funding that Division 1 could receive during the upcoming 10-year period is $805 million. If this funding were allocated to a Pamlico Sound Bridge Corridor bridge, Division 4 could not construct any project of Regional importance during the 10-year period, and Division 1 could not construct any project of either Regional or Division importance during that same period. Even so, the $805 million potentially available under the new funding formula is less than the lowest estimated cost of the Pamlico Sound Bridge Corridor Alternative, which is $896 million. Therefore, the new funding formula under the Strategic Transportation Investments legislation does not change the prior conclusion that construction of a bridge in the Pamlico Sound Bridge Corridor Alternative is not feasible, prudent, or practicable.

23. **Comment:** NCDOT's only explanation for why its updated, lower cost estimate for the Pamlico Sound Alternative supposedly was inaccurate is that it did not "account for the following design considerations" (listed in the Pamlico Sound Bridge Cost Analysis at 3-2):

    – A "corrosion protection plan," which appears to be a maintenance cost and not an up-front construction cost.

    – A requirement for the "Phase I" Oregon Inlet bridge request for proposals that prohibited the use of precast concrete "I" girders, which supposedly could reduce the unit structure cost to $80-85 per square foot. But there is no indication that the lower-cost precast girders would not be allowed for the Pamlico Sound bridge. NCDOT states in its October 2012 cost estimate report that "[t]he PSBC ... could utilize a conventional superstructure, a segmental superstructure, or a combination of the two." Id. at 2-3. And the FEIS stated that these precast girders "are anticipated" for use on the Pamlico Sound bridge because of their "faster construction, [...] higher quality of the precast elements, longer life, lower maintenance requirements, the ability to maintain segment casting production through the winter, and [avoiding] the difficulties of providing ready-mix concrete in a remote setting where water flow, wind, and exposure to the environment are constant forces." FEIS at 2-87.

    – "Some economy of scale and savings through innovation ... were also anticipated" for the original updated estimate." However, NCDOT and FHWA fail to explain why they now believe economies of scale and related savings for a project of this size were not a valid assumption in developing their own estimate.

In short, NCDOT and FHWA have failed to provide an adequate explanation of what was wrong with their own estimate for the construction cost of the Pamlico Sound Alternative. Nor have they explained why they accepted a 38% reduction in the estimated construction cost for a bridge option under their own "Selected Alternative," but rejected as invalid a 39% reduction for the Pamlico Sound Alternative.

Response: *To clarify, a corrosion protection plan includes design and construction measures developed by the contractor to ensure that the bridge will have an adequate service life in the harsh coastal environment of the project area. A corrosion protection plan, which requires the use of stainless steel, corrosion inhibitors, and thicker concrete clearances in the design of the bridge, is needed for bridge components of project B-2500 because of the location of the project and the challenges of maintaining a bridge in the coastal environment. The plan should state the acceptable amount of corrosion on the reinforcing steel and concrete and should include recommendations on repair techniques. Because the components of a corrosion protection plan must be accounted for in the design and construction of the project, this is not a maintenance cost that can be deferred years into the future. A corrosion protection plan was required in the design-build proposal for Phase I of the project, and it will be required for Phase IIa and subsequent phases that require bridge construction. The costs of the measures included in a corrosion protection plan were included in the May 2012 cost estimate for Phase IIa.*

The cost report discussed the differences between precast concrete I-girders and segmental bridge girders, noting when each may be used in bridge construction. Contrary to what is stated in the comment, NCDOT allowed the use of precast concrete girders in the design of the Phase I bridge. In fact, the winning design-build proposal for Phase I included a combination of the two, with segmental girders proposed only over the navigation zone of Oregon Inlet. A mix of girder types also could be used with a Pamlico Sound Bridge. Each of the estimates prepared by the three independent contractors assumed a combination of superstructure types. It should be noted that while precast concrete girders are lower in cost, segmental bridge girders may be precast at longer lengths than precast girders, thereby minimizing the number of bridge spans and potentially reducing the environmental impact of the bridge.

Contrary to what was stated in the comment, economies of scale are included in any cost estimate of a project of the magnitude of a bridge in the Pamlico Sound Bridge Corridor. While an economy of scale is not included as a line item, it is factored into the construction cost as contractors develop their construction plan, and therefore is included in the cost of construction equipment, staging, and materials. For the Pamlico Sound Bridge Corridor (and any of the other bridge alternatives proposed for the project), the risk factors associated with construction in the harsh coastal

environment of the project area outweigh any potential economies of scale that might otherwise reduce the cost of the project.

The 2012 Cost Report addresses the concerns listed in the comment and includes the appropriate supporting documentation. As discussed in that report and in the commenter's comments 20 and 22 above, NCDOT updated the cost estimates of the Pamlico Sound Bridge Corridor in 2012 using data from three independent consulting firms as well as the winning bid for B-2500 Phase I that was awarded in July 2011. The data from the three firms and the Phase I reflected updated design requirements that were not included in NCDOT's November 2011 construction cost estimate. These design requirements include not only the corrosion protection plan mentioned by the commenter, but a navigation (high-rise) zone consistent with that proposed for Phase I, updated assumptions regarding the bridge's superstructure design and foundations, the use of dredging for up to 8 miles within the project corridor, the placement of utility conduit, and any other major cost items as determined necessary by the contractor. In addition, the "high" estimate included a design-build escalation factor that was recommended by each of the three contractors in order to account for the longer length of a construction contract that will be needed to construct a bridge in the Pamlico Sound Bridge Corridor.

24. **Comment:** Even taking NCDOT and FHWA's much higher, revised update to the Pamlico Sound Alternative construction cost estimate at face value, this alternative nevertheless could be funded. NCDOT and FHWA now estimate the up-front costs (including construction and right-of-way) as $896 million to $1.546 billion.

    NCDOT already has $244 million programmed in the State Transportation Improvement Program ("STIP") to rebuild Bonner Bridge at its current location, and it recently allotted an additional $232 million in the STIP for "Phase II" bridging over two sections of NC 12 damaged in recent hurricanes at the Pea Island inlet and Rodanthe. The total allocation for the Project in the current STIP is thus $476 million.

    NCDOT could also seek additional STIP funding for the Pamlico Sound Alternative. Previously, it refused to do so, claiming that the available STIP funding was strictly limited to the amount allocated for the "Phase I" bridge. Now, however, NCDOT has obtained hundreds of millions of dollars more for its preferred plans. NCDOT has never attempted to seek even partial additional funding for the Pamlico Sound Alternative; without doing so, it cannot claim this alternative cannot be funded.

    In addition to available STIP funds for the Project, NCDOT could abandon or defer the Mid-Currituck Bridge project (currently slated for $28 million in gap funding per year for 40 years) and divert several years of that gap funding to the Pamlico Sound Alternative. Likewise, NCDOT could defer or abandon the unpopular expansion of US-64 through Dare County and the Alligator River Wildlife Refuge, for which $370 million has been designated in the STIP, and spend only what is necessary to

refurbish or replace the existing Alligator River bridge, leaving the rest for the Bonner Bridge replacement project. Widening US-64 is not justified by traffic projections, is opposed by the East Lake community, and is destructive to wetlands.

These funds could be supplemented, if necessary, with TIFIA-based toll funding. NCDOT and FHWA claim in the Pamlico Sound Bridge Cost Analysis, 5-6, that tolling is not an option because a free alternative route is required, but this is a red herring. NCDOT and FHWA have already engaged in a substantial toll analysis in Appendix G of their 2009 Revised 4(f) Evaluation. A free ferry route would satisfy the alternate route requirement. In the alternative, NCDOT could seek an exemption from the requirement for a free route in light of the unusual circumstances of barrier island geography.

When NCDOT and FHWA examined the use of TIFIA bonds in conjunction with tolls, they dismissed this alternative because they claimed the toll rate would be "relatively high." Revised Final 4(f) Evaluation, App'x G at 14. However, concern about "relatively high" tolls cannot justify rejecting the Pamlico Sound Alternative as impracticable and imprudent. Indeed, the toll amount was no higher than, and on certain days was far less than, the $14-$28 tolls NCDOT has proposed for the proposed Mid-Currituck bridge. Moreover, the state is seriously considering the possibility of increasing tolls for ferries in the same geographic area already and is receiving public comments on such proposals.

But most importantly, because the STIP allocation for the Project has increased significantly to $476 million, the amount of required toll revenue - and thus the per-trip toll that would be charged - would be far lower under the current funding arrangement than NCDOT and FHWA's earlier estimate in the Revised 4(f) Evaluation. However, while NCDOT and FHWA claim they updated their funding analysis for the Pamlico Sound Alternative for this EA, in fact they have not revisited their rejection of this method of TIFIA-based toll funding. See Pamlico Sound Bridge Cost Analysis at 5-6. They must do so by preparing a supplemental EIS and Revised 4(f) Evaluation to reevaluate funding for the Pamlico Sound Alternative and supplemental TIFIA-based toll funding in particular.

> ***Response:*** *Phase II was initiated following Hurricane Irene in 2011 because of the extent of the damage to NC 12, and funds were shifted as needed from other projects in Division 1. The current total financial commitment for Phases I and II would only fund half of the low estimated cost of a bridge in the Pamlico Sound Bridge Corridor as estimated in the 2012 Cost Report.*
>
> *The Strategic Transportation Investments legislation described under the response to SELC comment 22 does not include gap funding for the Mid-Currituck Bridge*

project. Mid-Currituck Bridge project funding beyond that which could be provided by tolls now falls under the new prioritization formula.

In 2011, the North Carolina General Assembly (SL 2011-145 [HB 200]) mandated that NCDOT to increase its annual ferry revenue to $5 million. In order to be in compliance with this law, NCDOT developed a proposal to increase tolls on three ferry routes that already collect tolls. In addition, tolls would be collected on two additional routes that are currently toll-free; for these two ferry routes, there are free, although lengthy, transportation alternatives. Contrary to what is implied by the commenter, this initiative is underway because of the passage of a state law and is not seen as a viable option to fund all transportation projects.

The 2012 Cost Report included discussion of several potential alternate revenue sources, including tolls and federal loan programs. FHWA also recently revisited its TIFIA analysis to determine whether TIFIA loans were a viable option. It re-evaluated TIFIA-based toll funding with the updated costs and updated TIFIA interest rates. TIFIA loans must cover a minimum of 33.3 percent of the total cost needed; if the loan amount increased, then a higher toll would be needed in order to pay back the loan. Using the same analysis procedure detailed in the 2009 Revised Final Section 4(f) Evaluation, FHWA determined that toll required to pay for 33.3 percent of a bridge in the Pamlico Sound Bridge Corridor would only decrease slightly (ranging from $10.15 to $11.75 as opposed to the $11.00 to $14.00 in the previous analysis). With these toll rates and an additional $81 million programmed (currently $476 million compared to $395 million in 2009) in the STIP, there is over $200 million of gap funding needed to fund the Pamlico Sound Bridge Alternative.

The commenter suggests that tolls could be raised to $14 to $28 as with the Mid-Currituck Bridge Project. The toll analysis presented in the Revised Final Section 4(f) Evaluation on pages B-155 to B-156 of the 2010 EA indicated that single trip tolls of $18 to $31 in each direction would be needed to provide adequate debt coverage to issue toll revenue bonds for the low and high end costs at that time. FHWA concluded that "These individual toll rates are extremely high for a single trip and would likely be a severe hardship to area residents, considering the absence of other transportation choices available for those traveling NC 12." The settings of the Mid-Currituck Bridge Project and the Bonner Bridge Replacement Project (B-2500) are very different. The Mid-Currituck Bridge Project will serve a location (Currituck County Outer Banks) that consists of a tourist population with few permanent residents. There also is a free road alternative to paying the toll. The Bonner Bridge Replacement Project (B-2500) serves a location (Hatteras Island) that includes tourists, but also a sizeable permanent population. If tolls were charged on a Bonner Bridge replacement there would be no free alternative unless ferry fees were removed from the Ocracoke Island to mainland ferries, and even then it would hardly be a equivalent service in terms of destination, travel time, and general convenience for those on Hatteras Island. The residents of Hatteras Island travel to Bodie Island

and other parts of Dare County on a regular basis. To ask residents to pay even as low as $20.30 or as high as $62.00 per round trip to go to work, to go to the doctor, to go shopping, to attend school sports events, or visit friends is not reasonable.

Based on the findings in the 2012 Cost Report, the continued investigation of alternative financing by NCDOT and FHWA, and the discussion of the new Strategic Transportation Investments legislation under SELC comment 22, the determination that the Pamlico Sound Bridge Corridor alternatives are not feasible and prudent remains unchanged.

25. **Comment:** NCDOT and FHWA previously claimed they would need to "phase" the various segments of the Project over decades and rejected the Pamlico Sound Alternative because it could not be "phased." Now, however, they propose to fund and construct at least three segments of the Project in a single funding cycle - a far larger portion of the Project than they previously claimed was possible. Thus, NCDOT and FHWA's simultaneous funding of multiple "phases" of the Project renders their previous alternatives analysis invalid.

Response: *The concept of phased construction has been analyzed in the context of other alternatives within the Parallel Bridge Corridor. As discussed in Section 2.10.2.5 of the 2008 FEIS beginning on page 2-123, the original timing of the Phased Approach Alternatives included the construction of Phase I in the initial TIP period, followed by the construction of three bridges as part of Phase II after 2015 and a fourth bridge as part of Phase III after 2020. This phasing plan was based on the forecast shoreline position within the project area. This would mean that construction of up to 5 bridges would begin within an 11 year period. Currently, NCDOT is proposing to construct the Phase I bridge and two Phase II bridges within the next year. In both the Phased Approach Alternatives and in the PBC/TMP Alternative, the timing and extent of the phases to be implemented would be determined by the coastal conditions within the project area. The condition of the existing Bonner Bridge, with a sufficiency rating of 4 out of 100, and the coastal conditions caused by Hurricane Irene, have dictated what phases should be implemented. The alternatives analyses prepared for project B-2500 remain valid, and the determination that Pamlico Sound Bridge Corridor alternatives are not feasible and prudent remains unchanged.*

2. High-Speed Ferries

26. **Comment:** The EA and its accompanying "Reconsideration of the Ferry Alternative Report" ("Ferry Report") do not evaluate the cost or feasibility of high-speed ferries that have been suggested by commenters numerous times. The EPA, FWS, Defenders of Wildlife, the National Wildlife Refuge Association, SELC, other conservation groups, and members of the public have requested repeatedly that NCDOT and FHWA seriously evaluate the alternative of using high-speed, shallow-

draft ferries. These modern vessels have been developed since the 1991 ferry study on which NCDOT and FHWA relied in all their previous NEPA documents, and they have significantly greater capacity (carrying up to hundreds of vehicles) than the ferries considered by NCDOT and FHWA, which hold 30-40 vehicles.

Unfortunately, NCDOT and FHWA still have not evaluated the use of high-speed ferries for the Project. The EA states that "the Ferry Alternative was reevaluated by FHWA with assistance from NCDOT," including "consider[ing] using high-capacity, high-speed ferries." EA at 2-7. However, yet again, the only cost and capacity calculations in the Ferry Report and EA are based on NCDOT's conventional 38-car River Class ferries. Ferry Report, App'x D.

The Ferry Report and EA do not evaluate high-speed ferries. Instead, they reject high-speed ferries out of hand and refuse to analyze their costs or feasibility. The only support for this rejection of the high-speed ferry alternative suggested by numerous commenters is the illogical assertion that "[b]ecause the draft depths and required channel depths for high-speed ferries equal or exceed those for conventional vessels, the expected dredging requirements for these vessels make further consideration unreasonable." EA at 2-10, Ferry Report at 16 (emphasis added). In other words, NCDOT and FHWA state that even though a high-speed ferry's draft may "equal" that of a conventional vessel, that somehow justifies rejecting it without further analysis. They also state that any additional draft of a high-speed vessel, even one inch, justifies rejecting this alternative. These statements defy logic and show a prejudged and biased refusal to consider the benefits of the high-speed ferry alternative.

> ***Response:*** *This commenter has repeatedly suggested that advances in ferry transit have yielded a "modern" vessel that can carry high volumes of cars and trucks (hundreds of vehicles) at high speeds (35 mph or greater) with very shallow draft (4.5 feet or less), all while meeting present and future travel demand between Bodie and Hatteras Islands (2 million vehicles per year) and can do so in an economically feasible way. NCDOT and FHWA have seriously considered using ferries. None of the options presented by the commenter and/or examined by FHWA and NCDOT meet all three criteria ("high speed," "high capacity," and "shallow draft") as suggested by the commenter.*
>
> *The challenging bathymetry of Pamlico Sound must be addressed in order to implement any ferry service. Vast expanses of shallow water (6 feet or less) extend for several miles west of Hatteras and Bodie islands. These shallow areas dominate most (if not all) of a potential ferry route (approximately 18 miles long) that would connect the southern tip of Bodie Island with the village of Rodanthe on Hatteras Island. The commenter's repeated references to "modern, high-speed, high-capacity, shallow-draft ferries," could be erroneously conflated to mean that little-to-no additional dredging would be required to operate such vessels irrespective of the*

capacity or speed. Such is not the case for either the conventional River Class ferries, which are currently utilized by NCDOT in other areas along the North Carolina coast, or any of the high-speed or high-capacity vessels suggested by the commenter or further researched by FHWA. In addition, the depth of the navigation channel needed to safely operate a ferry also increases with speed because of the increased danger to passengers if a vessel were to run aground at high speeds. Therefore, additional dredging would certainly be necessary, even in the case of "modern, high-speed, high-capacity, shallow-draft ferries."

Dredging and its associated environmental impacts are unique to ferry alternatives, whether high-speed or conventional vessels. The Reconsideration of the Ferry Alternative Report (January 2013) (2013 Ferry Report) was included in the compact disc that accompanied the Phase IIa Environmental Assessment (EA). In that report, NCDOT explains why the dredging requirements of a conventional vessel and the associated environmental impacts (up to 420 acres of sensitive shallow water habitat) are similar to the dredging requirements for "high-speed," "high-capacity," and/or "shallow-draft" vessels like those suggested by the commenter. In short, the magnitude of environmental impacts to shallow water habitat is far greater with a ferry alternative than with any other alternative studied as part of the B-2500 environmental impact assessment process.

In order to initially establish the 18-mile navigation channel from the southern tip of Bodie Island to Rodanthe, approximately 10.8 million cubic yards of sand would be removed from Pamlico Sound. FHWA and NCDOT note that the costs associated with this dredging effort would be substantial. Dredging costs for a navigation channel were not included in the Ferry Report cost estimate, but rather the report only accounted for dredging costs associated with vessel turning basins and approaches at the terminals ($20.3 million over 50 years). The costs associated with establishing and maintaining a navigation channel would be borne by some entity, if not FHWA or NCDOT.

The 2013 Ferry Report and the material in Section 2.3.2.3 of the Phase IIa EA focused in part on issues associated with dredging in direct response to this commenter's prior assertion regarding "scoping" – that the use of "modern" ferry vehicles would cause significantly less environmental harm than a conventional ferry. (Comment 11 on page C-45 of the Phase IIa EA) However, dredging should not be construed as the only reason that "modern" ferry vehicles were eliminated from consideration as a detailed study alternative. The Ferry Alternative's inability to meet the project's purpose and need and high cost does not change with "modern" ferry vehicles.

First, the 2013 Ferry Report indicates that a Ferry Alternative using conventional vessels may not comport with the stated purpose and need of the project, specifically the purpose 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" and the associated need which states, "Although Bonner Bridge is reaching the end of its service life, demand for convenient daily and emergency access across Oregon Inlet is expected to continue." The 2013 Ferry Report notes the diminished convenience to the travelling public if ferries were the only means by which to access Hatteras Island, including:

- *Some motorists would be forced to structure their trips to avoid peak travel times or forego travel between Hatteras Island and Bodie Island altogether.*
- *Provision of emergency and medical services would be negatively affected.*
- *Emergency evacuation times would be increased.*
- *Public services such as waste management would be altered.*

Total travel time (2 hours and 25 minutes, one way) inclusive of load/unload and the time between vessels departing are the primary causes of the inconveniences listed above. These same issues would exist if a high-speed or high-capacity vessel was used. Even if a high-speed vessel is assumed to travel at 40 miles per hour, the trip duration along an 18-mile route from southern Bodie Island to Rodanthe would still be approximately 1 hour and 30 minutes, assuming reasonable loading/unloading times at either end of the route. This is notable when compared with an approximate 20-minute travel time for the same trip on NC 12 and the PBC/TMP Alternative. And unlike ferries, there are no time restrictions on when a trip can be made.

Second, cost studies found that the cost of an expanded ferry service using conventional equipment remains high and there would be no notable economies associated with modern high-speed, high-capacity, shallow-draft ferries. In the 2013 Ferry Report the NCDOT Ferry Division estimated the 50-year cost of an expanded conventional ferry service to be approximately $6.3 billion (Ferry Report page 15 and Appendix D). That estimate was inclusive of costs for 38 River Class vessels, crew, docks, supporting facilities (including a new shipyard), terminal basin dredging, maintenance, and vessel replacement at 30 years. For comparison, the life-cycle cost (through year 2060) of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative (PBC/TMP Alternative) range between $615 million and $1.5 billion dependent on which design options are selected for Phase IIa and future phases of the project. From this information, FHWA and NCDOT concluded that a ferry option using conventional vessels was unreasonably expensive when compared to other available options. A discussion of the NC Ferry Division's year 2012-2013 funding appropriation from the North Carolina General Assembly was included on pages 7 and 8 of the Ferry Report. Assuming the current level of funding remained constant for 50 years, the amount of money allocated to the entire

Ferry Division over a 50-year period would fall far short of the needed $6.3 billion estimated with a Ferry Alternative.

NCDOT used capital, operating, and maintenance costs for its current ferry operations to illustrate the order-of-magnitude cost of expanding the current ferry service to serve 2 million vehicles per year. These are known costs and, as such, provide a reliable order-of-magnitude estimate of the cost of service expansion. The commenter appears to suggest that a ferry system using a "modern" vehicle would offer substantial economies over the cost of an expansion of NCDOT's current service. While the specific unit costs would change based on vessel type, vehicle carrying capacity, fuel consumption, crew requirements, etc., costs would not be reduced with a "modern" ferry option such that it would be financially competitive with the PBC/TMP Alternative.

FHWA and NCDOT researched commercial high-speed, high-capacity, shallow-draft vessels currently or recently operating in the United States. The Lake Express Ferry in Milwaukee carries 46 vehicles at 40 miles per hour at an approximate cost of $118 million per vessel. The Derektor Chenega in Alaska carries 36 vehicles at 37 miles per hour at an approximate cost of $34 million per vessel. The Austal Alakai in Hawaii carried up to 282 vehicles at 40 miles per hour at an approximate cost of $88 million per vessel. Although the Austal Alakai ceased running commercially amidst legal challenges in year 2009, the Austal Alakai carried far more vehicles per trip than the other two vessels and is competitively priced. The reported vehicle carrying capacity of this vessel is 282 subcompact vehicles, but the deck can be re-configured to carry up to 20 large trucks and 90 vehicles.

By way of illustration of potential cost differences between the use of conventional and "modern" vehicles for the Ferry Alternative, if the Austal Alakai-type vessel was selected, assuming an average of 210 vehicles per trip (mixture of subcompacts, other types of cars, and some dual-tired trucks and tractor trailers), NCDOT estimates that a minimum of 4 vessels would be needed to transport 2 million vehicles annually (as opposed to 38 conventional River Class vessels). NCDOT calculates that each one-way trip would take approximately 1.5 hours (30 minutes to load, 30 minutes travel time, and 30 minutes to unload) based on a 40 mph cruising speed and reasonable loading times on each end of the trip. As the crew members of each vessel are limited to 12-hour shifts, NCDOT also presumes that each vessel operates for the same 12-hour shift. The remaining 12 hours per day would be used for routine daily vessel service. Based on these calculations, each ferry vessel would daily make a total of 8 trips at 1.5 hours per trip in a 12-hour operating day.

Taking the assumed average of 210 vehicles per trip, each Austal Alakai vessel could transport 1,680 vehicles per day. If a vessel operated 365 days, it could transport 613,200 vehicles per year. Since the annual travel demand from Bodie Island to Rodanthe has averaged approximately 2 million vehicles per year, a minimum of 4

vessels would be required. The initial cost to purchase 4 Austal Alakai ferries at $88 million per vessel would be $352 million. Consistent with the methodology for estimating the conventional ferry option, the entire fleet would need to be replaced in approximately 30 years at a cost of approximately double the initial cost (or $704 million). The total 50-year cost for the vessels alone is would be approximately $1.1 billion. As indicated in Appendix D of the Ferry Report, with 38 conventional vessels the initial cost would be $456 million combined with a replacement cost of $912 million for a total of $1.4 billion. In the case of vessel cost, there would be a savings of $300 million with the Austal Alakai vessel.

Based on diesel fuel consumption data reported for the Austal Alakai (6,000 gallons for a 120-mile route) by its previous owner (Hawaii Superferry), NCDOT estimates fuel consumption for an approximate 18-mile route between the southern tip of Bodie Island and Rodanthe to be 900 gallons of diesel used for a one-way trip. If each vessel makes 2,920 trips in a year (8 one-way trips per day times 365 days), then a fleet of 4 vessels will make approximately 11,680 one-way trips in a year and will burn 10.5 million gallons of diesel fuel. Assuming that a gallon of diesel fuel costs $3 and 900 gallons of diesel fuel are burned for each one-way trip, it would cost $31.5 million each year to fuel a fleet of 4 vessels. Given the 50-year project lifespan, the fuel cost alone to operate four Austal Alakai vessels would be nearly $1.6 billion and over 500 million gallons of diesel fuel would be used. In comparison, the annual fuel costs of 38 conventional vessels would be $25.0 million or $1.3 billion for 416 million gallons over 50 years. In the case of fuel cost, there would be an additional of $300 million with the Austal Alakai vessel.

Resultantly, the 50-year cost for vessels, vessel replacement at thirty years, and fuel costs for a fleet of four high-speed vessels (approximately $2.6 billion) is comparable to the same costs for a fleet of 38 conventional River Class vessels (also approximately $2.6 billion).

In addition to the vessel and fuel costs noted above, additional expenditures necessary to operate a ferry system from Bodie Island to Rodanthe, include: the 50-year cost of vessel crew, loading dock and ramp construction and maintenance, loading dock crew and maintenance personnel, staff dormitories and operations buildings, shipyard construction and maintenance, vessel maintenance, basin dredging, dredge replacement, and tug replacement.

Therefore, changing the vessel type would not alter the conclusion that a Ferry Alternative would cost far more than the PBC/TMP Alternative and be far greater than the Ferry Division's budget could accommodate.

27. **Comment:** Nowhere in the Ferry Report do NCDOT and FHWA attempt to set forth a standard or determination of the maximum draft of a viable Project vessel. Nor do they attempt to weigh the benefits (vastly higher capacity and speed) of a high-speed

ferry, as compared with a conventional one, against the undefined amount of additional dredging that may or may not be required. Nor do they attempt to compare costs. Instead, they reject out of hand any vessel with a draft that "equal[s] or exceed[s] those for conventional vessels," with no objective standard or justification to support this rejection. In short, the Ferry Report's treatment of high-speed ferries could not be more plainly biased, unreasonable, arbitrary, and capricious.

Moreover, NCDOT and FHWA's refusal to consider high-speed ferries based on their supposed dredging requirements is unfounded. Even a cursory internet search reveals multiple vessels with larger capacities and higher speeds than NCDOT's conventional 38-car River Class ferry, while also featuring drafts comparable to, and even less than, the River Class's current 5.5-foot draft. A few of the many examples include:

- Sea Transport Solutions, Noord Nederland, 4.92-foot draft, 250 metric tons of trucks, 1 16 knots (http://www.seatransport.comlproducts-ferries.php);

- Sea Transport Solutions, "Seascape," 5.2-foot draft, 62 cars, 18 knots (http://www.seatransport.comlproducts-ferries.php);

- Maritime Propulsion, MV Schleswig-Holstein, 5.7-foot draft, 75 cars, 1200 passengers, 12 knots (http://articles.maritimepropulsion.comlarticle/DeliveryOf-New-Shallow-Draft-Ferry-6670.aspx).

These web pages are attached as Attachment 1. NCDOT and FHWA's refusal even to consider, let alone rigorously evaluate, high-speed ferries for the Project fails to answer the concerns raised by previous commenters and does not comply with NEPA.

> ***Response:*** *See response to the commenter's comment 26 above made by the same commenter. The drafts of the vessels listed above combined with the drafts of the alternative vessels listed in the 2013 Ferry Report range from 4.92 to 14.9 feet. A conventional NCDOT River Class vessel has a draft of 4.5 feet – less than any of the alternative vessels suggested by the commenter and/or examined by NCDOT and FHWA. The dredging needed for the 18 mile navigation channel from the south end Bodie Island to Rodanthe would affect 420 acres of Pamlico Sound's floor (see Section 2.2.6.3 of the 2008 FEIS on page 2-24). Such an area of dredging, plus the disposal of dredged material, would have a substantial impact on natural resources. Deeper drafts and higher speeds clearly would require deeper dredging, thereby increasing the environmental impacts resulting from the amount of material that must be removed from the bottom of the sound and disposed of elsewhere. Section 2.2.6.3 of the 2008 FEIS on page 2-25 also noted that 59 acres of wetlands would be affected by the construction of ferry operating facilities on Hatteras and Bodie Islands with*

conventional ferries. High capacity ferries would require a larger queuing area for vehicles waiting to board, thus increasing this impact. The maximum wetland fill impact of the PBC/TMP Alternative was calculated at 50.7 acres for the Road North/Bridge South option. The other options considered ranged from 1.18 acres to 6.7 acres.

While having greater impacts to the environment, no notable benefits were found with high speed, high-capacity ferries from a cost or operational benefit perspective that might make the greater environmental impacts acceptable. FHWA and NCDOT considered the potential feasibility of a ferry system that would use River Class vessels, which are currently used by the NCDOT Ferry Division (additional River Class ferries are currently under construction for NCDOT). Based on these considerations, FHWA, NCDOT, and partner regulatory agencies were able to draw conclusions about the feasibility of ferry service that are applicable to other vessel types – including modern high-speed, high-capacity, shallow-draft ferries. Notably, a change in vessel type does not change the order-of-magnitude of ferry costs. The analysis of a system of conventional vessels determined that: an expanded ferry system would be prohibitively expensive to construct, operate, and maintain over its 50-year life; dredging and sustaining an 18-mile long navigational channel would require significant resources; and the system would provide a lower level of transportation service compared with the PBC/TMP Alternative. These conclusions were documented in Section 2.2.6 of the 2010 FEIS (beginning on page 2-20) and re-affirmed in the 2013 Ferry Report, and the response to the commenter's comment 26.

The three ferry vessels listed in this comment do not alter the analysis of a ferry system and the conclusions of the previous paragraph. None of the vessels listed by the commenter are considered "high speed" vessels (35 mph/30 knots or greater). The cruising speeds of the vessels noted by the commenter fall between the cruising speed of either a conventional River Class vessel or the Austal Alakai vessel described in the response to comment 26 above. In addition, none of the vehicle carrying capacities of the ferries proffered by the commenter exceed that of the Austal Alakai ferry. Like any of the vessels discussed previously for the Ferry Alternative, the use of one of the three vessels identified in this comment would still result in an option that would degrade travel service and be far higher in cost than the PBC/TMP Alternative.

28. **Comment:** Similarly, NCDOT and FHWA purport to reject the suggested option of a public-private partnership or privatization of ferry routes for the Project, but again, they do so based entirely on the cost estimates for NCDOT's conventional 38-car River Class ferries. Our previous comments suggested private partners specifically to facilitate the use of high-speed ferries. Because the cost of such vessels for the Project still has not been evaluated by NCDOT, the purported rejection of the private partnership option fails to satisfy our concerns and earlier comments.

Response: *In response to comment 26 above, NCDOT explained why an expanded ferry system using "modern" ferries would not be substantially less costly than one using conventional ferries. Given this finding, the operator of the ferry service matters not. Similar costs associated with the operation of the service must be borne by the state and/or a private entity, and comparable environmental impacts would still occur. A public-private partnership or the complete privatization of ferries for this project could transfer some of the financial obligations and risks associated with starting and operating a ferry system to an entity other than NCDOT and FHWA. As explained in the Phase IIa EA (Section 2.3.25 on page 2-11), "it is not reasonable to presume that a private ferry system could provide the needed capacity to service the communities on Hatteras Island without encountering the environmental and economic challenges (e.g., extensive dredging and extraordinarily high costs) that also would be attributable to a publicly-funded Ferry Alternative. If private operators provided a ferry system, they would expect to make a profit. If they could not, the ferry service would need to be subsidized by the State of North Carolina. To meet the 50-year cost of transporting 2 million vehicles per year via ferry (i.e., $6.3 billion), and without factoring in any profit margin, the average one-way ferry trip would cost approximately $63 per vehicle (or $126 round-trip). In comparison, the highest price currently charged by NCDOT for a passenger vehicle is $15 one-way (or $30 round-trip)."*

Based on the analysis and findings presented in Section 2.2.6 of the 2008 FEIS (beginning on page 2-21), Section 2.3.2 of the Phase IIa EA (beginning on page 2-6), the 2013 Ferry Report, and the above responses, FHWA and NCDOT have concluded that the Ferry Alternative— whether using either conventional vessels or high-speed, high-capacity, and/or shallow-draft vessels—is not a reasonable alternative and does not warrant further study. Based on the analysis done to date, there is no reason to believe that additional, more detailed study of the Ferry Alternative would yield a different conclusion. The analysis of the Ferry Alternative completed by FHWA and NCDOT, including the consideration of comments made by resource agencies, the public, this commenter, and others, meets the requirements of NEPA.

III. A Revised Section 4(f) Evaluation Is Required.

A. Section 4(f) Applies to the Pea Island National Wildlife Refuge.

29. **Comment:** Under Section 4(f), FHWA is prohibited from approving "any program or project" that requires the use of any public parkland, unless "(1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use." 49 U.S.C. § 303(c) (emphasis added). "Use" within the meaning of Section 4(f) includes uses that result in the actual incorporation of land into a transportation facility, as well as

constructive uses that create proximity impacts causing substantial impairment to a resource. See 23 C.F.R. § 774.17, 774.15. The regulations implementing Section 4(f) clarify that FHWA "may approve only the alternative that ... [c]auses the least overall harm" to the property. 23 C.F.R.§ 774.3(c)(1). Accordingly, under Section 4(f), FHWA must first select an alternative that avoids using Section 4(f) lands altogether, and, only if no "prudent and feasible avoidance alternative" is available, FHWA must select the alternative that causes the "least overall harm" and also take steps to "minimize harm."

Rather than complying with these requirements, NCDOT and FHWA have assumed erroneously that the "joint planning" exception to Section 4(f), 23 C.F.R. § 774.11(i), exempted them from considering or minimizing any harm to the Refuge "as a refuge" and have considered only far lesser impacts to the Refuge "as an historic property." EA at 5-4.

This analysis is incorrect. The "joint planning" exception does not apply to the Refuge because the Refuge was not "formally reserved for a future transportation facility before or at the same time a park, recreation area, or wildlife and waterfowl refuge [was] established and concurrent or joint planning or development of the transportation facility and the Section 4(f) resource occur[red]." 23 C.F.R. § 774.11(i) (emphasis added). The Refuge was created in 1938, and the easement for NC 12 was not granted until 1954. No transportation facility was formally reserved when the Refuge was created. Indeed, all of the land condemned by the U.S. Government for the Refuge was taken from private landowners; it was never in the hands of the state of North Carolina, so no transportation facility could have been reserved when the Refuge was created. Moreover, the entire northern portion of the Refuge was explicitly taken free of any and all easements or other encumbrances of any kind, as the Judgments of Condemnation in FHWA and NCDOT's files clearly indicate.

Accordingly, the Department of Interior ("DOI") has stated definitively that the "joint planning" exception does not apply to the Refuge. DOI concluded that "there is *no support* for FHWA's ultimate conclusion that the State and the United States engaged in joint transportation and Refuge planning." Letter from Horace G. Clark, Regional Director, Office of the Solicitor to Cynthia K. Dohner, Regional Director, Fish and Wildlife Service (Apr. 9, 2010), at 5 (Attachment 2) (emphasis added).

In sum, the proposed bridge, like the rest of the Project in the Refuge, is subject to the requirements of Section 4(f), and the EA does not satisfy those requirements.

> ***Response:*** *FHWA disagrees with commenter's contention that Section 4(f) the joint planning exemption does not apply to the Refuge. As stated on page B-13 of the Revised Final Section 4(f) Evaluation (Appendix B of the 2010 EA): "In 1938, the US Secretary of Agriculture acquired the land for the Refuge through condemnation*

actions. These acquisitions did not include existing public highways and public utility easements across the island. By this time, the North Carolina State Highway and Public Works Commission (in conjunction with the Federal Works Agency Public Roads Commission) published a map of Dare County which depicts an 'unimproved road' extending from Bodie Island to Rodanthe and points further south." The April 9, 2010 letter referenced by the commenter was an internal letter between USFWS's Office of the Solicitor and a USFWS Regional Director. It was never sent to NCDOT and FHWA. However, the US Department of Transportation is solely responsible for administering the requirements of Section 4(f) and it stands by the conclusion of the Revised Section 4(f) Evaluation: that joint planning does apply to the Refuge.

B. The Proposed In-Easement Bridge Would Use the Refuge.

30. **Comment:** As discussed above, DOI has concluded that maintenance for the proposed in-easement bridging would not be confined to the easement, would use the Refuge, and would be incompatible with its mission and purpose. In addition to the actual use of the Refuge for maintenance, the proposed bridge would constructively use Refuge property as well. "A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired." 23 C.F.R. § 774.15(a). The physical impacts of the proposed bridge on the Refuge "as a refuge" would impair the "protected activities, features, or attributes that qualify the property for protection" far more substantially than the visual intrusion on the Refuge "as a historic property" that FHWA and NCDOT do acknowledge.

Response: *Substantial impairment occurs when the protected activities, features, or attributes of the Section 4(f) property are substantially diminished. As a general matter, this means that the value of the resource, in terms of its Section 4(f) purpose and significance, will be meaningfully reduced or lost. The purpose of Pea Island National Wildlife Refuge is to protect and conserve migratory birds and other wildlife resources through the protection of wetlands, in accordance with the following: "...as a refuge and breeding ground for migratory waterfowl and other wildlife…" (Executive Order 7864, August 8, 1938) Refuge objectives are:*

- *Provide nesting, resting, and wintering habitat for migratory birds, including the greater snow geese and other migratory waterfowl, shorebirds, wading birds, raptors, and neotropical migrants.*
- *Provide habitat and protection for endangered and threatened species.*

– *Provide opportunities for public enjoyment of wildlife and wildlands resources. Public use programs focus on interpretation, environmental education, wildlife observation, wildlife photography, and fishing.*

As documented in the 2008 FEIS and Phase IIa EA, Phase IIa and the full PBC/TMP Alternative will have effects on refuge habitat, protected species, and opportunities for public use. However, FHWA does not believe that the proximity effects of Phase IIa and the PBC/TMP Alternative reach a level to which the ability of the Refuge to meet its purpose and objectives (as stated above) is substantially impaired.

While the Revised Section 4(f) Evaluation concluded that the joint planning exemption to the requirements of Section 4(f) applies to the Refuge, and while FHWA does not believe the Refuge impacts of Phase IIa or the full PBC/TMP Alternative will result in substantial impairment to the Refuge as a refuge, FHWA did conclude in the Revised Section 4(f) Evaluation that Section 4(f) requirements do apply to the Refuge as a historic resource. Further, FHWA concluded that Phase IIa of the PBC/TMP Alternative would constitute a constructive use of the Refuge as a historic resource. For this reason, Section 4(f) requirements related to avoidance alternatives, least overall harm, and all possible planning to minimize harm were applied to the Refuge in the Phase IIa EA. The Revised Section 4(f) Evaluation also concluded (on page B-19 of the 2010 EA) that any component of the PBC/TMP Alternative would involve a use or constructive use of the Refuge as an historic resource. Section 4(f) requirements related to avoidance alternatives, least overall harm, and all possible planning to minimize harm thus also were applied to the Refuge in the Revised Section 4(f) Evaluation. The 2010 ROD concluded that there is no feasible and prudent alternative to the use of land from the Refuge, that the PBC/TMP Alternative would cause the least harm, and that the PBC/TMP Alternative includes all possible planning to minimize harm to the Refuge. NCDOT and FHWA have and will continue to work with the Refuge and other environmental resource and regulatory agencies to avoid, minimize, and mitigate impacts to the Refuge, its operations, and its habitat as each phase of the PBC/TMP Alternative is developed and implemented. Therefore, the outcome for the assessment and mitigation of impacts in the Refuge for Phase IIa and the full PBC/TMP Alternative is expected to be the same whether the Refuge is considered a Section 4(f) resource as both a refuge and a historic resource or only as a historic resource.

31. **Comment:** The significant adverse impacts discussed in Part I above would substantially impair the Refuge as a habitat for migratory waterfowl and other wildlife. The elevated roadway would soon be located on the beach, in the surf, and eventually in the Atlantic Ocean as the island migrates westward. Thus, the bridge would negatively affect Refuge geology and habitat by increasing erosion, interfering with longshore sediment transport, causing scour, and affecting inlet formation. Lights and traffic noise on the beach would further impair nesting habitat. And continual maintenance, which would not be confined to the easement,

would constitute an additional impairment to the refuge. As discussed above, these effects of a long ocean-side bridge running parallel to the shore have not been adequately studied and may be much more significant than revealed in the FEIS.

> ***Response:*** *The coastal and habitat impacts listed by the commenter are addressed in the 2008 FEIS and the Phase IIa EA. NCDOT and FHWA do not agree that these impacts taken together are severe enough that the Refuge would be substantially impaired as defined under Section 4(f) by Phase IIa or the full PBC/TMP Alternative. With regards to the commenter's concerns as to the nature and severity of impacts related to beach erosion, sediment transport, scour, and inlet formation, see the responses to the commenter's comments 14 to 16 above. Also see the response to the commenter's scoping comment 7 regarding "Bridge in the Surf as a Constructive Use of the Refuge" on page C-33 of the Phase IIa EA. The effect of traffic noise is addressed in Section 4.7.6.6 of the 2008 FEIS beginning on page 4-111. With regards to continual maintenance outside the easement, see the response the commenter's comment 17 above regarding interim maintenance of existing NC 12 expected until all of the phases of the PBC/TMP Alternative have been implemented, as well as the commenter's scoping comment 7 regarding "Temporary NC 12 Maintenance and Minimizing Impacts to the Refuge" beginning on page C-34 of the Phase IIa EA. Regarding long-term project maintenance, such as with the Phase IIa Selected Alternative (which could ultimately be on the beach and then in the surf zone), see the response to the commenter's scoping 7 related to "Maintenance of Bridge in the Surf Zone" on page C-38 of the Phase IIa EA. NCDOT and FHWA disagree that the effects of a long ocean-side bridge running parallel to the shore have not been adequately studied.*

32. **Comment:** The Refuge Act specifically mandates that a compatibility determination consider the direct, indirect, and cumulative impacts on Refuge land and any adjacent land or waters that affect the Refuge use. It is clear that the elevated roadway option would have adverse impacts on the Refuge, and it is therefore subject to a compatibility determination. For the reasons already discussed, FWS cannot approve the proposed activity because it is incompatible with the mission and purpose of the Refuge.

> ***Response:*** *See the response to the commenter's comment 5 above regarding compatibility determinations.*

C. The Alternatives Analysis Fails to Satisfy the Requirements of Section 4(f).

33. **Comment**: NCDOT and FHWA claim the Pamlico Sound Alternative, which avoids the Refuge entirely, is not "prudent" within the meaning of Section 4(f) solely because of its estimated construction cost and the claimed inability to fund that up-front cost. EA at 5-10. But under Section 4(f), an alternative that avoids Section 4(f) property, such as the Pamlico Sound Alternative, may be rejected as imprudent due

to cost only if it "results in additional construction, maintenance, or operational costs of an extraordinary magnitude." 23 C.F.R. § 774.17 (emphasis added).

As we have previously explained, NCDOT and FHWA's analysis of the cost and funding of the Pamlico Sound Alternative fails to satisfy that standard. NCDOT and FHWA rejected TIFIA-based toll funding for the Pamlico Sound Alternative — even though it would have allowed this alternative to be funded — on the ground that the tolls would be "relatively high," and they chose not to pursue any gap funding or additional STIP funding to supplement such tolls based solely on their own preferences. The far greater STIP allocation for the Project now means that any tolls could be significantly lower than previously calculated, and comparable to other tolls being considered for other project by NCDOT, but NCDOT and FHWA have not revised their analysis of TIFIA toll funding or the availability of gap funds. The cost of the Pamlico Sound Alternative is now estimated to be perhaps as little as $569 million. But even using NCDOT and FHWA's dubiously higher, revised version of their updated estimates, this alternative could still result in a savings, compared to the Selected Alternative, of $628 million.

In sum, NCDOT and FHWA unreasonably rejected funding options that would have allowed them to construct the Pamlico Sound Alternative, and they have failed to update their analyses to reflect the lower cost estimates and greater available funds that now make this alternative even easier to finance. Accordingly, NCDOT and FHWA have failed to satisfy the requirements of Section 4(f), and must prepare a Revised 4(f) analysis to correct this error.

> ***Response:*** *FHWA re-evaluated TIFIA-based toll funding with the updated costs and updated TIFIA interest rates utilizing the same methodology as used in the previous evaluation. The lower estimated low and high cost respectively, along with lower interest rates would result in lower toll rates, but they remain relatively high (ranging from $10.15 to $11.75). Even with the high toll rates and an additional $81 million programmed (currently $476 million compared to $395 million in 2009) in State Transportation Improvement Program, there is over $200 million of gap funding needed to fund the Pamlico Sound Bridge Alternative.*

D. The Temporary Construction Easement Would Use the Refuge.

34. **Comment:** The 3.84-acre temporary construction easement sought by NCDOT and FHWA fails to satisfy the requirements of 23 C.F.R. § 774.13(d) and thus constitutes a use of the Refuge. First, the duration of the easement is not "less than the time needed for construction of the project" Instead, it is the full 3.5-year construction period, as NCDOT and FHWA admit. EA at 5-6. Contrary to those claims, it is immaterial whether their construction vehicles would be present on all portions of the easement land for the entire duration; the key fact is that they would have the right to use the land in the form of an easement or authorization via Special Use

Permit. Thus, the use in question would last the entire duration of the construction project.

There is no question that the requested construction easement would cause "interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis." Id. § 774. 13(d)(3) (emphasis added). Turning this section of the Refuge into a construction zone for 3.5 years in order to construct over two miles of a massive, 23- to 32- foot-high bridge, EA at 1-16, would interfere with the habitat conservation activities that are the purpose of the Refuge, with its features, and with its attributes as a wildlife habitat. There is also no basis for the claim that the construction would have no effect on the refuge as an historic property. See EA at 5-9. Moreover, the construction is also likely to cause "adverse physical impacts" to fragile habitat that may not be able to be fully restored ((d)(4)) and thus would be permanently affected ((d)(3)). Finally, NCDOT and FHWA have failed to establish that the construction activity in the easement would be "minor" ((d)(2)), given the scale of the proposed bridge and duration of the construction project.

For all these reasons, the Refuge Manager's agreement with the claims regarding this temporary construction easement was not justified and the authorization should not issue without a compatibility determination.

> ***Response:*** *FHWA and NCDOT formally requested agreement on the temporary occupancy determination in accordance with 23 CFR 774.13(d). USFWS and SHPO agreed with this conclusion, including the additional 0.26 acre (total now 4.10 acres) associated with the boat ramp access road agreed to with the USFWS as mitigation.*

E. Re-Initiation of Consultation Is Required Under the Endangered Species Act.

35. **Comment:** Section 7(a)(2) of the Endangered Species Act ("ESA") imposes a substantive duty on each federal agency to "insure that any action authorized, funded or carried out by [an] agency is not likely to jeopardize the continued existence" of listed species. 16 U.S.C. § 1536(a)(2). Pea Island National Wildlife Refuge is home to a number of listed species, including the threatened piping plover and three species of sea turtle. An agency action will "jeopardize" a species if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02. This substantive requirement is an absolute prohibition on any action that would jeopardize a protected species' survival. See, e.g., Sierra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987).

The consultation requirement is triggered whenever an agency proposes to undertake an activity that "may affect" a listed species. 16 U.S.C. 1536(a)(2); 50 C.F.R.

§ 402.14(g). In evaluating the "effects of the action," FWS must consider the "direct and indirect effects of an action ... that will be added to the environmental baseline." 50 C.F.R. § 402.02. The environmental baseline includes "the past and present activities of all federal ... actions in the action area." Id. Finally, the biological opinion must contain "detailed discussion of the effects of the action on the listed species." 50 C.F.R. § 402.14(h)(2).

Re-initiation of formal consultation is required in the following circumstances:

(a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

50 C.F .R. § 402.16. Although FWS has prepared a Biological Opinion for Phase I - the actual replacement of the Bonner Bridge - it has not completed consultation for the proposed bridge and other additional phases of the project. FEIS at E-32. As a result, FHWA and NCDOT do not possess incidental take coverage for these new phases of the project. FWS has stated that it will update its analysis of the Project's effects through a process of appended programmatic consultation. Id. As each phase of the Project is developed, NCDOT and FHWA must reinitiate consultation.

Thus, FWS has not fully evaluated the impacts of the proposed bridge and additional phases of the Project because originally some of these phases were not scheduled to be reviewed and completed until 2020 or later. Specifically, FWS has not adequately considered the impacts of concurrent construction on nesting wildlife. FWS has not adequately evaluated the possibility of an increase in take of nesting wildlife and their critical habitat due to greater effects of the proposed bridge on beach habitat, over a greater portion of the life of the Project, than were previously assumed. Other effects include shading of the beach from the elevated roadway and increased traffic noise and lights from the lower bridge height. Nor has the agency reviewed the likely possibility that take could occur in the water when the road would be in the surf zone due to continued erosion and migration of the beach.

Because the proposed "Phase II" bridges may increase the amount or extent of taking of species and the modified projects may affect species in a manner and to a degree not previously considered, NCDOT and FHWA must re-initiate or complete consultation with FWS. At a minimum, FWS will need to re-evaluate its jeopardy

conclusions and expand the incidental take statement to cover these additional actions.

Further, when FHWA does re-initiate consultation, we are concerned it will attempt to discount or ignore the effects of the proposed bridge on protected species. For example, the EA claims the potential effects on sea turtles would be "discountable and/or insignificant," based only on discussion of construction impacts for the Phase I bridge and potential foraging under that bridge. The EA thus ignores the most obvious impact of the proposed bridge: when the pilings are located on the beach, they will adversely impact sea turtle nesting habitat, as will the vehicle lights and traffic noise from a highway running 23 to 32 feet above the beach for miles. The Phase I bridge, if built, would be protected by Terminal Groin from erosion. The proposed bridge, by contrast, would soon be located in beach nesting habitat for these turtles, and this would occur far sooner than previously estimated and for a greater portion of the life of the Project, commencing years earlier than earlier projections. Thus, there is no basis for the statement in the EA that the effects of the proposed bridge would be "similar to or less than the effects ... as a result of Phase I." EA at 4-22.

The same is true for piping plover nesting habitat on the beach. NCDOT and FHWA's 2008 Biological Assessment ("BA") assumed plovers would not nest or forage in the area of the proposed bridge because there was no inlet at the time, BA at 20-21, but since the inlet formed in 2011, the area around the new inlet now has all the features of critical habitat for the piping plover. EA at 4-13. In addition, the proposed bridge would be located on the beach sooner, and for more miles, than the BA assumed. BA at 20-21. It also would not be as high as previously contemplated, bringing highway traffic noise and lights closer to the nesting and foraging habitat. Thus, the impacts of the proposed bridge would be significantly greater than assumed in the 2008 analysis, and these new circumstances and information - which were not considered previously - require a re-initiation of consultation with FWS.

Finally, FWS's 2008 Biological Opinion requires NCDOT to implement a number of "nondiscretionary" measures, EA at 6-14, that are listed at the front of the EA. Among these, item 25(b) requires that in order to protect piping plover habitat, NCDOT must "keep all construction equipment and activity within the existing right-of-way." EA at vi. However, NCDOT and FHWA now seek a 3.5 year construction easement outside the NC 12 right-of-way, totaling 3.84 acres. This is a plain violation of this condition of the Biological Opinion.

> ***Response:*** *Consultation was re-initiated and completed under Section 7 of the Endangered Species Act. The outcomes are documented in the Project Commitment (Appendix A) and Section 3.6.2 of this ROD, including revisions to the conditions of the USFWS Biological Opinion.*

The impact of bridge piles on the beach and in the ocean was addressed in FHWA and NCDOT's 2008 Biological Assessment in Section 7.7.2 beginning on page 38. These impacts also are summarized in Section 4.7.9 of the 2008 FEIS beginning on page 4-122. The 2013 Threatened and Endangered Species Technical Memorandum prepared for Phase IIa affirmed these findings. Both these documents were provided by FHWA to USFWS and NMFS for use. The statement "discountable and/ or insignificant" was made by the NMFS in 2008 as indicated in the Phase IIa EA. The Phase IIa EA states that the impacts to turtles that might pass through Pea Island inlet would be similar to or less than the impacts at Oregon Inlet. The introduction of Pea Island inlet was the only change in the setting since the 2008 FEIS and that is the focus of this statement. The EA goes on to say that "Therefore, the biological conclusions for the protected species addressed in the 2008 BA also are assumed to remain unchanged as a result of the Phase IIa Preferred Alternative." Those conclusions, as indicated above, did take into consideration the impact of piles in the ocean and on the beach. Impacts to piping plover at Pea Island inlet are addressed in the Phase IIa EA on page 4-22.

The USFWS modified its Biological Opinion during the re-initiation of formal consultation to allow for temporary easement with Phase IIa. See their letter in Appendix D of this ROD.

Conclusion

36. **Comment:** The damage to NC 12 wrought by Hurricanes Irene and Sandy and the resulting lengthy road closures on Hatteras Island, during which access to the island over the current Bonner Bridge was disrupted for nearly two months after each hurricane, have shown the folly of attempting to "phase" the planning of a highway route through the Refuge in an orderly manner over decades. Instead, short-term emergencies, which were nevertheless entirely predictable, have driven short-sighted decision-making, and will continue to do so. Because NCDOT and FHWA do not have alternate plans that are compatible with the Refuge, they have begun proposing what will most likely be a series of permanent bridges over the "hot spots" along NC 12. However, the island supporting these bridges will soon erode, and the bridges would be left in the ocean, in some cases within a few years. This would be a disaster for the environment, tourism, safety, and hurricane evacuation. The solution is not to persist in trying to maintain the existing easement and build a doomed and vulnerable bridge, but rather to move the transportation corridor out of the Refuge and away from the rapid and inevitable shoreline movement that will always threaten the road.

    Accordingly, NCDOT, FHWA, and the rest of the Merger Team should re-evaluate their plans for the Project. However, NCDOT and FHWA have refused to give the Merger Team and the public the information they need to analyze the alternatives

meaningfully. Construction costs have dropped dramatically, but the EA claims this trend somehow does not apply to the Pamlico Sound Alternative. NCDOT has secured hundreds of millions more dollars in funding for its current plan, but has refused to update its funding calculations for other alternatives to reflect this new information. And NCDOT and FHWA prepared a ferry study that once again claims to evaluate high-speed ferries but in fact refuses to do so, with no objective standard or adequate justification.

NCDOT and FHWA must prepare SEIS and revised Section 4(f) Evaluation to address the significant new information and changes related to the Project area and the available funding for the Project, as well as to address the Project impacts that were not adequately evaluated in previous NEPA documents. They must abandon their persistent refusal to apply Section 4(f) properly to the significant impacts of the Project in the Refuge. And most importantly, they must disclose their plans for the Project as a whole so they can be evaluated by the Merger Team, governmental decision-makers, and the public.

> ***Response:*** *NCDOT and FHWA disagree with the commenter's conclusion presented in the first paragraph of this comment and the reasons presented for that conclusion. Further, NCDOT has provided the information the public and the Merger Team need to meaningfully analyze alternatives. FHWA, USACE, NCDOT, and the rest of the Merger Team have determined that the Pamlico Sound Bridge Alternative is not practicable. The Merger Team decided to move forward with the Bridge within the NC 12 Alternative for Phase IIa.*
>
> *Cost items considered in developing new Pamlico Sound Bridge Corridor cost estimates are described in Section 2.6.1 of the Phase IIa EA beginning on page 2-20, in the 2012 Cost Report, and in responses to the commenter's comments 20 to 25 above. Funds forecast for the 2014 to 2020 STIP cycle were considered in the funding discussion presented in Section 2.6.1.3 of the Phase IIa EA beginning on page 2-27.*
>
> *Based on the analysis and findings presented in Section 2.2.6 of the 2008 FEIS (beginning on page 2-21), Section 2.3.2 of the Phase IIa EA (beginning on page 2-6), the 2013 Ferry Report, and the above responses, FHWA and NCDOT have concluded that the Ferry Alternative— whether using either conventional vessels or high-speed, high-capacity, and/or shallow-draft vessels—is not a reasonable alternative and does not warrant further study. Based on the analysis done to date, there is no reason to believe that additional, more detailed study of high-speed ferries would yield a different conclusion.*
>
> *As indicated in Section 11 of this ROD, FHWA has determined that the modifications and changes assessed in the Phase IIa EA do not result in any new,*

significant impacts not previously identified; therefore, an SFEIS is not required. FHWA also has determined from the perspective of Section 4(f) that there is no feasible and prudent alternative to the use of land from the Pea Island National Wildlife Refuge for the construction of Phase IIa, that the Phase IIa Selected Alternative would cause the least overall harm as a part of the PBC/TMP Alternative, and that the Phase IIa Selected Alternative includes all possible planning to minimize harm to the property. A revised Section 4(f) Evaluation is not needed. NCDOT's plans for the project as a whole were disclosed in the 2010 ROD, in Section 3.3 (beginning on page 10).

Appendix D

NEPA/404 Concurrence Forms, Merger Team Meeting Minutes, and Agency Correspondence

D. NEPA/404 Concurrence Forms, Merger Team Meeting Minutes, and Agency Correspondence

JANUARY 30, 2013 NEPA/SECTION 404 MERGER TEAM MEETING..... D-2

Meeting Minutes D-2

Section 404/NEPA Merger Team Agreement Concurrence Point No. 4a: Avoidance and Minimization D-10

NEPA/Section 404 Merger Process Abstention Brief – US Environmental Protection Agency D-12

Slide Presentation..... D-14

US FISH AND WILDLIFE SERVICE REVISED BIOLOGICAL OPINION D-16

NATIONAL MARINE FISHERIES SERVICE'S SECTION 7 CONSULTATION LETTER D-18

To: January 30, 2013 Bonner Bridge Merger Team Meeting Attendees

From: John Page, Parsons Brinckerhoff

Date: May 2, 2013

Subject: Meeting Minutes – January 30, 2013 NEPA/Section 404 Merger Team Meeting for Phase IIa of the Bonner Bridge – NC 12 Transportation Management Plan (TIP No. B-2500A)

Attendees:

Gary Jordan	USFWS – Raleigh Field Office
Dennis Stewart	USFWS – Pea Island National Wildlife Refuge
Bill Biddlecome	US Army Corps of Engineers
Scott McLendon	US Army Corps of Engineers
Chris Militscher	US Environmental Protection Agency *(by phone)*
Pace Wilber	National Marine Fisheries Service *(by phone)*
Thayer Broili	National Park Service *(by phone)*
Ron Lucas	FHWA – NC Division
Cathy Brittingham	NCDENR – DCM
Doug Huggett	NCDENR – DCM
Paul Williams	NCDENR – DCM
Kevin Hart	NCDENR – DMF *(by phone)*
David Wainwright	NCDENR – DWQ
Amy Chapman	NCDENR – DWQ
Amy Simes	NCDENR
Travis Wilson	NC Wildlife Resources Commission
Renee Gledhill-Earley	NCDCR – SHPO
Steve Lambert	Albemarle Rural Planning Organization
Jamie Shern	NCDOT
Greg Thorpe	NCDOT – PDEA
Beth Smyre	NCDOT – PDEA
Rob Hanson	NCDOT – PDEA
Brian Yamamoto	NCDOT – PDEA
Matthew Potter	NCDOT – PDEA
LeiLani Paugh	NCDOT – Natural Environment Section
Phil Harris	NCDOT – Natural Environment Section
Kathy Herring	NCDOT – Natural Environment Section
Chris Rivenbark	NCDOT – Natural Environment Section
Michael Turchy	NCDOT – Natural Environment Section
Morgan Weatherford	NCDOT – Natural Environment Section
Elizabeth Lusk	NCDOT – Natural Environment Section
Mark Staley	NCDOT – Roadside Environmental Unit
Kerry Morrow	NCDOT – Transportation Planning Branch
Kevin Fischer	NCDOT – Structures Management Unit
Michael Valiquette	NCDOT – Geotechnical Engineering Unit
Bill Zerman	NCDOT – Hydraulics Unit

Marshall Clawson	NCDOT – Hydraulics Unit
Glenn Mumford	NCDOT – Roadway Design Unit
Gary Lovering	NCDOT – Roadway Design Unit
Hardee Cox	NCDOT – STIP Unit
Bob Capehart	NCDOT – Division 1
Clay Willis	NCDOT – Division 1
Pablo Hernandez	NCDOT – Division 1 *(by phone)*
John Page	Parsons Brinckerhoff
Bobby Norburn	Parsons Brinckerhoff

Meeting Purposes

The purposes of the meeting were to:

1. Finalize concurrence on CP 4A (Avoidance and Minimization) for the Phase IIa Pea Island inlet site (B-2500A).
2. Discuss CP 4B (30% Hydraulic Review) for the Phase IIa Pea Island inlet site (B-2500A).
3. Discuss CP 4C (Permit Drawings Review) for the Phase IIa Pea Island inlet site (B-2500A).

Decisions and Action Items

Based on discussions at the meeting, there were several revisions made to the Avoidance and Minimization measures included on the draft CP 4A form that was distributed prior to the meeting, as well as one new measure added, as follows (revised text is shown in bold italics):

- Jetting spoils shall be contained within the existing NC 12 easement ***(outside of existing wetlands)*** during the jetting operation, then, ***if determined suitable,*** deposited within the Pea Island National Wildlife Refuge at the direction of Refuge staff.
- The existing Refuge parking lot on the east side of NC 12 and the New Inlet boat ramp/ parking area on west side of NC 12 will be used as staging areas during construction. Once construction is complete, NCDOT will remove all pavement and ***remove or relocate*** any facilities associated with these areas (signs, kiosks, etc.) per the direction of USFWS-Pea Island National Wildlife Refuge staff.
- ***NCDOT will work with the NC Division of Marine Fisheries and the National Marine Fisheries Service to determine the appropriate screening measures, if any, that are needed on the intake pipes associated with the jetting operation.***

Based on the revised CP 4A form, there were several other decisions made at the meeting, as follows:

1. The following agencies concurred on CP 4A for the Pea Island inlet and signed the form: USACE, NCDOT, NCDENR-DWQ, NCWRC, SHPO, FHWA, NCDENR-DMF, NCDENR-DCM, and Albemarle RPO (see attached).
2. The following agencies indicated that they likely would be able to concur on CP 4A for the Pea Island inlet once they had additional internal discussions and once their additional

concerns (as discussed below in the meeting highlights) were addressed: USFWS-Raleigh, USFWS-Refuge, NMFS, and NPS. *On February 6, 2013, USFWS-Raleigh agreed that its Section 7 issue of concern was resolved and it signed the concurrence form. USFWS-Refuge, NMFS, and NPS also signed the concurrence form subsequent to the meeting (see attached)*.

3. USEPA abstained on CP 4A for the Pea Island inlet. *USEPA provided its abstention form subsequent to the meeting (see attached)*.

The following Action Item was agreed upon at the meeting:

1. During the permitting process, NCDOT, NMFS, and NCDENR-DMF will look more closely at the issue of water velocity at various distances from the jetting intake pipe and whether measures needed to be implemented to minimize adverse impacts to larval fish.

Meeting Highlights Related to CP 4A

The sections below summarize the meeting discussion topics (a copy of the slide show used at the meeting is attached):

NCDOT-PDEA distributed an updated version of the draft CP 4A agreement form that was given to the Merger Team meeting attendees at the November 14, 2012 Merger Team meeting. NCDOT-PDEA said that one new commitment had been added to the draft form (i.e., the last bullet related to use of Refuge facilities as staging areas), but that further revisions could be made based on agency feedback received during the meeting. NCDOT-PDEA listed the following topics to be discussed at the meeting related to CP 4A: wetland impacts, temporary construction easements (TCE); temporary bridge removal, pile jetting soil disposal, pile jetting water source, and stormwater collection.

NCDOT-PDEA summarized the issues to be discussed with respect to TCE. Based on the proposed final design, the TCE has increased from approximately 2.5 acres to 3.84 acres on both sides of the existing NC 12 easement. Part of the increase was as a result of adding a temporary easement for a third jetting water intake location. NCDOT-PDEA said that it coordinated with USFWS-Refuge on where the jetting water sources should be located. The TCE also includes the use of the existing Refuge parking lot on the east side of NC 12 and the New Inlet boat ramp as construction staging areas, and that a sixth commitment was added to the CP 4A agreement form addressing the use of these areas as staging areas, as well as the disposition of these areas after construction is complete. The commitment on the form indicates that once construction is complete, NCDOT will remove all pavement from these areas, as well as remove any associated facilities (e.g., signs, kiosks, etc.) per the direction of USFWS-Refuge.

USFWS-Refuge asked if it will still be able to use the small storage building located near the intake for the third jetting water source during construction. NCDOT-PDEA responded that USFWS would be able to use this building during construction.

NCDOT-PDEA reviewed the three sites for pile jetting water intakes: one at Pea Island inlet (within the existing easement) and two in the Pamlico Sound. NCDOT-PDEA discussed that NCDENR-DMF brought-up the issue of intake pipe screens to reduce larval fish impacts at the last Merger Meeting in November 2012. The proposed screen has 0.5-inch openings, but NCDENR-DMF wanted the screen to have one millimeter openings, which NCDOT has some concerns about. NCDENR-DMF said that it needed to know more information about how much water will be used during jetting operations, as well as the velocities involved, in order to better understand the potential impacts to larval fish; it had asked for this information after the last meeting but had not received a response yet. NCDOT-Division 1 responded that approximately 2,000 to 3,000 gallons per minute would be needed. In addition, in response to NCDENR-DMF's concern about the duration of the jetting activities, NCDOT-Division 1 said that it would not be a continuous (i.e., 24 hour per day/7 days per week) operation for the entire duration of construction activities, but rather the duration of the jetting operations could vary from one hour, to 4 or 5 hours, per pile for each of the approximately 900 piles that are included in the design of the proposed Phase IIa bridge. NCDOT-Division 1 added that the pile jetting equipment would be set-up in one area for each bridge bent until all of the piles for that bent are installed, and then the equipment would be taken down and moved to the location for the next bridge bent. NCDOT-SMU added that it was not sure if it would be possible to contain and re-use the water being used for pile jetting. NCDENR-DMF said that its questions with respect to the jetting operations had been answered, but asked NMFS about larval fish use of the inlet. NMFS responded that it did not know the extent of larval fish use, if any, of the inlet.

NCDENR-DCM asked if the jetting water intake locations are shown on the Permit Drawings that NCDOT provided to the agencies prior to today's meeting. NCDOT-PDEA responded that the jetting water intake locations are shown on the drawings. In response to a question from NCDENR-DCM, NCDOT-RDU said that excavation will likely not be needed to install the jetting water intakes because the intakes will be set-up in water that is approximately 4 to 5 feet deep. USFWS-Raleigh Field Office asked if portable light plants would be needed at the water's edge at the jetting water intake sites. NCDOT-Division 1 responded that portable light plants would not be used because NCDOT does not want to have to situate and use such equipment in the relatively tight spaces that it will have available to work in at the water's edge. If night-time construction is necessary, NCDOT will use flashlights or portable lights at the jetting water intake locations. NCDOT-Division 1 added that water at least 4 feet deep is optimal for installing the jetting water intakes because then the jetting operations are not as likely to be impacted by wind-caused tidal influences, which can sometimes cause the water to be blown almost completely out of shallower areas for days. For example, having a minimum depth of 4 feet allows operations to take place in 2 feet of water even when wind is a factor. This depth also allows the intakes to be kept-off the bottom so that bottom material would not clog the pumps.

NCDENR-DMF asked if there is SAV in the area where the southern-most jetting water intake will be located. NCDOT-PDEA responded that it does not think there is SAV in this area. NCDENR-DMF said that based on the low water usage and the fact that jetting operations will not be continuous, impacts to larval fish from jetting operations should not be an issue from its perspective.

NMFS said that it would like to know the water velocities at various distances from the intake. NCDOT-Division 1 responded that NCDOT needs to determine these velocities. NMFS said

that as a "rule of thumb," if the velocity is less than approximately 0.5 feet/second at 1 meter from the intake, then it is probably not a concern. USFWS-Raleigh asked where the intake that will be located in the Pea Island inlet was shown on the plans. NCDOT-PDEA responded that it was not shown on the plans because it is within the existing NC 12 easement. NCDOT-PDEA asked if NCDOT needs to figure out the velocity issue before a contractor is hired. NCDOT-Division 1 responded that we do not know what type of equipment the contractor will use, but we could make worst-case assumptions related to this issue. NCDOT-Division 1 added that it was not familiar with the rule of thumb discussed by NMFS for determining if the water velocity would be a concern. NCDOT-PDEA said that NCDOT needs to look more closely at this issue with NMFS and NCDENR-DMF during the permitting process and provide the outcome to the Team. NCDENR-DCM asked if we could make a commitment with respect to parameters for water velocity on the CP 4A form. NCDENR-DCM said it has done this in the past while the applicant works out the details, however, the permit would be put on hold if the issue has not been resolved in time. NCDOT-PDEA asked the Team if this was acceptable; there were no objections from the Team.

NCDOT-PDEA added a commitment to the CP 4A form related to determining appropriate screening measures for the intake pipes (if any). NCDENR-DMF and NMFS both said the new commitment added to the CP 4A form related to this issue was acceptable.

USFWS-Raleigh asked NCDOT if it wanted to provide the Team with a summary of the meeting that was held between FHWA, NCDOT, SHPO, and USFWS to discuss bridge rails for the Phase IIa Preferred Alternative in accordance with existing Section 7 (per the 2008 BO) and Section 106 commitments. The bridge rails are needed for motorist safety, but also must address the USFWS concern related to protecting sea turtle hatchlings from motor vehicle headlights, as well as the SHPO concern related to allowing motorists to view the Refuge while on the bridge. NCDOT-PDEA briefly summarized the discussions at the meeting. One outcome of the meeting is that NCDOT and FHWA are conducting further research on vehicle headlights. USFWS-Raleigh said that it would not be able to concur on CP 4A today, but anticipated that it will be able to once the concerns it expressed at the above-mentioned meeting are addressed.

NCDENR-DMF asked about the disposition of the boat ramp once the project is built and how access for boaters will be maintained. NCDOT-PDEA responded that they will look into adding a new ramp in or outside of the Refuge and Cape Hatteras National Seashore, but it is not known where the ramp will be. USFWS-Refuge noted that it is not really a boat ramp, but rather just an access point for launching small boats.

USACE asked if the CP 4A commitment related to containment of jetting spoils within the existing NC 12 easement could be updated to add that the containment would occur outside of existing wetlands. NCDOT-PDEA updated the commitment to reflect this request (see attached final CP 4A agreement form). USACE also discussed which commitments are related to Section 404 and which are related to other regulatory issues, and asked if the commitments could be organized on the form to reflect this. NCDOT-PDEA added the subtitles "Section 404 Avoidance and Minimization" and "Other Resource Avoidance and Minimization Issues" to the CP 4A form and reorganized the commitments to address this request.

USFWS-Refuge discussed the physical properties of jetting spoils with respect to their suitability for being placed in the Refuge. USFWS-Refuge said that it would probably not be able to concur today, but asked that text related to the suitability of spoils for being deposited in the Refuge be added to the CP 4A commitment related to disposal of jetting spoils. NCDOT-PDEA added text to the commitment indicating that spoils would only be deposited within the Refuge if determined suitable by Refuge staff (see attached final CP 4A agreement form). USFWS-Refuge said that it was satisfied with the revised text.

USFWS-Refuge asked if the CP 4A commitment related to post-construction removal of USFWS facilities at the two Refuge parking areas could be updated to indicate that these facilities would be relocated by NCDOT if requested by USFWS. NCDOT-PDEA updated the commitment to reflect this request (see attached final CP 4A agreement form). USFWS-Refuge said that it was satisfied with the revised text.

Based on the updated concurrence form, NCDOT-PDEA asked each agency to provide its position on CP 4A for the Pea Island inlet:

- USFWS-Refuge said that it can concur on CP 4A once the Section 7 issues included in the 2008 BO are resolved.
- USFWS-Raleigh agreed with USFWS-Refuge.
- NCWRC - concur, knowing that the Section 7 issues will be resolved.
- USACE - concur.
- NCDENR-DWQ - concur.
- NCDENR-DCM - concur, assuming that the commitment added to the CP 4A form related to use of screens, if any, on the intake pipes for the jetting operations is resolved.
- FHWA - concur.
- NCDENR-DMF - concur.
- NMFS said that it will likely be able to concur on CP 4A, but it must have further discussions with upper management first.
- USEPA said that it will either abstain or concur on CP 4A after further discussions with upper management.
- Albemarle RPO - concur.
- SHPO concur.
- NPS said that it agrees with USFWS' stance related to concurring on CP 4A.

NCDOT-PDEA asked if there were any further questions or comments related to CP 4A. There were none, so NCDOT-PDEA printed a final copy of the CP 4A concurrence form, including the revisions made at the January 30 meeting (see attached), for agency signatures.

Meeting Highlights Related to CP 4B and CP 4C

NCDOT-Hydraulics Unit discussed issues related to CP 4B, including the stormwater management/drainage plans. In response to a question about the bridge height, it was discussed that the bridge deck will be 23 to 28 feet above the ground, except at the ends. This will allow the water draining from the bridge through open scuppers to dissipate before it hits the ground. NCDOT-Hydraulics Unit went through the bridge plans to highlight the 16

temporary construction easement sites in order to show the temporary impacts outside of the existing NC 12 easement.

In response to a question from NCDENR-DCM about one of the symbols on the plans, NCDOT-RDU said that the symbols represented the fiber optic cables. The fiber optic cables have already been moved to the power line easement in some locations and are correct as shown on the plans.

NCDOT-NES asked if visual monitoring is sufficient for the temporary wetland impacts. NCDENR-DCM responded that visual monitoring and photo interpretation is sufficient and that its regulations do not require other methods of monitoring. NCDENR-DCM added that it would meet with NCDOT at the end of construction to evaluate the extent of the impacts and what needs to be done for restoration. NCDENR-DCM said that CAMA wetlands should be specified on the plans, and that the plans should show the type of impact.

USACE asked for confirmation that the wetland delineations have not changed from those that it recently approved. NCDOT responded that based on a recent field review, the delineated wetlands have not changed except where they were replaced by the new inlet.

The Team discussed whether or not a General Permit could be used for relocation of utilities. NCDENR-DCM said that it wants to discuss this further with NCDOT after today's meeting. NCDOT-NES said that its current plan is to use a General Permit for utility relocations.

NCDENR-DWQ asked about the current status of the Phase IIa EA. NCDOT-PDEA responded that the EA was nearly complete and should be signed soon – hopefully in February. NCDOT-PDEA reviewed the current project schedule and next steps for both Phase II areas.

With respect to the current project schedule, USFWS-Raleigh noted that Section 7 consultation has not been completed. NCDOT-PDEA agreed and noted that there are outstanding issues that still need to be finalized with several of Merger Team agencies.

In response to a question from USACE, NCDOT-PDEA said that the public hearing dates for Phase IIa have not been set as of yet. There will probably be three hearings, including one on Ocracoke Island, but this may depend on the status of the Hatteras to Ocracoke ferry route.

NCDENR-DCM discussed that the vegetation line should be shown on the permit drawings, as well as development setbacks. This is required by the CAMA regulations. NCDENR-DCM discussed how to obtain the data needed to show the vegetation line, and said that Paul Williams is the point of contact for this information at NCDENR-DCM. NCDENR-DCM said that NCDOT should label as much information as possible on the permit drawings with respect to the CAMA approval process, in particular to assist agencies less familiar with the project. For example, label the jetting water intake location that is within the existing NC 12 easement at the Pea Island inlet. Also, show the water depths at the intakes so it is apparent that dredging will not be needed. Finally, label the CAMA coastal wetlands separately.

NCDENR-DCM asked what the water filled barriers look like that are shown on the plans. NCDOT-RDU replied that they are standard orange construction barrels.

USACE said that the plans should include sufficient information about the details of proposed mitigation to allow the agencies to make a decision on the nature of the temporary impacts. For example, the timeframe and other typical details should be included.

Albemarle RPO asked when construction on Phase IIa is expected to start. NCDOT-PDEA said that the contract is expected to be awarded in July 2013, and that construction would start as soon as possible after that – hopefully later this year. After the EA is signed, NCDOT will be better able to determine the construction schedule. Albemarle RPO said that the public is concerned about when the temporary bridge is going to be replaced, as well as potential construction-related impacts on tourism. NCDOT-PDEA said that construction would likely not start until after the end of the summer tourist season.

Other Topics

NCDOT-PDEA provided an update on the current status of the Coastal Monitoring Program (CMP). NCDOT-PDEA will send the two CMP annual monitoring reports that have been completed (i.e., the 2010 Baseline Conditions and the 2011 Update) to the Merger Team agencies soon via e-mail. NCDOT staff can obtain these reports from the internal project server. These reports also will be sent to the Peer Exchange Meeting panelists in order to receive their feedback. The reports will eventually be made available for the public, likely on the project web site. NCDOT-PDEA added that the reports being sent to the agencies are primarily intended to be "FYI" – comments are not expected, but feedback is welcome. In response to a question, NCDOT-PDEA said that the annual monitoring reports cover the area between Oregon Inlet and Rodanthe.

The meeting was adjourned at 12:00 PM.

file no.: 3301-2.7.2

J:\PLANNING\Bonner SDEIS\2011 Reevaluations\Merger and Other Agency Meetings\January 30, 2013 Merger Meeting (CP 4A, B, and C)\Bonner Merger Team Meeting Minutes (1-30-13) - first draft 3-20-13.docx

Section 404/NEPA Merger Project Team Agreement
Concurrence Point No. 4A: Avoidance and Minimization

Project No./TIP No./Name/Description:

Federal Project Number: BRNHF-0012(55)
WBS No.: 32635
TIP Project Number: B-2500A
Description: Replacement of the Herbert C. Bonner Bridge (Bridge No. 11) over Oregon Inlet in Dare County (Phase II of the Parallel Bridge Corridor with NC 12 Transportation Management Plan)

The Project's Merger Team has concurred on this date of January 30, 2013 with the Avoidance and Minimization measures stated below for the Pea Island inlet component of Phase II of the subject project.

Section 404 Avoidance and Minimization

- Temporary wetland impacts will be minimized to the extent practicable. All temporary wetland impacts will be restored per permit conditions. NCDOT will work with the regulatory agencies on the location and scope of any post-construction monitoring of the temporary wetland impact sites.

- Jetting spoils shall be contained within the existing NC 12 easement (outside of existing wetlands) during the jetting operation, then, if determined suitable, deposited within the Pea Island National Wildlife Refuge at the direction of Refuge staff.

- Intake pipes associated with the jetting operation will not be located on the ocean beach. Pipe locations shall be determined in conjunction with the USFWS- Pea Island National Wildlife Refuge and shall be located such that temporary impacts to wetlands and jurisdictional waters are minimized.

Other Resource Avoidance and Minimization Issues

- NCDOT will work with the National Park Service and the USFWS- Pea Island National Wildlife Refuge to determine if there are any viable options for the replacement of access currently provided at the New Inlet boat ramp.

- The existing temporary bridge over the Pea Island inlet, as well as any associated shoring measures, shall be completely removed following construction of the new bridge.

- The existing Refuge parking lot on the east side of NC 12 and the New Inlet boat ramp/parking area on west side of NC 12 will be used as staging areas during construction. Once construction is complete, NCDOT will remove all pavement and remove or relocate any facilities associated with these areas (signs, kiosks, etc.) per the direction of USFWS- Pea Island National Wildlife Refuge staff.

- NCDOT will work with the NC Division of Marine Fisheries and the National Marine Fisheries Service to determine the appropriate screening measures, if any, that are needed on the intake pipes associated with the jetting operation.

USACE William J Beckham — NCDOT Elizabeth A Smyre

USEPA SEE ATTACHED ABSTAIN : CM — USFWS Gary Jordan

NCDWQ [signature] — NCWRC [signature]

SHPO Renee Gledhill-Earley — FHWA Ronald [signature]

NMFS [signature] for VMB — NCDMF [signature]

NPS Thayer Broaddus — NCDCM Daniel V Huggett

USFWS-PINWR [signature] — RPO [signature]

NEPA/Section 404 Merger Process

Abstention Brief

February 12, 2013

To: Beth Smyre, P.E., NCDOT Project Manager

THRU: Heinz J. Mueller, Chief, NEPA Program Office

Cc: Merger Project Team

From: Christopher A. Militscher, REM, CHMM, USEPA Merger Representative

1. Project Name and brief description: **Bonner Bridge – NC 12 Transportation Management Plan – Phase II (Pea Island), Dare County; TIP No. B-2500A**

2. Last Concurrence Point (*signed*): **Phase II – none/abstained; CP 1 for B-2500 signed 7-31-02**

3. Explain what is being proposed and your position including what you object to. **The NCDOT proposes two bridge alternatives at Rodanthe and one bridge alternative at PINWR breach. NCDOT proposes to utilize the issued ROD and Transportation Management Plan for Phase II alternatives. This concurrence request is for the new bridge in PINWR to address the breach and new inlet formed by Hurricane Irene. The anticipated permanent impact to jurisdictional resources from the proposed new bridge in PINWR is less than 0.2 acres (potentially a Nationwide Permit).**

4. Explain the reasons for your potential non-concurrence. Please include any data or information that would substantiate and support your position. **Without substantial regulatory review responsibilities under Section 404 of the Clean Water Act, EPA has a very limited technical role in Phase II activities. Unless the USACE determines otherwise, and requires an Individual Permit for Phase II, EPA is abstaining consistent with the previous abstention. EPA does acknowledge the avoidance and minimization measures identified in the B-2500A, January 30, 2013, CP 4A concurrence form.**

5. List any relevant laws or regulations that you believe would be violated or jeopardized if the proposed action were implemented and explain the basis for violation. Please attach a copy of the relevant portion of the law or regulation or provide an email address where the documents may be located. **Not applicable. See comments above. EPA has previously provided technical comments on the DEIS, FEIS and other documents regarding the transportation agencies purpose and need to build additional bridges on this barrier island.**

6. What alternative course of action do you recommend? **For EPA: None. The NCDOT might continue working with the FHWA, USACE, USFWS and other Federal agencies on their respective requirements for Phase II and finalization of the 1/16/13 Revised Draft Wetlands Mitigation Plan for Phase I.**

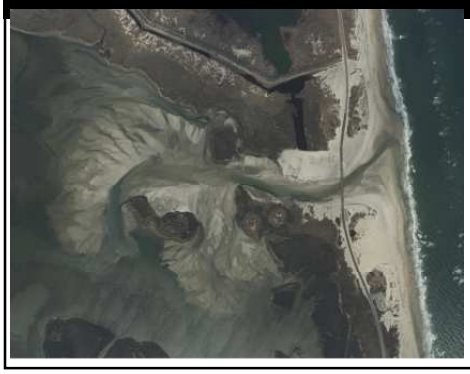
January 30, 2013 10:00 am – 12:00 pm

Bonner Bridge – NC 12 Transportation Management Plan - Phase II Merger Team Meeting

Meeting Purposes

- **Pea Island inlet site** (Phase IIa, B-2500A)
  - Finalize concurrence on **CP 4A** (Avoidance and Minimization)
  - **Concurrence Point 4B** (30% Hydraulic Review)
  - **Concurrence Point 4C** (Permit Drawings Review)

Current Conditions



January 10

Concurrence Point 4A

- Topics:
  - Wetland Impacts
  - Temporary Construction Easements
  - Temporary Bridge removal
  - Pile jetting- Spoil disposal
  - Pile jetting- Water source
  - Stormwater collection

Temporary Construction Easements

- 3.84 acres on both sides of existing easement
- Includes use of parking lot, New Inlet boat ramp as staging areas (new CP 4A commitment)
- Includes easement for third jetting water intake location

Pile jetting- Water source

- Three sites: one at Pea Island inlet, two in the sound
- Intake pipe screens



Coastal Monitoring Program

- Annual monitoring reports
  - 2010 Baseline Conditions
  - 2011 Update
- 2011 Peer Exchange Meeting panelists
- Public distribution via NCDOT website

Annual Monitoring Reports

- Includes:
  - Shoreline erosion
  - Dune position/height
  - Island width
  - Vegetation density
  - 2011- Inlet evolution
- Doesn't include:
  - Biological monitoring data
  - 2012 Terminal Groin easement conditions

Schedule/ Next Steps

- Pea Island:
  - Complete Environmental Assessment (January 2013)
  - Hold Public Meetings (February 2013)
  - Complete Record of Decision- if no SFEIS needed (March 2013)
  - Submit permit applications
  - Award construction contract (July 2013)
- Rodanthe:
  - Complete Environmental Assessment
  - Hold CP 3/4A meeting
  - Record of Decision (if no SFEIS needed)
  - Submit permit applications
  - Award design-build construction contract

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

May 17, 2013

John F. Sullivan, III, P.E.
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601

Dear Mr. Sullivan:

The U.S. Fish and Wildlife Service (Service) has received your May 9, 2013 request for reinitiation of formal consultation under Section 7 of the Endangered Species Act (ESA) for Phase IIa of the replacement of Bonner Bridge over Oregon Inlet in Dare County, North Carolina, TIP No. B-2500, Federal Aid Project No. BRS-2358(15). Your letter and the accompanying Technical Memo dated May 2013 were received on May 13, 2013.

The Service issued a Biological Opinion (BO) for this project on July 10, 2008. The BO assessed the effects of the project on the federally listed piping plover (*Charadrius melodus*), loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), and critical habitat for wintering piping plovers. Since the issuance of the BO, the project alignment, design and construction methodology were refined for Phase I, thus necessitating a reassessment of the effects to federally listed species. In a January 10, 2013 letter you verified that the effects determinations for listed species had not changed, and you requested reinitiation of formal Section 7 consultation in order to modify a Term and Condition of the BO. The Service responded with a January 22, 2013 letter which agreed with your conclusion that the existing effects determinations were still valid, agreed that design changes would not cause additional take of listed species, and which modified Sea Turtle Term and Condition #3.

At this time, the Federal Highway Administration (FHWA) has submitted additional and refined project information for Phase IIa and a reassessment of the effects to federally listed species. In addition, the FHWA has requested modification of two Terms and Conditions of the BO.

The FHWA has requested that the second sentence of Sea Turtle Term and Condition #3 of the BO be revised to read "*During turtle nesting season, portable construction lighting must be amber colored LED lights with a predominant wavelength of ~650nm (preferred) OR low-pressure sodium-vapor type (with USFWS approval).*" The Service agrees to this change for Phase IIa and all future phases.

The FHWA has requested that the first sentence of Piping Plover Term and Condition #2 of the BO be revised to read "*During construction of Phases II, III and IV, keep all construction equipment and activity within the existing right-of-way, unless granted approval by the USFWS.*" This request was prompted by the need to utilize 3.84 acres of temporary right-of-way for Phase IIa. The Service does not object to the use of the temporary right-of-way, and we agree to revise the Term and Condition as requested.

After reviewing the Phase IIa project description and reassessment of effects to listed species in the submitted Technical Memo, the Service agrees with your conclusion that the new Phase IIa information does not alter the previous effects determinations for listed species and critical habitat. In addition, the Service believes that the amount or extent of incidental take anticipated, as addressed in the BO, will not be changed for the worse. With the exceptions noted above, we believe that all Reasonable and Prudent Measures and Terms and Conditions of the BO are still appropriate and adequate.

This concludes formal consultation on the action outlined in your May 9, 2013 request for reinitiation of formal consultation. As provided in 50 CFR section 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Pete Benjamin
Field Supervisor

Electronic copy:
Bill Biddlecome, USACE, Washington, NC
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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
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F/SER31:EGH
SEP 30 2013 SER-2103-11110

John F. Sullivan, III, P.E.
Division Administrator
North Carolina Division
U.S. Department of Transportation
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601

Ref.: Herbert C. Bonner Bridge Replacement, Hatteras Island, State Highway NC 12 over Oregon Inlet, Dare County, North Carolina (Federal-Aid No. BRS-2358[15])

Dear Mr. Sullivan:

This responds to your March 27, 2013, letter and enclosed Technical Memorandum on the Effects of Parallel Bridge Corridor with NC 12, Transportation Management Plan Alternative for NC 12 Replacement of Herbert C. Bonner Bridge on Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*). You have requested reinitiation of Endangered Species Act (ESA) Section 7 consultation with National Marine Fisheries Service (NMFS) on the proposed bridge replacement project. In 2008, NCDOT conducted and completed informal ESA Section 7 consultation on the construction of a new bridge (and demolition of the currently-existing 2.4-mile-long Bonner Bridge) over Oregon Inlet in Dare County, North Carolina. The North Carolina Department of Transportation (NCDOT) determined at that time that the proposed action may affect, but was not likely to adversely affect, sea turtles and shortnose sturgeon under NMFS's jurisdiction. NMFS issued a letter to NCDOT on August 4, 2008, that concurred with NCDOT's findings and completed informal consultation on proposed bridge replacement project (Consultation No. I/SER/2008/03396). Since then, Atlantic sturgeon were listed under the ESA (effective April 6, 2012), prompting NCDOT's request for reinitation of consultation to consider potential project effects on Atlantic sturgeon.[1] NCDOT's evaluation of its proposed action concludes that all aspects of the project are either not likely to adversely affect Atlantic sturgeon or will have no effect on them (pp. 24-25, technical memorandum cited above). As discussed further in this consultation, FHWA and NCDOT maintain that no aspects of the proposed action are likely to adversely affect sea turtles.

This consultation is being conducted with NCDOT as designated by the Federal Highway Administration (FHWA), North Carolina Division (letter dated April 8, 2003), pursuant to 50 CFR 402.08. NMFS's determinations regarding the effects of the proposed action are based on the description of the action in this informal consultation. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with

[1] Specifically, the Carolina and South Atlantic distinct population segment (DPS), designated as "endangered," and thought to include less than 300 spawning adults.

NMFS. This includes future recreational fishing off the small remmant of the current bridge that is proposed to be left in place to protect the new bridge from wave action and current scour.

NCDOT proposes to replace the Herbert C. Bonner Bridge over Oregon Inlet and then remove the existing structure. The mid-span of the existing bridge is located at approximately 35.770594°N, 75.534906°W, North American Datum 1983 (Figure 1). Bonner Bridge is part of North Carolina State Highway 12 (NC 12) and provides a highway connection between Hatteras Island and Bodie Island. The bridge replacement and removal is Phase I of the Bonner Bridge Replacement Project that includes later phases that cover an additional 12.5 miles of NC 12 over Pea Island. This consultation considers the impacts of the demolition and replacement of Bonner Bridge, as it is the only portion of the project that involves in-water work that may impact species listed under the ESA under NMFS's purview.[2]



Figure 1. High-altitude view of project location on Hatteras Island, North Carolina.

The new Bonner Bridge will begin at the southern terminus of the existing structure on Hatteras Island and extend north across Oregon Inlet for 2.6 miles, ending near the northern terminus of

[2] Phase IIA will involve demolition and replacement of the existing temporary bridge over Pea Island Inlet, to the south of the action area, that is rapidly approaching the end of its safe, useful life. The temporary bridge was built three years ago to span a small breach (inlet) created by storms. The inlet was subsequently enlarged by hurricanes and northeasters in 2011, but has since silted in completely. FHWA and NCDOT will coordinate with NMFS and U.S. Fish and Wildlife Service (USFWS) prior to implementation of each future phase to determine if future consultation is necessary.

the existing structure on Bodie Island (Figures 2 and 3). Thirty-seven bridge bents will utilize six to 30 piles (36-in square piles) per bridge bent. Forty-four bridge bents will utilize three to four piles (54-inch-diameter pre-stressed concrete cylinder) per bridge bent. The southern end bent will use five 20-inch square piles. Piles will be placed by a combination of jetting and driving. The total pile footprint for the Bonner Bridge is estimated at approximately 0.5 acre. No de-watering is required; no cofferdams will be utilized during construction. Total construction duration and timing associated with Phase I of the project is 3.5 years (42 months) including 32 months of underwater work from 2013 to 2016, based on the current schedule (R. Lucas, FHWA, pers. comm. to E. Hawk, NMFS, May 24, 2013). No time-of-year restrictions are assumed during project construction and demolition of Bonner Bridge.



Figure 2. Oregon Inlet.

After the new bridge is constructed, the old structure will be removed. The substructure will be mechanically removed to at least 25 feet below the mean low water level. The superstructure concrete dock will be broken into smaller pieces using concrete sawing and jack hammering. Deck pieces and superstructure beams and girders will be loaded onto a barge by a crane and towed, or placed onto trucks and transported via the work bridge. No debris or components from either structure will be allowed to enter into the water or remain on the benthos following construction or demolition. No explosives will be used. In-water disposal of the concrete superstructure is not authorized except to previously-permitted artificial reef sites offshore. Plans are to dispose of bridge material at four existing offshore artificial reef sites.

Temporary work bridges may be constructed. While there are numerous alternatives for work-bridge construction and removal, normal activities include driving of piles, installation of wooden deck materials, and mechanical removal of support piles by either cutting them off at the substrate or pulling up via cranes. Further, materials or debris are not permitted to enter the water at any time, or remain on the benthos following construction or demolition. The applicant specifies that the NCDOT Standard Specifications will be followed; Section 402 specifies that leaving remnant materials in place is not permitted, and removal of components from the water is to be done in such a fashion as to minimize siltation. Work bridges are expected to be constructed over wetlands as well as open water, and turbidity will be minimized when possible and practicable in the areas of known submerged aquatic vegetation (SAV).



Figure 3. Herbert C. Bonner Bridge across Oregon Inlet.

NCDOT will comply with NMFS's March 23, 2006, *Sea Turtle and Smalltooth Sawfish Construction Conditions* (enclosed) that restrict in-water activities when these species are observed in the project area. However, NMFS agrees with NDCOT 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* (see NCDOT response letter dated May 30, 2008, Response 1). In-water pile installation and removal and activities associated with bridge construction and demolition are prohibited when listed species are observed. Dredging is not proposed (R. Lucas, FHA, pers. comm. to E. Hawk, NMFS, May 24, 2013); however, if

project plans change and dredging is later necessary, reinitiation of consultation with NMFS will be necessary if hopper dredges are used.[3]

The remnant pier will not be lit for night-time use (the only lights for the proposed new Bonner Bridge will be navigation lighting that is required by the U.S. Coast Guard in order to mark the navigation channel). No fees will be charged; there will not be any operating hours posted, as it's assumed use of the pier will be consistent with public use hours of the Refuge. The new pier will have the same use policy as the catwalks; it will be operated/maintained by NCDOT, but there will not be anyone stationed onsite. According to its regulations, the Refuge is only open during daylight hours, but there will not be any gates or other barriers preventing access to the pier. The National Park Service parking lot, used by refuge visitors to access the nearby coastline, the current catwalks, and the future pier, is always open (Figure 4).

Recreational Fishing from the Bridge

Currently there are maintenance catwalks alongside the south end of the bridge that are used by fishermen and pedestrian observers. These catwalks will be eliminated, but a portion of the existing Bonner Bridge will be retained and retrofitted for pedestrian use. The deck of the "new" pedestrian pier that will be left in place will be approximately 1,050 feet in length and 26 feet in width. According to FHWA, the USACE has required them to leave the remnant structure in place at that location, to alleviate projected wave and current scour activity on the support structures of the southern terminus of the new bridge where it crosses over the water. Originally, the remnant bridge was to function as an observation deck and recreational fishing pier, since the maintenance catwalks of the existing bridge have been historically used for fishing and is popular with locals and Refuge and National Seashore visitors. During recreational fishing, at least one sea turtle hooking has occurred from the bridge, a documented interaction of a large sea turtle that was hooked, caught, and released (the line was cut) by a fisherman fishing from beneath the catwalks in July 2012. This event was witnessed and documented by a NCDMF marine patrol officer. NMFS also has information provided by our Beaufort, North Carolina, laboratory documenting at least four other sea turtle hookings since 1989 by recreational fishing in the Oregon Inlet, one of which occurred from the bridge in May 2002.

NMFS believes that it is highly likely that greater than discountable levels of sea turtle hooking and/or entanglement interactions have occurred over the years from fishermen fishing from the existing catwalks, given (1) the thousands of Refuge visitors yearly who fish off the existing catwalks; (2) the use of Oregon Inlet as a migratory pathway into and out of estuarine and nearshore, coastal waters by numerous sea turtle species; (3) the lack of educational signage or posted sea turtle interaction reporting guidelines (e.g., a posted telephone number to call to inform of the interaction) on the catwalks or parking lot associated with the fishing pier; and (4) the lack of a systematic method to detect and report interactions that occur there. NMFS believes and so advised FHWA/NCDOT that recreational fishing from the proposed remnant

[3] Formal consultation with NMFS, and preparation of a biological opinion, would be required if future proposed dredging methods include hopper dredging, as this type of dredge is known to kill sea turtles and sturgeon. However, use of alternative dredging methods such as hydraulic cutterhead or mechanical (i.e., bucket or clamshell) dredging present discountable risks of injury to protected species and would not require NCDOT to reinitiate ESA consultation with NMFS. Dredging by clamshell bucket or cutterhead is unlikely to adversely affect sea turtles or sturgeon because they are extremely unlikely to be stationary directly under a clamshell bucket, or will be able to detect and move away from the noisy and/or slowly-approaching cutterhead in time to avoid being struck.

bridge would likely ultimately result in additional sea turtle hookings and entanglements, and concomitant adverse effects to sea turtles, and advised FWHA/NCDOT that formal consultation would be necessary to provide incidental take authority for these likely interactions. From March-September 2013, NMFS worked closely with FHWA/NDOT in the preparation of a no-jeopardy biological opinion that analyzed and would have authorized an annual level of anticipated incidental take of sea turtles from future recreational fishing activities associated with the proposed remnant pier. The draft opinion also included reasonable and prudent measures to quantify and minimize the effects the anticipated takes. However, as per FHWA (Clarence Coleman, FHWA, pers. comm. to E. Hawk, NMFS, September 20, 2013), allowing recreational fishing from the remnant bridge is no longer part of the proposed action. Fishing will not be permitted off the remnant pier while the new bridge is under construction, nor after its completion. FHWA has stated that it will post "No Fishing" signs on the remnant bridge during new bridge construction and that, while FHWA has no authority to regulate fishing anywhere, the remnant pier/observation platform is under the authority of NCDOT and it fully expects (and will work with) NCDOT and NCDMF to enforce the fishing ban there (Clarence Coleman, FHWA, pers. comm. to E. Hawk, NMFS, September 23, 2013). Therefore, we conclude that there will be no effect from future recreational fishing since recreational fishing will not be allowed to occur from the remnant bridge. FHWA has stated that following construction it will initiate consultation with NMFS prior to the "No Fishing" signs being removed, if/when the decision to remove the signs is made (Clarence Coleman, FHWA, pers. comm. to E. Hawk, NMFS, September 20, 2013).



Figure 4. South end of Bonner Bridge where current fishing catwalks and parking lot are located.

ESA-Listed Species That May be Affected

Federally-listed species that may occur in the area of this project are listed in the table below. No other listed species under our jurisdiction occur in the action area, nor is designated critical habitat present. Although we have no new information that would change the basis of our previous (2008) conclusion that the bridge replacement project may affect but is not likely to adversely affect sea turtles, for the sake of completeness we are repeating and including those analyses in the current document, and expanding them to include recreational fishing effects. Our project analysis for Atlantic and shortnose sturgeon follows our sea turtle discussion.

Common Name	Scientific Name	Status
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered
hawksbill sea turtle	*Eretmochelys imbricata*	Endangered
green sea turtle[4]	*Chelonia mydas*	Threatened
loggerhead sea turtle	*Caretta caretta*[5]	Threatened
leatherback sea turtle	*Dermochelys coriacea*	Endangered
shortnose sturgeon	*Acipenser brevirostrum*	Endangered
Atlantic sturgeon	*Acipenser oxyrinchus oxyrinchus*[6]	Endangered

Impacts to Sea Turtles

Among the five species of sea turtles that may occur in or near the project area, some sea turtle species are much more likely to be present in the project area than others. The loggerhead sea turtle is the most common species in the project area, and green and Kemp's ridley sea turtles also occur in the project area, though considerably less frequently. Leatherbacks and hawksbills are very unlikely to be present due to their foraging and life history characteristics. Leatherbacks are primarily pelagic feeders, foraging mostly on jellyfish in deeper, offshore waters, though they will occasionally follow their wind-driven prey closer inshore. Sponges, the preferred foraging habitat for hawksbills, are likely sparse in the vicinity of Bonner Bridge, so hawksbill presence is likely to be very rare. These species will not be considered further in this consultation.

Project impacts to foraging habitat differ between the three sea turtle species that may be affected by the proposed action. Adult green turtles are known to feed on seagrasses; therefore, they may be found in the nearshore area on the leeward side of Bodie Island where they may be encountered by the dredge maintaining the channel. Kemp's ridley and loggerhead sea turtles may be found foraging in the vicinity of the dredged channel and other project areas, as they are known to forage in any area with adequate food availability, including hard-bottom, submerged aquatic vegetation, oyster reefs, and sand and mud substrates, consuming crabs and other invertebrates.

NMFS believes that the project is not likely to adversely affect sea turtles under our purview (see 50 CFR 224.101(c) that delineates jurisdiction for sea turtles to NMFS while they are in the water, and to USFWS while on land). We have analyzed the proposed action and believe the only routes of potential effects to sea turtles are from interactions with construction machinery,

[4] Green turtles in U.S. waters are listed as threatened except for the Florida breeding population that is listed as endangered.
[5] Northwest Atlantic Ocean DPS.
[6] Carolina and South Atlantic DPS.

temporary construction-associated turbidity, avoidance of the area resulting in lost nesting or foraging opportunities, disruption of hatchling sea-finding behavior, and obstructed passage through Oregon Inlet during bridge demolition/construction. These potential effects will be discountable or insignificant based on the following:

(1) Implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will require work stoppage if a sea turtle is seen within 50 feet of active construction.
(2) Sea turtles are highly mobile and have the ability to avoid the area during the period of construction; thus, the risk of construction equipment physically impacting an unseen sea turtle is discountable.
(3) No explosives will be used during bridge demolition and no dredging is proposed.
(4) The area does not provide habitat that would be considered of outstanding or higher value than alternative, nearby habitat available to sea turtles, such that long-term avoidance of the entire project area (which is highly unlikely) would have detrimental effects on them, even over the project life (3.5 years). Sea turtles will still be able to forage underneath the bridge post-construction, and the project will impact only a very small portion of the available foraging habitat (sea turtles will be able to forage in nearby areas even during demolition and construction). The project will not significantly change the site's ecological function nor significantly alter the overall value of the site to potentially foraging sea turtles. Therefore, temporary and permanent habitat-loss effects will be insignificant.
(5) Turbidity associated with construction would be limited to that occurring during pile driving, and occur in a relatively small portion of Oregon Inlet at any one time, such that any turbidity effects will be insignificant.
(6) Due to the broad width of Oregon Inlet where the bridge spans it, sea turtle passage into or out of the inlet will not be significantly impeded during demolition, construction, or by the finished construction. Avoidance effects (i.e., if and to the extent that sea turtles may avoid the area due to the construction activity) will be discountable or insignificant.
(7) There is potential sea turtle nesting habitat near the project area; however, NMFS believes that bridge demolition and construction activities will have discountable or insignificant effects on sea turtles' in-water behavior, including mating, nesting females' approaches to potential nesting sites, and emergent hatchlings' sea-finding behavior or ability. No permanent light fixtures would be installed on the bridge or the approaches, and correct light management would include the use of low-wattage, long-wavelength lighting, which is either shielded, such that the light is visible only on the road, or embedded in the roadway itself (2008 BA, p. 43). Furthermore, NCDOT has completed ESA Section 7 consultation with USFWS on potential project impacts to nesting sea turtles.

Impacts to Atlantic and Shortnose Sturgeon

Atlantic and shortnose sturgeon spawn in several major river systems along the East Coast, including the Albemarle Sound drainage. Oregon Inlet leads to Albemarle Sound. Atlantics and shortnose have similar life history requirements. There are some differences in migration and spawning time, as well as temperature and salinity preferences; in general, the Atlantic sturgeon is more saline oriented, whereas the shortnose spends more time in freshwater and migrates

upstream earlier in the year.[7] However, shortnose sturgeon have been largely extirpated from North Carolina waters. NMFS believes shortnose sturgeon are rare in the project area. The lack of records from most North Carolina rivers (Kynard 1997)[8] may be due to their low abundance or the lack of directed survey effort. Shortnose sturgeon were thought to be extirpated from North Carolina until 1987, when Ross et al. (1988)[9] obtained a shortnose sturgeon from the Brunswick River. Much additional gillnet sampling from 1990 to 1993 established that shortnose sturgeon were present but rare within the lower Cape Fear River (Moser and Ross 1995).[10] A shortnose sturgeon was captured in western Albemarle Sound (Figure 4) in 1998 by NCDMF[11] (Armstrong and Hightower 1999).[12]

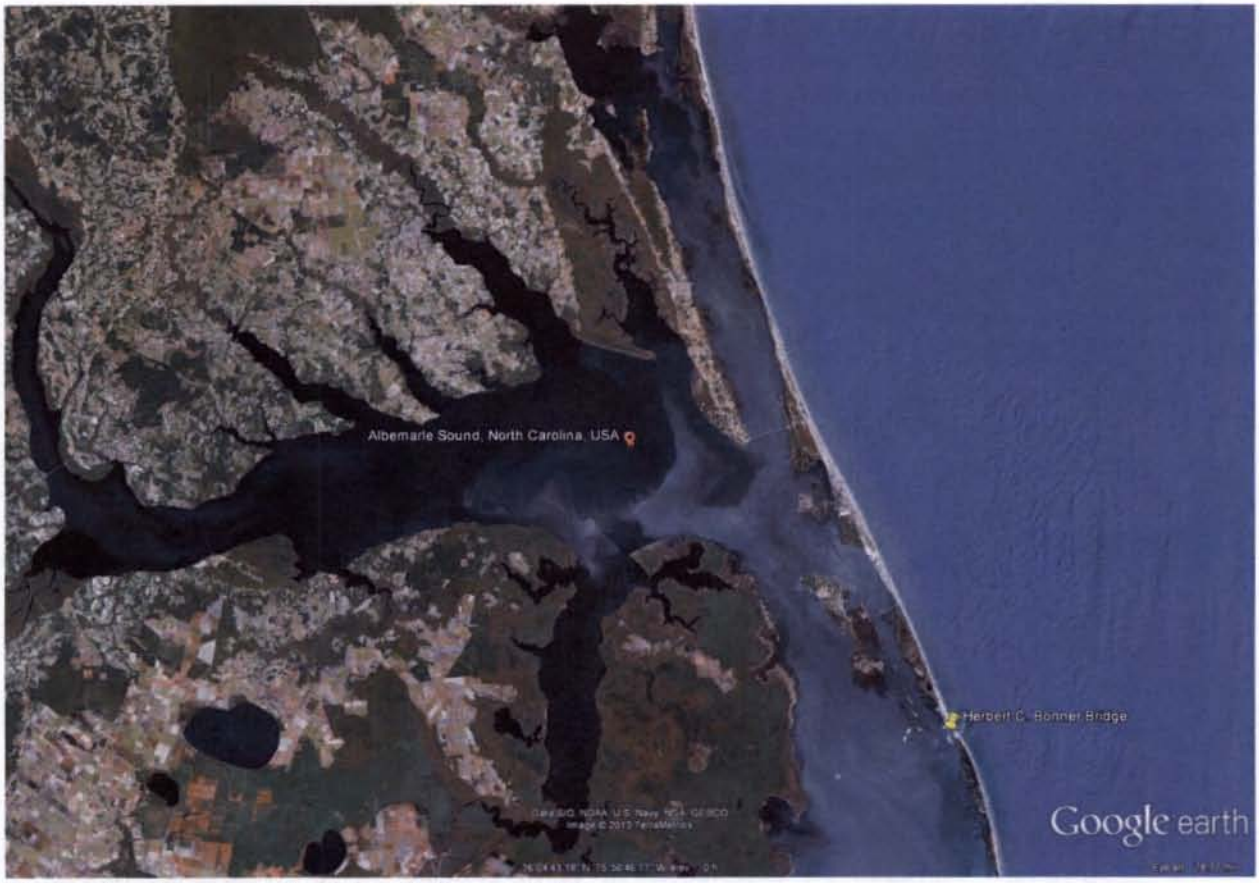


Figure 4. Albemarle Sound and Oregon Inlet.

[7] Gilbert, C.R. 1989. Atlantic and shortnose sturgeons. United States Department of Interior Biological Report 82: 28 pp.
[8] Kynard, B. 1997. Life history, latitudinal patterns and status of shortnose sturgeon, *Acipenser brevirostrum*. Environmental Biology of Fishes 48(1-4):319-334.
[9] Ross, S. W., F. C. Rohde, and D. G. Lindquist. 1988. Endangered, threatened, and rare fauna of North Carolina, part 2. A re-evaluation of the marine and estuarine fishes. North Carolina Biological Survey, Occasional Papers 1988-7 Raleigh, North Carolina.
[10] Moser, M.L. and S.W. Ross. 1995. Habitat use and movements of shortnose and Atlantic sturgeons in the Lower Cape Fear River, North Carolina. Transactions of the American Fisheries Society 124:225-234.
[11] North Carolina Department of Environment and Natural Resources - Division of Marine Fisheries.
[12] Armstrong, J. L.; Hightower, J. E. 1999. Movement, habitat selection and growth of early juvenile Atlantic sturgeon in Albemarle Sound, North Carolina. Final Rep. U.S. Fish and Wildlife Service and Virginia Power. North Carolina Cooperative Fish and Wildlife Research Unit, North Carolina State University, Raleigh, North Carolina.

No shortnose sturgeon were collected in a survey of the Neuse River conducted in 2001-2002 (Oakley and Hightower 2007).[13] Netting surveys for shortnose sturgeon have not been conducted in the Chowan and Roanoke Rivers. In 2012, research gillnetting in the Brunswick River netted two shortnose, after intensive effort.[14] Data has recently been tabulated for all recorded shortnose sturgeon captures in North Carolina waters and, when finalized, will be incorporated into the next shortnose sturgeon status review (Wilson Laney, USFWS, South Atlantic Fisheries Coordination Office, unpublished).[15] Because of its expected rarity or absence from the project area, we believe the risk of project-related adverse effects to this species is discountable.

The Atlantic sturgeon is an anadromous species that inhabits the lower downstream sections of larger rivers and coastal waters of the Atlantic Ocean, moving into freshwater only to spawn in the spring. Atlantic sturgeon regularly use Oregon Inlet. An NCDMF tagging and tracking program study detected the passage of 16 Atlantic sturgeon through Oregon Inlet between April 2011-May 2012. Also, independent gillnet surveys from 2008 to July 2012 recorded four captures of Atlantic sturgeon in the vicinity of the action area (p. 13, technical memorandum). Thus, Atlantic sturgeon may be affected by the proposed action. We believe that potential impacts from the Bonner Bridge replacement project on Atlantic sturgeon will be similar to those described for sea turtles: physical impacts from direct contact with operating construction equipment during bridge construction or demolition, including pile driving or jetting; turbidity associated with the preceding in-water activities; lost foraging opportunities; and potential disruption of spawning behavior. We believe these impacts will be discountable or insignificant for the following reasons:

(1) Sturgeon are highly mobile and have the ability to avoid the area during the construction period; therefore, the risk of them being physically injured by construction equipment (piles, work barges, etc.) is discountable.
(2) No dredging or explosives use is proposed.
(3) The project will have insignificant effects on Atlantic sturgeon foraging or migratory habitat as sturgeon will still be able to forage or pass underneath the bridge post-construction, and the project will impact only a very small portion of the available habitat. NCDOT estimates that suitable habitats including open-water marine and estuarine habitats, including inlets, comprise about 1,016.5 acres of the project area (p. 12, technical memorandum). Atlantic sturgeon will be able to forage in nearby areas even during demolition and construction. The project will not significantly change the site's ecological function nor significantly alter the overall value of the site to potentially foraging Atlantic sturgeon. The construction area does not provide habitat that would be considered of outstanding or higher value than alternative, nearby habitat available to

[13] Oakley, N.C. and J.E. Hightower. 2007. Status of shortnose sturgeon in the Neuse River, North Carolina. American Fisheries Society Symposium 56:273-284.
[14] Performance Reports to NMFS by South Carolina Department of Natural Resources (SCDNR) for January 1-June 30 and July 1-December 31, 2012. Research and Management of Endangered and Threatened Species in the Southeast: Riverine Movements of Shortnose and Atlantic Sturgeon. William Post, Tanya Darden, Douglas Peterson, Joe Hightower, Mike Loeffer, and Chip Collier, Investigators.
[15] NMFS Biological Opinion on the Permits, Conservation and Education Division's proposal to issue a Permit (Number 14759) to Joseph Hightower, North Carolina Cooperative Fish and Wildlife Research Unit, for research on shortnose sturgeon in three North Carolina river basins (Chowan, Roanoke, and Cape Fear) and estuary (Albemarle Sound) pursuant to Section 10(a)(1)(A) of the Endangered Species Act of 1973. August 17, 2010.

Atlantic sturgeon, such that avoidance of the entire project area (which is highly unlikely) would have detrimental effects on them, even over the project life (3.5 years).

(4) Turbidity associated with construction would be limited to that occurring during pile driving, and occur in a relatively small portion of Oregon Inlet at any one time, thus not offer significant obstacles to Atlantic sturgeon passage or foraging, nor significantly affect their behavior.

(5) If Atlantic sturgeon avoided the construction area during construction, their foraging will be insignificantly affected by this potential avoidance behavior, given alternate, similar, nearby, available habitat.

(6) The Oregon Inlet area is used ephemerally for Atlantic sturgeon migration and the current bridge's presence has not deterred their use of the inlet as a transit point into and out of the Atlantic Ocean; therefore, the risk that the replacement bridge would alter or significantly affect migration is discountable. Atlantic sturgeon migratory passage into or out of the inlet may be affected, to the extent that sturgeon avoid the construction area during demolition or construction, but this effect, if it occurs will be insignificant given the width of the inlet.

This concludes NCDOT's consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action.

We have enclosed other relevant information that may apply to this action. We look forward to continued cooperation with NCDOT in conserving our endangered and threatened resources. If you have any questions, please contact Eric Hawk, consultation biologist, at (727) 551-5773, or by e-mail at eric.hawk@noaa.gov.

Sincerely,

Miles M. Croom

for Roy E. Crabtree, Ph.D.
Regional Administrator

Enc.:1. *Sea Turtle and Smalltooth Sawfish Construction Conditions* (Revised March 23, 2006)
2. *PCTS Access and Additional Considerations for ESA Section 7 Consultations* (Revised July 15, 2009)

cc: F/SER47 – R. Sechler, Pace Wilber, NMFS HCD
F/SER3 – Cheryl Bonnes, PRD Outreach Coordinator

File: 1514-22.L.1. NCDOT

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

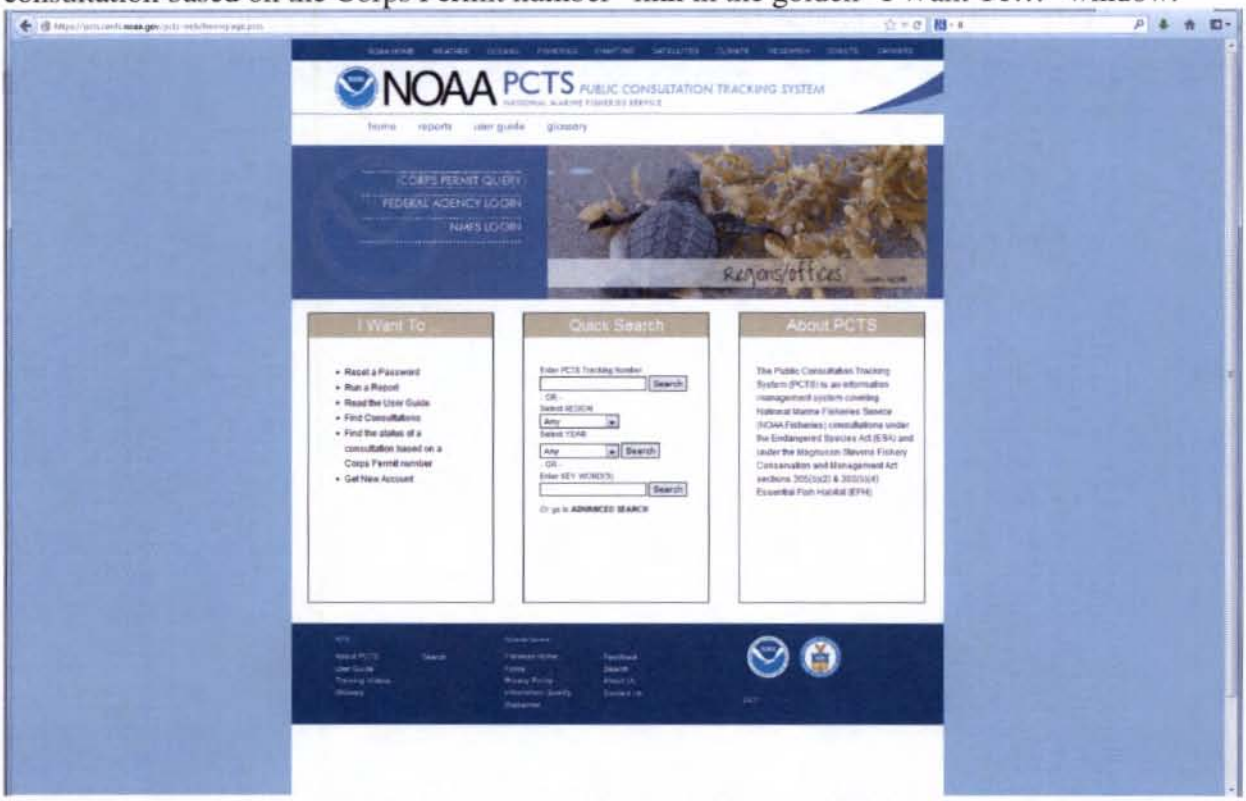
g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

PCTS Access and Additional Considerations for ESA Section 7 Consultations
(Revised 6-11-2013)

Public Consultation Tracking System (PCTS) Guidance: PCTS is a Web-based query system at **https://pcts.nmfs.noaa.gov/** that allows all federal agencies (e.g., U.S. Army Corps of Engineers - USACE), project managers, permit applicants, consultants, and the general public to find the current status of NMFS's Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultations which are being conducted (or have been completed) pursuant to ESA Section 7 and the Magnuson-Stevens Fishery Conservation and Management Act's (MSA) Sections 305(b)2 and 305(b)(4). Basic information including access to documents is available to all.

The PCTS Home Page is shown below. For USACE-permitted projects, the easiest and quickest way to look up a project's status, or review completed ESA/EFH consultations, is to click on either the "Corps Permit Query" link (top left); or, below it, click the "Find the status of a consultation based on the Corps Permit number" link in the golden "I Want To..." window.



Then, from the "Corps District Office" list pick the appropriate USACE district. In the "Corps Permit #" box, type in the 9-digit USACE permit number identifier, with no hyphens or letters. Simply enter the year and the permit number, joined together, using preceding zeros if necessary after the year to obtain the necessary 9-digit (no more, no less) number. For example, the USACE Jacksonville District's issued permit number SAJ-2013-0235 (LP-CMW) must be typed in as 201300235 for PCTS to run a proper search and provide complete and accurate results. For querying permit applications submitted for ESA/EFH consultation by other USACE districts, the procedure is the same. For example, an inquiry on Mobile District's permit MVN201301412 is entered as 201301412 after selecting the Mobile District from the "Corps District Office" list. PCTS questions should be directed to Eric Hawk at Eric.Hawk@noaa.gov or (727) 551-5773.

EFH Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to Section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the MSA requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The ESA Section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA Section 101 (a)(5) is necessary. Please contact NMFS' Permits, Conservation, and Education Division at (301) 713-2322 for more information regarding MMPA permitting procedures.

Appendix E

First Amendment to Section 106 Programmatic Agreement

FIRST AMENDMENT TO
THE PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
AND
THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
FOR
THE REPLACEMENT OF HERBERT C. BONNER BRIDGE (BRIDGE NO. 11)
ON NC 12 OVER THE OREGON INLET
AND
IMPROVEMENTS TO NC 12 TO RODANTHE
DARE COUNTY, NORTH CAROLINA
TIP PROJECT B-2500
FEDERAL AID PROJECT BRS-2358(15)

WHEREAS, the Federal Highway Administration (FHWA), the North Carolina Department of Transportation (NCDOT), the North Carolina State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) have executed a Programmatic Agreement (PA) effective as of November 17, 2010 regarding the replacement of the Herbert C. Bonner Bridge (Bridge No. 11) on NC 12 over the Oregon Inlet and Improvements to NC 12 to Rodanthe; and

WHEREAS, due to damage to NC 12 caused by Hurricane Irene in August 2011, the NC 12 TMP is underway to implement the permanent repair at two breach locations along the project corridor; and

WHEREAS, in accordance with Stipulation II.A. of the PA, NCDOT consulted with SHPO, United States Fish and Wildlife Service (USFWS), and the National Park Service (NPS) regarding plans and specifications for the parapet and bridge rail for the two breach locations of NC 12 and determined that the parapet and bridge rail design proposed in the PA is insufficient to protect endangered species in the Peal Island Wildlife Refuge.

NOW, THEREFORE, FHWA, the ACHP, the SHPO, and the NCDOT agree that Stipulation II.A. of the PA be amended to read as follows:

A. Pea Island National Wildlife Refuge

Bridge Design

For Phase I of the proposed Undertaking, the bridge rail is proposed as a 30-inch concrete parapet with 2-bar, metal rail atop the parapet. For future phases within the Pea Island National Wildlife Refuge, the bridge rail is proposed as a concrete parapet, up to a maximum height of 36 inches with a 2-bar metal rail atop the parapet. Prior to

completion of the final design for the Undertaking's bridge structure for future phases within the Pea Island National Wildlife Refuge, NCDOT shall afford the SHPO, USFWS, and NPS an opportunity to review and comment on the plans and specifications for the parapet and bridge rail for NC 12. If no comments are received from the SHPO, USFWS, or NPS within thirty (30) days of confirmed receipt, NCDOT can assume that the reviewing parties do not object to the proposed design. Should any of these parties have questions about or comments on such plans and specifications, NCDOT shall consult with that party, and if necessary with several or all consulting parties to address such questions and comments.

The parties hereby acknowledge and reaffirm their commitment to perform all duties previously set forth in the PA and these duties are incorporated by reference as if fully set forth herein.

Execution of this first amendment to the PA evidences that FHWA has afforded the Council a reasonable opportunity to comment on the Undertaking, and that FHWA has taken into account the effects of the Undertaking on the historic properties.

SIGNATORIES:

By: Clarence W. Coleman, Jr. Date: 8/7/2013
John F. Sullivan, III, Division Administrator
Federal Highway Administration, North Carolina

By: Kevin Cherry Date: 8/6/2013
Kevin Cherry, Deputy Secretary
North Carolina State Historic Preservation Officer

By: Valarie Hauser Date: 8/7/2013
for John M. Fowler, Executive Director
Advisory Council on Historic Preservation

By: _____ Date: _____
Terry Gibson, State Highway Administrator
North Carolina Department of Transportation

completion of the final design for the Undertaking's bridge structure for future phases within the Pea Island National Wildlife Refuge, NCDOT shall afford the SHPO, USFWS, and NPS an opportunity to review and comment on the plans and specifications for the parapet and bridge rail for NC 12. If no comments are received from the SHPO, USFWS, or NPS within thirty (30) days of confirmed receipt, NCDOT can assume that the reviewing parties do not object to the proposed design. Should any of these parties have questions about or comments on such plans and specifications, NCDOT shall consult with that party, and if necessary with several or all consulting parties to address such questions and comments.

The parties hereby acknowledge and reaffirm their commitment to perform all duties previously set forth in the PA and these duties are incorporated by reference as if fully set forth herein.

Execution of this first amendment to the PA evidences that FHWA has afforded the Council a reasonable opportunity to comment on the Undertaking, and that FHWA has taken into account the effects of the Undertaking on the historic properties.

SIGNATORIES:

By: _____ Date: _____
John F. Sullivan, III, Division Administrator
Federal Highway Administration, North Carolina

By: _____ Date: _____
Jeffrey J. Crow, Deputy Secretary
North Carolina State Historic Preservation Officer

By: _____ Date: _____
John M. Fowler, Executive Director
Advisory Council on Historic Preservation

By: _____ Date: 8/5/13
Terry R. Gibson, Chief Engineer
North Carolina Department of Transportation

CONCURRING PARTIES:

By: _____ Date: _____
Bobby Outten, County Manager
Dare County, North Carolina County Manager

By: David R. Griffin _____ Date: 8/9/13
David Griffin, Division Director
North Carolina Aquariums, (Former) Pea Island US Coast Guard Station

By: _____ Date: _____
Ken Wenberg, President
Chicamacomico Historical Association

By: _____ Date: _____
Cynthia Dohner, Regional Director
U. S. Fish and Wildlife Service, Southeast Region

By: _____ Date: _____
David Vela, Regional Director
National Park Service

U.S. Life-Saving Station
Chicamacomico
Historic Site

Chicamacomico Historical Association

Post Office Box 5, Rodanthe, North Carolina 27968
Phone: (252) 987-1552 Fax: (252) 987-1559
Website: chicamacomico.net Email: clss@embarqmail.com

National Register of Historic Places

RRING PARTIES:

Date: _____

Bobby Outten, County Manager
Dare County, North Carolina County Manager

By: _____ Date: _____
David Griffin, Division Director
North Carolina Aquariums, (Former) Pea Island US Coast Guard Station

By: James Charlet * Date: Aug 14, 2013
Ken Wenberg, President
Chicamacomico Historical Association
* Historic Site Manager

By: _____ Date: _____
Cynthia Dohner, Regional Director
U. S. Fish and Wildlife Service, Southeast Region

By: _____ Date: _____
David Vela, Regional Director
National Park Service

Chicamacomico Historical Association is a 501(c)3 non-profit corporation. Your membership is tax deductible.

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CONCURRING PARTIES:

By: _____ Date: 8/21/13
Bobby Outten, County Manager
Dare County, North Carolina County Manager

By: _____ Date: _____
David Griffin, Division Director
North Carolina Aquariums, (Former) Pea Island US Coast Guard Station

By: _____ Date: _____
Ken Wenberg, President
Chicamacomico Historical Association

By: _____ Date: _____
Cynthia Dohner, Regional Director
U. S. Fish and Wildlife Service, Southeast Region

By: _____ Date: _____
David Vela, Regional Director
National Park Service