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North Carolina Division
Administrative Action

Revised Final Section 4(f) Evaluation

NC 12 Replacement of 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

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The proposed project is the construction of a bridge to replace Herbert C. Bonner Bridge in Dare County, the demolition and removal of Bonner Bridge, and improvements to NC 12 between the community of Rodanthe and Oregon Inlet. This Revised Final Section 4(f) Evaluation revises the Final Section 4(f) Evaluation contained in the September 17, 2008, Final Environmental Impact Statement.

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Section 4(f) Evaluation

Introduction

Section 4(f) of the Department of Transportation Act of 1966, as amended (49 U.S.C. 303 and 23 U.S.C. 138), states that the U.S. Department of Transportation (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; and
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 the Section 4(f) Evaluation concludes that there is no feasible and prudent avoidance alternative, then the USDOT may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose. The analysis for a Section 4(f) Evaluation comprises the following steps:

- identify properties in the study area that are protected by Section 4(f);
- determine applicability (i.e., would any of the alternatives use Section 4(f) properties?);
- if there is a use, identify any avoidance alternatives; and
- if there are no avoidance alternatives, determine the overall least harm alternative.

The Federal Highway Administration (FHWA) must comply with Section 4(f) for all projects funded with Federal-Aid Highway program funds (as this project is). FHWA issued a Final Environmental Impact Statement (FEIS) and Final Section 4(f) Evaluation on September 17, 2008. This document revises the Final Section 4(f) Evaluation.

What Do We Propose?

FHWA and the North Carolina Department of Transportation (NCDOT) propose to replace the Herbert C. Bonner Bridge across Oregon Inlet in Dare County. Bonner Bridge, built in 1962, is approaching the end of its reasonable service life and is structurally deficient. Bonner Bridge is a part of NC 12 and provides the only highway connection between Hatteras Island and Bodie Island. The replacement structure would serve the same function. The project also includes NC 12 between Oregon Inlet and the community of Rodanthe, an area that is at risk because of shoreline erosion and major storms. This project proposes to provide a long-term approach to minimizing that risk through 2060.

What Work Has Been Completed Previously?

In 1990, FHWA and NCDOT began studying replacement alternatives for Bonner Bridge (TIP No. B-2500) to address problems with deterioration of the reinforcing steel and concrete supporting structures, scour (erosive force of moving water) of a depth great enough to affect the bridge piles' ability to support the superstructure, and channel migration. In addition, the bridge's vulnerability to ship collision became apparent when a hopper dredge used to maintain Oregon Inlet's channel struck Bonner Bridge and demolished several spans. FHWA issued a Draft Environmental Impact Statement (DEIS) in November 1993. The DEIS suggested a single Preferred Alternative--the Parallel Bridge Corridor across Oregon Inlet. After the release of the DEIS, comments were received regarding the DEIS from the public and from Federal, state, and local agencies. A preliminary FEIS was prepared in 1996; however, it was never signed because formal consultation with the U.S. Fish & Wildlife Service (USFWS) under Section 7 of the Endangered Species Act was not completed.

Because it had been more than seven years since completion of the DEIS, a re-evaluation was conducted in 2001 to determine if the preliminary FEIS remained a valid assessment of project impacts. A decision was made in 2001 to prepare a Supplemental DEIS. By this time, NC 12 had begun to be regularly threatened by shoreline erosion and overwash. Three areas on NC 12, or "hot spots," between Oregon Inlet and Rodanthe are especially

vulnerable. To address these “hot spots”, the study area was expanded south to encompass NC 12 to Rodanthe and new alternatives were developed that addressed these “hot spots”.

The SDEIS was completed and signed in September 2005. The SDEIS assessed five alternatives in two corridors, the Pamlico Sound Bridge Corridor and the Parallel Bridge Corridor. A proposal made during the comment period following the release of the SDEIS led to the development of two additional Parallel Bridge Corridor alternatives. These alternatives were assessed in the Supplement to the SDEIS (SSDEIS), which was issued in February 2007.

The FEIS/Final Section 4(f) Evaluation (ncdot.org/projects/bonnerbridgerepairs/newsupdates/#suplimental) identified the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge as the Preferred Alternative and addressed comments received on the SDEIS and SSDEIS. Substantial comments on the FEIS/Final Section 4(f) Evaluation were received from several jurisdictional agencies and from a non-governmental organization. The comments are included in Appendix A of this Revised Final Section 4(f) Evaluation.

What Progress Has Been Made Since the FEIS/Final Section 4(f) Evaluation?

In the year since publication of the FEIS/Final Section 4(f) Evaluation, FHWA and NCDOT have collected new information regarding the history of vehicular transportation across Bodie and Hatteras Islands, and the development of the Cape Hatteras National Seashore (Seashore) and the Pea Island National Wildlife Refuge (Refuge). This information was summarized in a reference timeline (Appendix B) and shared with the USFWS in March 2009 and all Merger Team representatives¹ in May 2009.

The NCDOT and FHWA have been working with the State Historic Preservation Officer (SHPO), the Advisory Council for Historic Preservation (ACHP), and other consulting parties to modify conceptual project designs (Appendix C) to lessen effects to the Rodanthe Historic District and the Chicamacomico Life Saving Station. The parties also worked together to re-evaluate the effects on those historic properties as required under Section 106 of the National Historic Preservation Act.

NCDOT and FHWA have also worked with Federal and State regulatory and resource agencies to address the comments and concerns expressed in response to the FEIS/Final Section 4(f) Evaluation. While the coordination and consultation often involved a single agency or several agencies with interest in a particular resource, meetings of the entire Merger Team of involved agencies took place in November 2008, March 2009, May 2009 and September 2009. Minutes of the Merger Team meetings that led to the new Preferred Alternative are located in Appendix D.

The November 2008 Merger Team meeting focused on developing design parameters for Phase I. This included a decision that the Oregon Inlet bridge terminus on Hatteras Island with the Parallel Bridge Corridor with Phased Approach (Phase I) Alternative should be extended to the south by approximately 2,000 feet (610 meters) in order to account for potential sound-side erosion at the north end of Hatteras Island. This decision was also applied to the Parallel Bridge Corridor with Nourishment and Parallel Bridge Corridor with Road North/Bridge South Alternatives. At the meeting, the USFWS and the National Marine Fisheries Service again expressed a preference for a 17.5 mile-long bridge through the Pamlico Sound instead of a parallel crossing of the Oregon Inlet. FHWA committed to reconsider the Pamlico Sound Bridge corridor, the results of which are

¹ Merger is a process to streamline the project development and permitting processes, agreed to by the USACE, NCDENR, FHWA and NCDOT and supported by other stakeholder agencies and local units of government. To this effect, the Merger process provides a forum for appropriate agency representatives to discuss and reach consensus on ways to facilitate meeting the regulatory requirements of Section 404 of the Clean Water Act during the NEPA/SEPA decision-making phase of transportation projects. The Merger Process allows agency representatives to work more efficiently (quicker and comprehensive evaluation and resolution of issues) by providing a common forum for them to discuss and find ways to comply with key elements of their agency's mission. The merger process helps to document how competing agency mandates are balanced during a shared decision-making process, which results in agency representatives reaching a "compromise based decision" to the regulatory and individual agency mandates.

discussed later in this Revised Final Section 4(f) Evaluation. At the March 2009 meeting, NCDOT and FHWA presented information that had been gathered in response to some of the comments received on the FEIS/Final Section 4(f) Evaluation and FHWA committed to revise the Final Section 4(f) Evaluation. The Merger Team discussed whether the FEIS-Preferred Alternative should be changed but there was no consensus.

The May 2009 meeting was to discuss selecting a new Preferred Alternative (possibly the Parallel Bridge Corridor with Road North/Bridge South Alternative). Additional alignment options developed for the Parallel Bridge Corridor with Road North/Bridge South Alternative by NCDOT to minimize harm to the historic features of the Refuge were considered but not adopted. Feedback from a majority of the Merger Team agencies at this Merger Meeting indicated a strong opinion that this alternative (including several possible design options in the vicinity of the ponds) should not be selected. Instead, the Merger Team decided that NCDOT should develop a modification of the FEIS/Final Section 4(f) Evaluation Preferred Alternative that was proposed by the U.S. Environmental Protection Agency (EPA) representative. This new alternative would replace the structurally deficient Bonner Bridge soon by combining the Phase I portion (the new bridge over Oregon Inlet) of the FEIS/Final Section 4(f) Evaluation Preferred Alternative with a deferred, fifty-year long decision-making process for the southernmost eleven miles of the project on Hatteras Island. These later phases could consist of, but would not be limited to, one or more components of any of the alternatives already studied as part of the environmental review process (including a No Action Alternative), as required by the National Environmental Policy Act (NEPA). Decision-making was postponed for the later phases because while the shoreline erosion is a significant issue and new inlets are likely to form, exact locations and timing are unknown. Future major storms are likely to affect NC 12. Likewise, those future major storms are also likely to affect the context and quality of resources in the area as well. The new Preferred Alternative would allow all agencies to minimize risks by building what is needed now, and managing the rest of the project area on an as needed basis. The Parallel Bridge Corridor with NC 12 Transportation Management Plan approach would allow parties to take advantage of likely future scientific and engineering advances, including new data, analysis, and technology.

EPA's proposal became the new Preferred Alternative – the “Parallel Bridge Corridor with NC 12 Transportation Management Plan” Alternative that is the primary subject of this Revised Section 4(f) Evaluation. The proposed new Preferred Alternative described in Appendix E was discussed at the September 2009 meeting, along with possible measures to minimize and mitigate impacts to wetlands and submerged aquatic vegetation. There was agreement among the Merger Team representatives present that a new merger process concurrence form will be drafted. The concurrence form will recognize the Review Board's agreement to proceed with Phase I as soon as possible and will explain why the team agreed that decisions on the later phases of the project should be postponed. The Merger Team is scheduled to act on the concurrence form on October 15, 2009.

What is the Purpose of This Revised Final Section 4(f) Evaluation?

The purpose of this Revised Final Section 4(f) Evaluation is to:

- change several determinations contained in the previous Final Section 4(f) Evaluation;
- analyze a new Preferred Alternative that evolved through additional coordination and communication with Federal and State resource agencies;
- analyze the feasibility and prudence of the Pamlico Sound Bridge Corridor alternatives; and
- reconsider the least overall harm determination in light of the development of a new Preferred Alternative.

FHWA is circulating this Revised Section 4(f) Evaluation to provide the resource agencies and the public an opportunity to review and comment. All comments received will be reviewed and taken into account prior to the approval of the use of any Section 4(f) property in the Record of Decision (ROD).

What is the New Preferred Alternative?

FHWA and NCDOT propose a new Preferred Alternative, described as the “Parallel Bridge Corridor with NC 12 Transportation Management Plan.” This alternative would replace the current Herbert C. Bonner Bridge

with a new bridge located to the west of the existing bridge (Phase I). The replacement bridge location in the Refuge is limited to the area necessary to safely construct and tie-in the new bridge to NC 12. Under the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative, later phases of actions to manage NC 12 through 2060 would be decided based on actual conditions existing on Hatteras Island at the point in time that additional action becomes necessary. These later phases could consist of, but would not be limited to, one or more components of any of the alternatives already studied as part of the environmental review process (including the No Action Alternative, as required by NEPA). A description of the new Preferred Alternative and maps are included in Appendix E.

Is the Parallel Bridge Corridor with NC 12 Transportation Management Plan a Completely New Alternative?

No. Phase I of the Parallel Bridge Corridor with NC 12 Transportation Management Plan is very similar to the other Parallel Bridge Corridor alternatives identified in the FEIS. On Bodie Island and over the Oregon Inlet, this alternative is essentially identical. For the remainder of this alternative, it is a structured variation of the “mixing and matching” of the five Parallel Bridge Corridor alternatives, with the decision-making for the later phases delayed until the future conditions of the barrier island and the transportation infrastructure are known. The mixing and matching concept, as stated in the FEIS (page 2-96) is explained as follows:

“Although the NC 12 Maintenance alternatives are described and addressed in this FEIS as five separate alternatives, their components could be mixed and matched geographically along the length of NC 12 to create other variations. For example, NC 12 could be relocated on a road immediately south of a new Oregon Inlet bridge and relocated on a bridge in the area of the large ponds within the Refuge and at Rodanthe. NC 12 also could be protected by beach nourishment in the northern part of the Refuge and relocated on a bridge in the Rodanthe area. The Bridge South component of the Road North/Bridge South Alternative could be used in place of the Phased Approach alternatives’ components at the south end of the Refuge and at Rodanthe. Other combinations are also possible. As such, the assessment of the five NC 12 Maintenance alternatives is representative of all possible combinations of their components.”

The SSDEIS first introduced the “mixing and matching” concept of the five Parallel Bridge Corridor alternatives and the FEIS continued this concept. At a Sea Level Rise Peer Exchange workshop hosted by NCDOT and FHWA in May 2008, FHWA and NCDOT hosted a panel of national experts to provide sea-level rise information for the agencies to consider as the project developed. Objectives of the workshop included identifying recent scientific research on global climate change effects and to relate how that research can help inform the development of the Bonner Bridge Replacement Project. The outcome of the workshop was to identify analytical gaps, if any, between the NC 12 vulnerability analysis and shoreline erosion forecast conducted for the project compared to recent and relevant research on global climate change. Panelists generally agreed that the project’s worst case analysis of shoreline erosion may account for a portion of sea level rise caused by future changes in climate. There was consensus that the current global sea level analytical models are not fully developed to predict local effects and that the wide range of future sea level rise information considered in the workshop illustrates the uncertainty associated with estimating future sea levels and shoreline locations. The new Preferred Alternative is consistent with the approach suggested by the panelists because it gives the project sponsors the opportunity to review and incorporate new analysis prior to commencement of each phase.

While the Parallel Bridge with NC 12 Transportation Management Plan is not a completely new alternative, the alternative was not specifically evaluated under the FEIS/Final Section 4(f) Evaluation. Therefore, this Revised Final Section 4(f) Evaluation includes analysis of this alternative.

Identification of Section 4(f) Properties

What Did the FEIS/Final Section 4(f) Evaluation Find?

Section 5.1 of the FEIS/Final Section 4(f) Evaluation identified the following Section 4(f) properties within the project area:

- Cape Hatteras National Seashore (recreational area);
- Pea Island National Wildlife Refuge (wildlife refuge);
- Pea Island National Wildlife Refuge (historic property);
- (former) Oregon Inlet US Coast Guard Station (historic property);
- Rodanthe Historic District (historic property); and
- Chicamacomico Life Saving Station (historic property).

What Has Changed?

No additional Section 4(f) properties have been identified in this Revised Final Section 4(f) Evaluation. Therefore, there are no changes to this section from the FEIS/Final Section 4(f) Evaluation (September 17, 2008).

Applicability of Section 4(f) to Properties within the Project Area

Section 4(f) applies when FHWA determines that an alternative would “use” one or more properties protected by Section 4(f). Except as set forth in 23 CFR 774.11 and 774.13, a use of Section 4(f) property occurs:

1. When land is permanently incorporated into a transportation facility;
2. When there is a temporary occupancy of land that is adverse in terms of the statute’s preservation purpose as determined by the criteria in 23 CFR 774.13(d); or
3. When there is a constructive use of Section 4(f) property as determined by the criteria within 23 CFR 774.15.

In the ensuing analysis, if a “use” determination is made, then the “use” determination means that the property is afforded Section 4(f) protection.

What Did the FEIS/Final Section 4(f) Evaluation Find?

Chapter 2 of the FEIS/Final Section 4(f) Evaluation identified the following detailed study alternatives:

- Parallel Bridge Corridor
 - With Phased Approach/Rodanthe Bridge;
 - With All Bridge;
 - With Nourishment;
 - With Road North/Bridge South; and
 - With Phased Approach/Rodanthe Nourishment.
- Pamlico Sound Bridge Corridor
 - With Curved Rodanthe Terminus; and
 - With Intersection Rodanthe Terminus.

The FEIS/Final Section 4(f) Evaluation determined that each detailed study alternative used Section 4(f) property in the project area (Table 1), and therefore concluded that Section 4(f) was applicable to all alternatives.

Table 1: Section 4(f) Applicability (Use) from the FEIS/Final Section 4(f) Evaluation (September 17, 2008)

Section 4(f) Properties	Parallel Bridge Corridor Alternatives					Pamlico Sound Bridge Corridor Alternatives	
	Nourishment	Road North/ Bridge South	All Bridge	Phased Approach/ Rodanthe Bridge	Phased Approach/ Rodanthe Nourishment	Curved Rodanthe Terminus	Intersection Rodanthe Terminus
Cape Hatteras National Seashore	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pea Island National Wildlife Refuge	Yes	Yes	Yes	No	Yes	No	No
(former) Oregon Inlet US Coast Guard Station (historic)	No	No	No	No	No	No	No
Rodanthe Historic District (historic)	No	Yes	Yes	No	No	No	No
Chicamacomico Life Saving Station (historic)	No	Yes	Yes	No	No	No	No

What Has Changed?

Table 1 indicates, for each alternative, whether the Final Section 4(f) Evaluation determined there would or would not be a “use” of each of the protected properties as defined by Section 4(f). Based on comments received on the FEIS/Final Section 4(f) Evaluation, newly obtained information, additional consultation and new analysis some of the determinations have changed. In Table 2, the determinations that have been revised are shaded and in a larger font size. In addition, determinations have been made for the new Preferred Alternative (Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative). The determinations for this new alternative are shown in bold, italics with a larger font size in Table 2. A comparison of Tables 1, 2 and 3 illustrates the changes that have been made to the Final Section 4(f) “use” determinations. Analysis supporting the revised and new determinations follows.

Table 2: Revised and New Section 4(f) "Use" Determinations

Section 4(f) Properties	Parallel Bridge Corridor Alternatives						Pamlico Sound Bridge Corridor Alternatives	
	Nourishment	Road North/ Bridge South	All Bridge	Phased Approach/ Rodanthe Bridge	Phased Approach/ Rodanthe Nourishment	<i>New: NC 12 Transportation Management Plan</i>	Curved Rodanthe Terminus	Intersection Rodanthe Terminus
Cape Hatteras National Seashore	No	No	No	No	No	No	No	No
Pea Island National Wildlife Refuge*	Yes	Yes	Yes	Yes	Yes	Yes	No	No
(former) Oregon Inlet US Coast Guard Station	No	No	No	No	No	No	No	No
Rodanthe Historic District	No	No	No	No	No	No	No	No
Chicamacomico Life Saving Station	No	No	No	No	No	No	No	No

*Refuge as a historic property

Cape Hatteras National Seashore

As identified in Table 1, the FEIS/Final Section 4(f) Evaluation found that all alternatives would “use” the Seashore because the existing road would be relocated from its current alignment. However, newly obtained information shows that a public vehicular thoroughfare existed prior to the establishment of the Seashore, and the Seashore and road were concurrently and jointly planned and developed. FHWA and NCDOT have considered historical right-of-way information compiled after the FEIS/Final Section 4(f) Evaluation that is relevant to the impacts under Section 4(f). A timeline of related events can be found in Appendix B. FHWA and NCDOT acknowledge that while a large volume of historical material was found, not all documents that one would expect to have existed could be located. This information was provided to the Merger Team members in May 2009 (the National Park Service (NPS), as part of the U.S. Department of the Interior (USDO), as the official with jurisdiction, is a member of the Merger Team).

When there is such concurrent and joint planning and development between a Section 4(f) property and a transportation facility, the requirements of Section 4(f) do not apply to the subsequent use of the area for transportation. The applicable FHWA regulations regarding Section 4(f), 23 CFR 774.11(h)& (i) state:
“(h) When a property formally reserved for a future transportation facility temporarily functions for park, recreation, or wildlife and waterfowl refuge purposes in the interim, the interim activity, regardless of duration, will not subject the property to Section 4(f).
(i) When a property is formally reserved for a future transportation facility before or at the same time a park, recreation area, or 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 Sec. 774.17. Examples of such concurrent or joint planning or development include, but are not limited to:

- (1) Designation or donation of property for the specific purpose of such concurrent development by the entity with jurisdiction or ownership of the property for both the potential transportation facility and the Section 4(f) property; or
- (2) Designation, donation, planning, or development of property by two or more governmental agencies with jurisdiction for the potential transportation facility and the Section 4(f) property, in consultation with each other.”

Concurrent and joint planning and development between the NPS (on behalf of the Seashore) and the State of North Carolina (on behalf of the transportation facility) is evident based on the following historical information.

The Seashore was authorized under an Act of Congress approved August 17, 1937 and established in 1953. The NPS was to oversee the Seashore and was empowered to accept lands, through gifts or donations, within the boundaries established by Congress.

Since the NPS could only accept donations of land for the Seashore, the North Carolina General Assembly established (Chapter 257, Public Laws of North Carolina) the North Carolina Cape Hatteras National Seashore Commission (Commission) in 1939. This Commission was authorized, empowered and directed to acquire title in the name of the State of North Carolina for lands required for the Seashore. Once acquired by the Commission, the lands were to be transferred to the United States for the creation of the first National Seashore in history.

The 1939 North Carolina Session Law provided that the transfer of lands acquired by North Carolina would be subject to several conditions. One of these conditions was that North Carolina would retain the right to operate any existing roadways and to establish other highways and roads as deemed necessary by the State of North Carolina. North Carolina also retained the right to condemn properties and levy taxes.²

The Commission proceeded with acquiring a number of parcels for eventual transfer to the U.S. Government.

² Chapter 257, 1939 North Carolina Session Law.

The Commission and the Governor entered into extensive conversations with the NPS regarding funding for the acquisition of land for the Seashore and which agency should be responsible for land acquisition. The NPS proposed to raise \$618,000 in private donations and sought to have North Carolina match those funds. In June 1952, North Carolina agreed to provide the funding (an additional \$200,000 was later sought and approved in 1958). A memorandum of agreement (MOA) was signed on July 15, 1952 between the Commission and the NPS³.

The MOA resulted in the NPS now being responsible for land acquisition (rather than the Commission). Another aspect of the MOA was that the parties agreed that wherever possible, condemnation proceedings were to take place in Federal courts. Also as part of the MOA, the State conveyed lands to the United States (for example deeds dated December 22, 1952, July 10, 1953⁴, and May 26, 1955⁵). All of these deeds conveyed the property subject to the conditions and reservations recited in Chapter 257 of the North Carolina Public Law of 1939 and each contained the following language:

“... upon the further 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 the 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; and to such end the said land shall be subject to condemnation proceedings in the same manner and to the same extent as if said lands were privately owned.”

In addition to the lands referenced above, on May 20, 1954, the State granted a Quitclaim deed to the United States for all interest that it had on the Refuge (also part of the Seashore), except a previously granted 100 foot permanent easement for right-of-way to operate and maintain the recently constructed road⁶ (the newly built road was completed on July 23, 1954).

Some time after these conveyances, the United States realized that it had failed to acquire all of the lands within the boundaries designated as the Seashore. Specifically, the lands located between the low and high tide water lines as well as submerged land in the Oregon Inlet and several islands all of which belonged to North Carolina⁷. Therefore, by deed dated August 7, 1958⁸, North Carolina conveyed these lands to the United States and again expressly reserved the right to operate and maintain the roadway as the State deemed necessary:

“...[T]he 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...”

The parties also recognized that erosion was a concern. Therefore, the Deed also provided that in the event that the parties were unable to determine the original markers due to a shift in the original lands conveyed, it was their intent that the land belong to the United States for the purposes of operating the Seashore.

Therefore, it is evident that while assembling properties to be incorporated into the Seashore, the State of North Carolina and the U.S. Government concurrently and jointly planned on future transportation uses within the Seashore.

Regarding transportation, prior to the creation of the Seashore, the only means of transportation between villages on Bodie Island and Hatteras Island was via a tug and barge service across Oregon Inlet (privately

³ “The Creation and Establishment of the Cape Hatteras National Seashore (NPS 2007), p. 102.

⁴ Deed Book 47, Page 481, Dare County.

⁵ Deed Book 61, Page 438, Dare County.

⁶ Quitclaim deed dated May 20, 1954 between the State Highway and Public Works Commission and the United States of America.

⁷ For a more detailed description of the lands, see letter from USDOJ dated April 23, 1958.

⁸ Deed Book 79, Page 548, Dare County.

operated by Captain J.B. Tillet since the 1920s). Once across the inlet, motorist traveled Hatteras Island via sand pathways. By 1934, the North Carolina Highway Commission had begun to subsidize Captain Tillet's Ferry Service⁹.

In 1938, the North Carolina State Highway and Public Works Commission (in conjunction with the Federal Works Agency Public Roads Administration) published a map of Dare County which depicts an "unimproved road" extending from Bodie Island to Rodanthe and points further south. A note on this map states "'*Off-road culture not shown. Map includes only official roads and important suburban entrance roads not subject to public maintenance.*" (source: North Carolina State Archives, "Dare County, North Carolina (State Highway and Public Works Commission), 1938").

In the late 1940s, paved roads were constructed to link villages on Hatteras Island. In 1952, a paved road was constructed through Hatteras Island to the village of Hatteras.

During the establishment of the Seashore, the State of North Carolina and the NPS coordinated and collaborated on providing transportation infrastructure within the Seashore. As early as May 1953, the state-contracted operator of a two-car ferry at Hatteras Inlet opened a toll ferry with improved facilities to carry several cars. The major problem was the bottleneck at Oregon Inlet where a fast-growing volume of visitors quickly overran the existing state ferry operation. To alleviate the bottleneck, the NPS contacted the Department of Defense to secure the service of a surplus Landing Craft Utility (LCU), a WWII-era landing craft, for use as a civilian ferry. The Navy agreed and in April 1953, it provided an LCU to the North Carolina State Highway Department for use at Oregon Inlet. The new ferry began service on May 1, 1953. Shortly after opening, this new ferry also proved inadequate to meet increased need. Two more ferries were thus obtained through the help of the NPS and put to work by the summer of 1954 (these LCUs were subsequently christened in honor of North Carolina governors William B. Umstead and R. Gregg Cherry, and NPS Director Conrad L. Wirth).¹⁰

The NPS had also undertaken a campaign referred to as "Mission 66." "Mission 66" began in the mid- to late-1950s and was a project to update NPS facilities by 1966, the 50th Anniversary of the NPS. Construction of modern roads was a key element of the program. A specific briefing paper was prepared for Mission 66 as it applied to the Seashore and the Refuge. The briefing paper spoke of the current road system and referred to the State's plan to have a highway system throughout the length of the entire Outer Banks. The paper also referenced the State's "optimistic Plan" for a bridge to span Oregon Inlet.

As a result of the increase in visitors and a desire to draw more people to the Seashore and the Refuge, in 1962 the state began construction of a bridge over Oregon Inlet with the help of a \$500,000 appropriation from Congress¹¹. This \$500,000 contribution from the NPS was from an appropriation from Congress under the "Mission 66" program.

As the result of a severe storm in March 1962, a portion of NC 12 on the Refuge washed away. North Carolina coordinated with the USDOJ to relocate the road and on October 1, 1963, the United States conveyed a Deed of Easement to the State for the relocated portion of NC 12¹². The road relocation was completed on August 8, 1969.

In 1963, ferry service ceased with the opening of the Herbert C. Bonner Bridge over Oregon Inlet. In addition to the funding provided by the NPS, the State coordinated the construction of the bridge with the NPS¹³.

⁹ Pea Island National Wildlife Refuge, Comprehensive Conservation Plan, page 7.

¹⁰ "The Creation and Establishment of Cape Hatteras National Seashore" (NPS, 2007) pp. 131-132

¹¹ Public Law 87-799, 10/11/62, Congress authorized the Secretary of the Interior to spend \$500,000 toward the construction of a bridge across Oregon Inlet. This was part of the NPS Mission 66 Restoration Program.

¹² Deed Book 116, Page 201, Dare County, North Carolina.

¹³ USDOJ, NPS Special Use Permit No. CAHA-3-63 dated 7/31/83.

From 1966 to present North Carolina has coordinated with the USFWS on multiple occasions to relocate or rehabilitate sections of the road through the Refuge portion of the Seashore. The roadway has been relocated outside of the original 100 foot easement location on at least four occasions with the consent and coordination of the USFWS. Even the NPS (Director Wirth) acknowledged that “...*North Carolina was responsible for protecting its roads through the park and that meant going beyond the basic right-of-way...*”¹⁴

According to “The Creation and Establishment of Cape Hatteras National Seashore” (NPS, 2007), there were numerous other instances where the NPS acknowledged the need for, and planned for, transportation infrastructure within the Seashore.

Conclusion

After consideration of the facts discussed above and in Appendix B, the history demonstrates that the Federal and State governments preserved the Seashore on Bodie Island and Hatteras Island with an understanding that vehicular passage would be accommodated; and that the vehicular passage has not been fixed to one location. Rather, the vehicular passage has evolved in response to advances in highway construction and in response to the forces of nature. Further, the history indicates that the Seashore and the transportation facility were concurrently and jointly planned and developed by the Federal and State governments *working together* to preserve the land for wildlife while maintaining a means for safe and efficient vehicular transportation. In consideration of this substantial history of concurrent and joint planning and development for the co-existence of the Seashore and the roadway, *it is FHWA’s revised determination that Section 4(f) is not applicable to the Seashore, as the impacts resulting from relocating NC 12 from its current alignment through the Seashore would not be considered a use as defined in 23 CFR 774.17.* This determination does not mean that the replacement project will not be designed to minimize impacts to the Seashore, it simply means that FHWA is not required to make a specific Section 4(f) approval for use prior to approving the project. FHWA and NCDOT will continue to consult and coordinate with the NPS throughout the final design engineering process in order ensure that all harm to the Seashore is minimized and mitigated. A draft Partnership Agreement that would guide this process through 2060 is included in Appendix H.

Pea Island National Wildlife Refuge (as a Refuge)

As identified in Table 1, the FEIS/Final Section 4(f) Evaluation found that all Pamlico Sound Bridge Corridor alternatives and all Parallel Bridge Corridor alternatives, except the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative, would “use” the Refuge because the existing road would be relocated from its current alignment. However, newly obtained information shows that a public vehicular thoroughfare existed prior to establishment of the Refuge and the Refuge and road were concurrently and jointly planned and developed. FHWA and NCDOT have considered historical right-of-way information compiled after the FEIS/Final Section 4(f) Evaluation was published that is relevant to the impacts under Section 4(f). A timeline of related events can be found in Appendix B. FHWA and NCDOT acknowledge that while a large volume of historical material was found, not all documents that one would expect to have existed could be located. In March 2009, FHWA and NCDOT met with the USFWS and provided the information in Appendix B to the USFWS for comment. This information was also provided to the Merger Team members in May 2009.

When there is such concurrent or joint planning or development between a Section 4(f) property and a transportation facility, the requirements of Section 4(f) do not apply to the subsequent use of the area for transportation. Concurrent or joint planning and development between the transportation facility and the Refuge is evident based on the following historical information.

Located on one of North Carolina’s barrier islands, the Refuge was established by Executive Order 7864 on April 8, 1938, as a refuge and breeding ground for migratory birds and other wildlife. Presidential Proclamation 2284 closed a 25,700-acre area encompassing the Refuge and a portion of the Pamlico Sound west of and adjacent to the Refuge to migratory bird hunting. The Refuge falls within the geographical boundaries of the Seashore. While both entities fall under the purview of the USDO, the Seashore is managed by the NPS, while

¹⁴ “The Creation and Establishment of Cape Hatteras National Seashore” (NPS, 2007).

the Refuge is managed by the USFWS pursuant to a Memorandum of Understanding with the NPS. The Refuge originally covered 5,915 acres of land. Over time, that area has been reduced by erosion to approximately 5,000 acres¹⁵.

Prior to the creation of the Refuge, residents lived in the villages to the south of the Refuge. The only means of transportation to these villages was via a tug and barge service across Oregon Inlet that had been privately operated by Captain J.B. Tillet since the 1920s. Once across the inlet, motorists traveled along Hatteras Island via sand pathways¹⁶.

By 1934, the North Carolina Highway Commission had begun to subsidize Captain Tillet's Ferry Service¹⁷. In 1938, the US Secretary of Agriculture acquired the land for the Refuge through condemnation actions¹⁸. These acquisitions did not include existing public highways and public utility easements across the island¹⁹. 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. A note on this map states "'Off-road culture not shown. Map includes only official roads and important suburban entrance roads not subject to public maintenance.'" (source: North Carolina State Archives, "Dare County, North Carolina (State Highway and Public Works Commission, 1938)").

North Carolina had begun to provide full reimbursement to Captain Tillet as early as 1942 for the Ferry Service, thereby eliminating the need for residents to pay a toll to cross Oregon Inlet²⁰. By 1950, Captain Tillet had sold his ferry business to the State of North Carolina. During this same time period, the State had begun plans to construct a hard surface road in place of the sand roadway that traversed the Refuge. Toward this end, Congress passed Public Law 229 on October 29, 1951, that 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 such a road) through the Pea Island National Wildlife Refuge in Dare County, North Carolina, and to accept in return therefore 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 such road."*²¹

On May 20, 1954, the State granted a Quitclaim deed to the United States for all interest that it had on the Refuge, except a previously granted 100 foot permanent easement for right-of-way to operate and maintain the recently constructed road²² (the newly built road was completed on July 23, 1954).

On July 21, 1954, the USDOJ conveyed a permanent easement in two parcels of land for the construction, operations, and maintenance of a public road across the Refuge. The easement to the State described a parcel of land as a strip of land measuring 100 feet wide, being 50 feet on both sides of a referenced center line. The easement also stated that nothing within the document was to limit or impair the right of the United States to continue to use the property for its intended purposes "*not inconsistent with the construction, operation, and maintenance of a public highway thereon.*"²³ The easement also provided for the construction, operation, and maintenance of a parking area and facilities for a ferry landing to be used in connection with the public road.

¹⁵ Pea Island National Wildlife Refuge, Comprehensive Conservation Plan, Supra.

¹⁶ Pea Island National Wildlife Refuge, Comprehensive Conservation Plan, Supra.

¹⁷ Pea Island National Wildlife Refuge, Comprehensive Conservation Plan, Supra.

¹⁸ Deed Book 19, Page 451, Dare County, North Carolina; Deed Book 21, Page 81, Dare County, North Carolina.

¹⁹ Id.

²⁰ Pea Island National Wildlife Refuge, Comprehensive Conservation Plan, Supra.

²¹ 65 Stat. 662 (October 29, 1951)

²² Quitclaim deed dated May 20, 1954 between the State Highway and Public Works Commission and the United States of America.

²³ Deed Book 56, Page 208, Dare County, North Carolina.

As part of the creation of the Seashore, the United States then realized that it had failed to acquire all of the lands within the boundaries designated as the Seashore (including the Refuge area). Specifically, the lands located between the low and high tide water lines as well as submerged land in the Oregon Inlet and several islands all of which belonged to North Carolina²⁴. Therefore, by deed dated August 7, 1958, North Carolina conveyed these lands to the United States and again expressly reserved the right to operate and maintain the roadway as the State deemed necessary:²⁵

“...[T]he 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...”

The State of North Carolina and the USDOJ coordinated and collaborated on providing transportation infrastructure within the Refuge (as part of the Seashore). Relevant historical information describing this coordination and collaboration is described in more detail in the analysis for the Seashore (previous section) and is not repeated here.

From 1966 to the present, North Carolina has coordinated with the USFWS on multiple occasions to relocate or rehabilitate sections of the road through the Refuge. The roadway has been relocated outside of the original 100 foot easement location on at least four occasions (Appendix B) with the consent and coordination of the USFWS. The approximate length of these four road relocations is six miles. This represents approximately half of the eleven mile distance NC 12 traverses within the Pea Island National Wildlife Refuge.

According to “The Creation and Establishment of Cape Hatteras National Seashore” (NPS, 2007), there were numerous other instances where the USDOJ acknowledged the need for, and planned for, transportation infrastructure within the Refuge (as part of the Seashore). Even the NPS (Director Wirth) acknowledged that *“...North Carolina was responsible for protecting its roads through the park and that meant going beyond the basic right-of-way...”*²⁶

Conclusion

After consideration of the facts discussed above and based on information located in Appendix B, the history demonstrates that the Federal and State governments preserved the Hatteras Island area with an understanding that vehicular passage would be accommodated, and that the vehicular passage has not been fixed to one location. Rather, the vehicular passage has evolved in response to advances in highway construction and in response to the forces of nature. Further, the history indicates that the Refuge, transportation facility and existing Bonner Bridge were concurrently and jointly planned and developed by the Federal and State governments *working together* to preserve the land for wildlife while maintaining a means for safe and efficient vehicular transportation. In consideration of this substantial history of concurrent and joint planning and development for the co-existence of the Refuge and the roadway, *it is FHWA’s revised determination that Section 4(f) is not applicable to the Refuge (as a refuge), as the impacts resulting from relocating NC 12 from its current alignment through the Refuge would not be considered a use as defined in 23 CFR 774.17.* This determination does not mean that the replacement project will not be designed to minimize impacts to the Refuge, it simply means that FHWA is not required to make a specific Section 4(f) approval for use prior to approving the project.

The USFWS has expressed a concern that FHWA’s determination regarding Section 4(f) applicability to the Refuge (as a refuge) should not be read to absolve NCDOT from complying with all other applicable federal environmental laws. FHWA agrees with the USFWS in this regard. The determination only applies to FHWA’s Section 4(f) approval. FHWA and NCDOT will continue to consult and coordinate with the USFWS throughout the final design engineering process in order ensure that all harm to the Refuge is minimized and

²⁴ “The Creation and Establishment of Cape Hatteras National Seashore” (NPS, 2007).

²⁵ Deed Book 79, Page 548, Dare County, North Carolina.

²⁶ “The Creation and Establishment of Cape Hatteras National Seashore” (NPS, 2007).

mitigated. A draft Partnership Agreement that would guide this process through 2060 is included in Appendix H.

Pea Island National Wildlife Refuge (as a Historic Property)

The FEIS/Final Section 4(f) Evaluation found there would be neither a permanent incorporation of land from the Refuge (as a historic property) into a transportation facility nor a temporary occupancy of land that is adverse in terms of the statute's preservation purpose for the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative. However, FHWA has revised its constructive use analysis for this property, which resulted in a determination that the alternative would use the Pea Island National Wildlife Refuge (as a historic property). The constructive use analysis is located later in this Revised Final Section 4(f) Evaluation.

NCDOT has coordinated with, and continues to coordinate with the USFWS regarding the location of Phase I of the Parallel Corridor with NC 12 Transportation Management Plan Alternative. This alternative would require the use of approximately 3.08 acres of the Pea Island National Wildlife Refuge (as a historic property) for Phase I. This use is depicted in Appendix E. For the later phases of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative, additional use of the Pea Island National Wildlife Refuge (as a historic property) could be necessary for some or all alternative actions. Any such additional use would be assessed under Section 4(f) prior to approving the future action. The analysis would be based upon the actual future shoreline conditions as they exist in the future. Additional information about the assessment of future impacts caused by future actions in the vicinity of the historic Pea Island National Wildlife Refuge property is included in the draft Section 106 Programmatic Agreement located in Appendix F.

(former) Oregon Inlet US Coast Guard Station

The use determinations in the Final Section 4(f) Evaluation for the historic (former) Oregon Inlet US Coast Guard Station property have not changed. None of the alternatives would use this property.

Phase I of the new Preferred Alternative (Parallel Bridge Corridor with NC 12 Transportation Management Plan) would also avoid using the historic (former) Oregon Inlet US Coast Guard Station. There would be no permanent incorporation of property, as depicted in the conceptual design drawing for Phase I included in Appendix E. As depicted, it is currently estimated that approximately 7.04 acres of the property would be temporarily needed for construction staging. The Section 4(f) regulations (23 CFR 771.13(d)) provide that such temporary occupancies are not considered a "use" of property under Section 4(f) when "(1) the duration would be temporary and there would be no change in ownership of the land (2) the scope of work would be minor (3) no permanent adverse physical impacts are anticipated and there would be no interference with the protected activities, features, or attributes of the property (4) the land would be fully restored and (5) the official with jurisdiction over the Section 4(f) resource agrees with the above conditions". Because all five conditions would be satisfied, the temporary occupancy of the portion of the historic (former) Oregon Inlet US Coast Guard Station depicted in Appendix E is not considered a use of Section 4(f) property. Additional documentation concerning this property and the Preferred Alternative is included in the draft Section 106 Programmatic Agreement located in Appendix F. Later phases of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would not use the (former) Oregon Inlet US Coast Guard Station because this property is located adjacent to Phase I.

Rodanthe Historic District and Chicamacomico Life Saving Station

The use determinations in the Final Section 4(f) Evaluation for the Rodanthe Historic District and Chicamacomico Life Saving Station properties have changed for the Parallel Bridge Corridor with Road North/Bridge South and All Bridge Alternatives. The use determinations for the other Parallel Bridge Corridor alternatives have not changed. NCDOT and FHWA modified the conceptual designs for the Parallel Bridge Corridor with Phased Approach/ Rodanthe Bridge, Parallel Bridge Corridor with Road North/ Bridge South, and Parallel Bridge Corridor with All Bridge Alternatives, which moved the southern terminus of all Parallel Bridge Corridor bridging alternatives outside the historic district. These modifications were made due to comments received on the FEIS/Final Section 4(f) Evaluation explained below in the "Constructive Use" section. Additional information is located in Appendix C. After re-initiating consultation with the SHPO, the ACHP and

consulting parties to present these modifications, a determination of “no adverse effect” was concluded for all of the Parallel Bridge Corridor bridging alternatives on the Rodanthe Historic District and the Chicamacomico Life Saving Station. Therefore, none of the Parallel Bridge Corridor alternatives would use these properties.

Phase I of the new preferred Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would also avoid using the Rodanthe Historic District and Chicamacomico Life Saving Station properties. However, a use of the Rodanthe Historic District and Chicamacomico Life Saving Station could be necessary for some or all alternative actions that may be evaluated in the future for the later phases of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative. Any such proposed use would be assessed under Section 4(f) (as well as all other applicable environmental laws) prior to FHWA approval of the future action. The analysis would be based on the future shoreline and historic property conditions as they exist in the future. Additional information about the assessment of future impacts caused by future actions in the vicinity of the Rodanthe Historic District and Chicamacomico Life Saving Station properties is included in the draft Section 106 Programmatic Agreement located in Appendix F.

Constructive Use

The preceding analysis focused on a direct, physical use of Section 4(f) properties in the project area. FHWA must also evaluate whether the alternatives have such severe proximity impacts that a constructive use would result, as defined in the Section 4(f) regulations. The FEIS/Final Section 4(f) Evaluation determined that none of the alternatives would constructively use any of the Section 4(f) properties. However, the SHPO, the USDOJ and the Southern Environmental Law Center provided comments suggesting that the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative would constructively use the Refuge. In addition, the SHPO commented that the alternative would also constructively use the Rodanthe Historic District and the Chicamacomico Life Saving Station. Based on these comments and further evaluation, FHWA has determined that the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative would constructively use the Refuge as a historic property. In regards to the Rodanthe Historic District and Chicamacomico Life Saving Station, the NCDOT and FHWA worked with the SHPO, ACHP and consulting parties to develop conceptual design modifications to lessen proximity impacts to those resources to the extent that there would no longer be an adverse effect on either property. These conceptual design modifications were also applied to the two other Parallel Bridge Corridor alternatives that originally proposed work in the Rodanthe area as described in Appendix C. Thus, consistent with the FEIS/Section 4(f) Evaluation, FHWA determines that none of the Parallel Bridge Corridor alternatives would constructively use the Rodanthe Historic District and the Chicamacomico Life Saving Station historic properties. The constructive use analysis and determinations follow.

Pea Island National Wildlife Refuge (as a Historic Property)

The FEIS/Final Section 4(f) Evaluation did not make constructive use determinations for any of the detailed study alternatives for the Refuge. The only change in the constructive use determination involves the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative. The SHPO, in their comments on the FEIS/Final Section 4(f) Evaluation (dated October 28, 2008), stated their belief that this alternative would constructively use the Refuge (as a historic property). They state:

"...In the case of Pea Island Wildlife Refuge, the construction of a ten-mile long bridge, elevated thirty feet above ground level and topped with a nearly five-foot railing (and perhaps with an additional six-foot high, chain-link fence as suggested by the Refuge during the Section 106 consultation), will introduce a substantial visual intrusion that is antithetical to the historic landscape...Retaining its key original elements and integrity of location, setting, materials, feeling and association, the Refuge as a historic landscape will not only be adversely affected, it will be substantially, visually impaired by the presence of a bridge of the height and length proposed with the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge (preferred). While the bridge may not eliminate the Refuge's ability to function as a wildlife refuge, it will destroy its integrity as a historic landscape..."

In response to this comment, the FHWA Federal Preservation Officer was consulted and additional discussions with the SHPO, ACHP, USFWS and NCDOT Historic Architecture Staff occurred. FHWA reviewed the

available documentation pertaining to why the Refuge is eligible for the National Register; its significance; what elements of the historic landscape were constructed by the Civilian Conservation Corps (CCC) and where; the extent to which those elements still exist and have not been altered; and the proximity of the alternative to the significant elements of the historic landscape that are still extant. FHWA also considered the extent to which the visual impact of the alternative could be lessened through mitigation measures, such as by requiring careful attention to the design details of the bridge structure, or through landscaping. FHWA found that the historic landscape of the Refuge is a rare example of its type; it is nationally significant; a number of contributing elements are extant and in fair condition; that although threatened by weather, the historic landscape is protected from development due to its location within the National Seashore and Refuge; that the introduction of a bridge structure up to 33 feet in height across the entire length of the Refuge, in a location nearly adjacent to most of the significant contributing elements that still exist, would be a substantial visual intrusion for which little mitigation is possible. Thus the proximity impacts from this alternative would be so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) would be substantially impaired. Therefore, *we now find that the Parallel Bridge Corridor with Phased Approach/ Rodanthe Bridge Alternative would constructively use the Refuge (as a historic property).*

Earlier in this analysis, FHWA found that the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would permanently incorporate land from the Refuge into a transportation facility. Because of this determination, there cannot also be a constructive use of this property from this alternative.

(former) Oregon Inlet US Coast Guard Station

The FEIS/Final Section 4(f) Evaluation found that none of the alternatives would constructively use this property.

Phase I of the new preferred Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would also not constructively use the historic (former) Oregon Inlet US Coast Guard Station because it would not have proximity impacts severe enough to substantially impair the protected features, activities, and attributes of the property. The property is unoccupied and as such has no noise-sensitive activities. Access to the property via SR 1257 and NC 12 would continue to be provided. While the alternative would have an adverse visual effect on the property due to the replacement bridge being approximately 17 feet higher than the existing Bonner Bridge as it enters Hatteras Island and extending approximately 2,000 feet farther as it returns to grade, this slight change in the viewshed would not rise to the level of a substantial impairment. Later phases of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would not be expected to constructively use the (former) Oregon Inlet US Coast Guard Station because this property is located adjacent to Phase I.

Rodanthe Historic District and Chicamacomico Life Saving Station

The FEIS/Final Section 4(f) Evaluation did not find a constructive use of either property from any alternative. These determinations have not changed, but some alternatives have been modified to reduce proximity impacts.

In the FEIS, three alternatives (Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge, Parallel Bridge Corridor with Road North/Bridge South, and Parallel Bridge Corridor with All Bridge) were originally determined to have an “adverse effect” (pursuant to Section 106 of the National Historic Preservation Act) on these properties. The SHPO, in their comments on the FEIS/Final Section 4(f) Evaluation (dated October 28, 2008), stated their belief that the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative would constructively use the Rodanthe Historic District and Chicamacomico Life Saving Station:

“...Given the serious access problems and visual impacts caused by the proposed bridge, we believe that the Preferred Alternative [Phased Approach/Rodanthe Bridge] substantially impairs the functions, features and attributes of the Rodanthe Historic District and Chicamacomico Life Saving Station and, thereby, constitutes a constructive use of the historic properties.”

In response to this concern, FHWA and NCDOT have modified conceptual project designs in the Rodanthe area to bring NC 12 down to grade (ground level) prior to entering the Rodanthe Historic District. The modified concept designs apply to the following alternatives:

- Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge;
- Parallel Bridge Corridor with Road North/Bridge South; and
- Parallel Bridge Corridor with All Bridge.

After re-initiating consultation with the SHPO, the ACHP, and consulting parties, a determination of "no adverse effect" was concluded for these three alternatives on these historic properties. As a result of the design changes and the additional coordination, the *original FEIS/Final Section 4(f) Evaluation determination (that these three alternatives would not constructively use these properties) remains valid and therefore has not changed.*

Phase I of the new preferred Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would not constructively use the Rodanthe Historic District and Chicamacomico Life Saving Station properties because it includes no action in the vicinity of these properties. Further, it is anticipated that any future action during a later phase would not constructively use the Rodanthe Historic District and Chicamacomico Life Saving Station properties because the conceptual design modifications that were implemented for the other Parallel Bridge Corridor alternatives could presumably be implemented for the later phase of the Parallel Corridor with NC 12 Transportation Management Plan Alternative as well. If, however, a use of the Rodanthe Historic District and Chicamacomico Life Saving Station is necessary for any alternative action that may be evaluated in the future for the later phases of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative, then the proximity impacts of the proposed use would be assessed under Section 4(f) for possible constructive use prior to FHWA approval of the future action. The analysis would be based on the future shoreline and historic property conditions as they exist in the future. Additional information about the assessment of future impacts caused by future actions in the vicinity of the Rodanthe Historic District and Chicamacomico Life Saving Station properties is included in the draft Section 106 Programmatic Agreement located in Appendix F.

Summary of Revised Section 4(f) "Use" Determinations

In summary, this Revised Section 4(f) Evaluation has changed FHWA's determinations of the proposed "use" of property under Section 4(f) for the Cape Hatteras National Seashore for all alternatives evaluated in the FEIS. This revised Section 4(f) Evaluation has also changed FHWA's determination of the proposed "use" of property under Section 4(f) for the Pea Island National Wildlife Refuge for the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative. For the new Preferred Alternative (Parallel Corridor with NC 12 Transportation Management Plan), this revised Section 4(f) Evaluation has determined that there would be a use of approximately 3.08 acres of the Pea Island National Wildlife Refuge. A summary of use and applicability determinations is presented in Table 3.

Table 3: Revised Section 4(f) "Use" Determinations

4(f) Resource	Nourishment	Road North/ Bridge South	All Bridge	Phased Approach/ Rodanthe Bridge	Phased Approach/ Rodanthe Nourishment	NC 12 Transportation Management Plan (Phase I)	PSB: Curved Rodanthe Terminus	PSB: Intersection Rodanthe Terminus
Cape Hatteras National Seashore (public recreation area)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)
Pea Island National Wildlife Refuge (as a refuge)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)	NA (joint planning)
Pea Island National Wildlife Refuge (as a historic property)	P:Yes T:No C:No	P:Yes T:No C:No	P:Yes T:No C:No	P:No T:No C:Yes	P:Yes T:No C:No	P:Yes T:No C:No	P:No T:No C:No	P:No T:No C:No
(former) Oregon Inlet US Coast Guard Station (historic)	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No
Rodanthe Historic District (historic)	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No
Chicamacomico Life Saving Station (historic)	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No	P:No T:No C:No
Key: P = Permanent, T = Temporary, C = Constructive, NA = Not Applicable								

Avoidance Alternatives

The intent of the Section 4(f) statute and the policy of the USDOT is to prohibit the use of significant publicly owned parks, recreation areas, wildlife and waterfowl refuges, and historic sites as part of a project, unless there is no feasible and prudent alternative to the use of such land. Therefore, FHWA cannot approve the use of a Section 4(f) property if there is a feasible and prudent avoidance alternative available. A feasible and prudent avoidance alternative is one that avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property.

In order to demonstrate that there is no feasible and prudent alternative to the use of 4(f) land, a Section 4(f) Evaluation must address both location alternatives and design shifts that totally would avoid using the 4(f) land. The Section 4(f) regulations (23 CFR 774.17) define feasible and prudent avoidance alternatives as follows:

“(1) A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.

(2) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.

(3) An alternative is not prudent if:

(i) It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;

- (ii) It results in unacceptable safety or operational problems;*
- (iii) After reasonable mitigation, it still causes:*
 - (A) Severe social, economic, or environmental impacts;*
 - (B) Severe disruption to established communities;*
 - (C) Severe disproportionate impacts to minority or low income populations; or*
 - (D) Severe impacts to environmental resources protected under other Federal statutes;*
- (iv) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;*
- (v) It causes other unique problems or unusual factors; or*
- (vi) It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.”*

The first test under Section 4(f) is to determine whether or not there is an avoidance alternative that is feasible. Based on 23 CFR 774.17(2) (see above), an alternative is feasible if it is technically possible to design and build. The second part of the standard involves determining whether or not an alternative is prudent. An alternative is prudent if it does not cause the adverse impacts discussed above in 23 CFR 774.17(3). Where sufficient analysis demonstrates that a particular alternative is not feasible and prudent, the analysis or consideration of that alternative as a viable alternative comes to an end.

What Did the FEIS/Final Section 4(f) Evaluation Find?

Due to the large Section 4(f) properties covering nearly all of Bodie and Hatteras Islands in the project area, the FEIS/Final Section 4(f) Evaluation did not find any feasible and prudent avoidance alternatives. All of the alternatives identified in Chapter 2 of the FEIS either did not meet the Purpose and Need of the project or used Section 4(f) property. By definition, an alternative that uses Section 4(f) property is not an avoidance alternative.

In their comments on the FEIS/Final Section 4(f) Evaluation, the USDOJ did not agree with this determination. USDOJ believed that the Pamlico Sound Bridge Corridor alternatives would appear to be feasible and prudent and would minimize harm to the Refuge. Further, USDOJ commented that NCDOT has previously demonstrated that the Pamlico Sound Bridge Corridor presents feasible alternatives from an engineering standpoint.

What Has Changed?

FHWA did not consider the Pamlico Sound Bridge Corridor as an avoidance alternative in the Final Section 4(f) Evaluation because, at that time, FHWA found the Pamlico Sound Bridge Corridor used land from the Cape Hatteras National Seashore (a Section 4(f) property). The preceding section of this Revised Final Section 4(f) Evaluation documented newly obtained information showing that the road pre-dates the establishment of the Seashore and both were concurrently and jointly planned and developed to co-exist—information which led FHWA to revise its use determinations for the Seashore. Thus, the Pamlico Sound Bridge Corridor must be analyzed as a feasible and prudent avoidance alternative under Section 4(f).

FHWA completed a feasible and prudent analysis for the Pamlico Sound Bridge Corridor and considered the factors suggested by the USDOJ in their FEIS comments. This evaluation of the Pamlico Sound Bridge Corridor as a Feasible and Prudent Avoidance Alternative under Section 4(f) of the Department of Transportation Act is located in Appendix G.

FHWA determined that the Pamlico Sound Bridge Corridor is not a feasible and prudent avoidance alternative to using the Refuge because the cost of all of the Pamlico Sound Bridge Corridor alternatives would be of extraordinary magnitude in consideration of the funding available to the NCDOT to operate, improve and maintain its State highway system. To summarize the detailed analysis contained in Appendix G, implementation of any of the Pamlico Sound Bridge Corridor alternatives would require a single construction phase costing between \$942.9 million and \$1.441 billion (2006 dollars). The project could not be financed by phasing construction over a fifty year period because it consists of a single, 17.5 mile long bridge that would

have to be built in one phase. Funding a 17.5-mile bridge would create a unique maintenance problem of extraordinary magnitude for NCDOT as it would have to defer much needed improvements on the remainder of the State highway system in North Carolina for a significant period of time. The Pamlico Sound Bridge Corridor would also have severe adverse impacts to the public's access to the Refuge. Important in this determination is the historical record that shows that throughout the history of the Seashore and Refuge, NC 12 has been operated and maintained in the Seashore and the Refuge while at the same time protecting the important historic features and attributes of the Refuge. Therefore, in this evaluation, the Pamlico Sound Bridge Corridor alternatives are not carried forward as detailed study alternatives because they are not feasible and prudent avoidance alternatives.

Conclusion

Based on the analysis and determinations from the DEIS, SDEIS, SSDEIS, FEIS/Final Section 4(f) Evaluation, and this Revised Final Section 4(f) Evaluation, there is no feasible and prudent avoidance alternative to the use of the Section 4(f) property needed to construct the proposed action.

Least Overall Harm Analysis

The FEIS/Final Section 4(f) Evaluation established that, due to the extensive size and location of properties protected by Section 4(f) in the Bonner Bridge project area, all feasible and prudent alternatives would use Section 4(f) property. There is no feasible and prudent avoidance alternative for this project. In response to comments from the USDOJ on the Final Section 4(f) Evaluation, FHWA reconsidered whether the Pamlico Sound Bridge Corridor is a feasible and prudent avoidance alternative but found that it is not (See Appendix G and earlier discussion above). When FHWA determines there is no feasible and prudent avoidance alternative, the Section 4(f) regulations require FHWA to identify, from among the remaining alternatives using Section 4(f) property, the alternative that causes the "least overall harm." The Section 4(f) regulations, 23 CFR 774.3(c), specify that the alternative that causes the least overall harm is determined by balancing seven specific factors. These factors are as follows:

1. the ability of the alternatives to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
2. the relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
3. the relative significance of each Section 4(f) property;
4. the views of the official(s) with jurisdiction over each Section 4(f) property;
5. the degree to which each alternative meets the purpose and need for the project;
6. after reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
7. substantial differences in costs among the alternatives.

What Did the FEIS/Final Section 4(f) Evaluation Find?

The FEIS/Final Section 4(f) Evaluation contained a least overall harm analysis that considered each of the factors listed above for every alternative. The analysis considered the Pea Island National Wildlife Refuge to be the most significant of the various Section 4(f) properties within the project area because of its multiple functions as a wildlife refuge, as a historic property and as part of the Cape Hatteras National Seashore. After balancing the various factors, the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative was the alternative identified as causing the least overall harm.

The Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative was thought to cause the least overall harm because it would elevate NC 12 from an at-grade road onto a high structure at all of the locations (totaling approximately eleven miles) where future shoreline erosion is predicted to threaten the road by 2060 -- thereby staying within the existing road easement. In some locations this meant that NCDOT would be building bridges expected to be standing in the Atlantic Ocean by 2060.

Since staying within the existing road easement would avoid a physical take of additional Refuge property; would not be subject to a compatibility determination under the National Wildlife Refuge System Administration Act; and would allow natural shoreline processes to take place, the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative was thought not to substantially impair any of the important activities, features, or attributes of the Refuge. Thus, based upon the information at that time, the Final Section 4(f) Evaluation concluded that the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative would cause the least overall harm.

How Do the Changes Described in this Revised Final Section 4(f) Evaluation Affect the Least Overall Harm Analysis?

Several changes previously explained in this Section 4(f) Evaluation are relevant to the least overall harm analysis:

- The Pamlico Sound Bridge Corridor was determined not to be a feasible and prudent avoidance alternative. Therefore, the revised least overall harm analysis does not include the Pamlico Sound Bridge Corridor.
- New information was uncovered about historical vehicular access across the project area and the concurrent and joint planning and development of the road, Seashore and Refuge. This information led FHWA to reconsider its previous emphasis on staying within the current road easement above all other considerations.
- Adverse comments submitted in response to the FEIS/Final Section 4(f) Evaluation and subsequent additional consultation with the officials with jurisdiction indicated that the Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge did not avoid adverse impacts to the Refuge. The comments and additional consultation led NCDOT and FHWA to reconsider the effect on the Refuge of building lengthy, elevated ocean bridges.
- Modifications to several alternatives were implemented in response to comments received on the Final Section 4(f) Evaluation that lessen the adverse impacts to the Rodanthe Historic District and the Chicamacomico Life Saving Station. With the harm minimization modifications at these properties, there is now no difference in impacts expected to these two historic properties. The Parallel Bridge Corridor alternatives are now substantially equal with respect to these properties.
- Additional consultation with the project Merger Team led NCDOT and FHWA to reconsider the need to make final decisions now, based on long-range predictions of storms and shoreline erosion, for all future phases of the project. This was due to the uncertainty as to when the later construction phases would be needed. A proposal by EPA to only commit to taking the immediately needed action at this time—replacement of the structurally deficient Bonner Bridge, with a phased decision-making process for assessing and approving later actions in the project area—minimizes harm to the Refuge by giving the project sponsors the opportunity to review and incorporate new analysis prior to commencement of each phase.

These changes affect FHWA's analysis of several of the least overall harm factors, and result in a new conclusion. Discussion is contained in the sections below to address each of the factors and provide the basis for the revised determination of the alternative that causes least overall harm.

Factor #1: The ability of the alternatives to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)

The Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative was developed in response to a proposal from EPA to delay the decision-making for the later phases of this fifty-year long project until a future point in time when coastal conditions affecting NC 12 are better known. Although the future conditions have been predicted using the best available scientific models, there is inherent uncertainty involved in predicting the exact timing and location of shoreline changes of a coastal barrier island in the future. Because the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative includes firm commitments to study and mitigate the future environmental conditions prior to making decisions for the later phases, it provides the best opportunity to mitigate the impacts to the Section 4(f) properties in the project area.

With respect to Phase I, the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would have substantially equal impacts after mitigation as the other Parallel Bridge Corridor alternatives. Phase I of the current Preferred Alternative (Parallel Bridge Corridor with NC 12 Transportation Management Plan) and Phase I of all other Parallel Bridge Corridor alternatives are very similar. At the northern end of the project, on Bodie Island, the alternatives are identical. They remain identical over the Oregon Inlet channel. Upon entering Hatteras Island, the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative is located approximately 216.5 feet further west of NC 12. The Oregon Inlet termini for the various Phase I alternatives are depicted in Appendix I.

The following alternatives all have their southern termini located just south of SR 1257: the Preferred Alternative, both Parallel Bridge Corridor with Phased Approach Alternatives and the Parallel Bridge Corridor with Nourishment Alternative. The Parallel Bridge Corridor with Road North/Bridge South and the Parallel Bridge Corridor with All Bridge Alternatives enter Hatteras Island farther west than the Preferred Alternative, requiring the use of more property from the Refuge. The Parallel Bridge Corridor with Road North/Bridge South and Parallel Bridge Corridor with All Bridge Alternatives would also require a longer extension into the Refuge before tying into the existing easement. All alternatives have Phase I returning to ground level and tie-in to the existing road alignment at grade.

The approximately 216.5 foot shift west with the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative would relocate approximately 2.91 acres of the existing road easement to an adjacent area of the Refuge, which is considered a use under Section 4(f). An additional approximately 0.17 acre area would be required in order to maintain safe vehicular access to the Refuge parking lot that provides parking for Refuge visitors participating in recreational fishing activities offered at Oregon Inlet. Maps depicting these impacts are included in Appendix E. For comparison, Phase I of the Parallel Bridge Corridor with Road North/Bridge South Alternative would use approximately 5.3 acres of the Refuge and Phase I of the Parallel Bridge Corridor with All Bridge Alternative would use approximately 6.1 acres of the Refuge. While Phase I of the Parallel Bridge Corridor with Phased Approach and Nourishment Alternatives would be built within the existing easement, these alternatives would have such severe proximity impacts on the historic landscape that there would be a constructive use of the Refuge.

Phase I of the Preferred Alternative impacts an area that includes relatively lower-quality wetlands. The additional wetland impacts would be mitigated as required by the environmental permitting process. The impacted area does not contain habitat used by any of the endangered species known to exist on the Refuge. The additional use of Refuge property would be minimized through conditions and/or stipulations that will be negotiated with the USFWS and incorporated into the new road easement. These may include measures such as contract specifications, research assistance, the return of easement land to the Refuge, capital improvements on the Refuge or any other reasonable measures that would benefit the Refuge. The Parallel Bridge Corridor with Road North/Bridge South and the Parallel Bridge Corridor with All Bridge Alternatives would impact more wetland and higher quality wetlands than the Preferred Alternative.

Phase I of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative also minimizes harm as compared to the other Parallel Bridge Corridor alternatives because it allows NCDOT to preserve public fishing access at Oregon Inlet, a recreational activity currently provided by the Refuge that was determined to be compatible with the Refuge mission in 2006. Because the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative can be constructed without building a temporary traffic maintenance bridge, NCDOT can commit to providing public fishing access both during and after construction (assuming the USFWS continues to permit recreational fishing). While the exact parameters of such access is a detail that could not be finalized prior to the final design engineering process, a general commitment would be included in the ROD to design the project in a manner that provides public fishing access. During construction, the contractor would be responsible for maintaining reasonable public access for fishing, with temporary limitations allowed when necessary to protect the safety of the public and/or the construction workers.

Another important benefit of avoiding a temporary traffic maintenance bridge is that traffic conditions during the construction period would be safer for the 5,400 to 10,900 vehicles that cross Bonner Bridge each day (FEIS p.1-4). This option would provide an approximately 220 foot separation between the existing Bonner Bridge and the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative. In addition, avoiding the need to construct the temporary traffic maintenance bridge would result in fewer temporary impacts to the Refuge from the temporary bridge.

Factor #2: The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection.

The only Section 4(f) property that would be used by any alternative is the Refuge (as a historic property). The harm to the Refuge (as a historic property) that would remain after mitigation is minimized is described below. The other Section 4(f) properties in the project area would incur proximity impacts from various alternatives, but would not be used within the meaning of Section 4(f).

Through the consultation process required by Section 106 of the National Historic Preservation Act, FHWA determined that all of the Parallel Bridge Corridor alternatives except for the Parallel Bridge Corridor with Nourishment Alternative would have an adverse effect on the Refuge. The SHPO concurred in the determination. The adverse effect determination is based in part on the alternatives requiring a bridge height of up to 33 feet in various portions of the historic landscape that would alter the naturalized setting enhanced by the Civilian Conservation Corps in the 1930s, and also due to impacts on specific elements of the constructed landscape such as the historic ponds (as a result of possible road relocations). The adverse effects are mitigated through the measures documented in the draft Programmatic Agreement located in Appendix F. While the Parallel Bridge Corridor with Nourishment Alternative would avoid the adverse effect on the Refuge, it would have a use of Refuge property under Section 4(f) due to the placement of sand on the beaches.

It is not possible to precisely quantify or qualify the extent of remaining adverse effects to the Refuge after mitigation, due to the deferred decision-making for later phases of the project with the preferred Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative. These uncertainties are accounted for through a draft Programmatic Agreement pursuant to Section 106 of the National Historic Preservation Act (see Appendix F). The purpose of the Programmatic Agreement is to set forth the agreed upon treatment and mitigation of harm for Phase I, and the agreed upon process for evaluating, treating, and mitigating harm prior to FHWA's approval of later phases of action. Although the Section 106 regulations permit a Programmatic Agreement to defer the identification of historic properties for future phases of a project, in this case NCDOT has completed the identification of properties protected under Section 4(f) for the entire project area. Because the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative includes firm commitments to study and mitigate the future environmental conditions prior to making decisions for the later phases, it provides the best opportunity to mitigate the impacts to the Section 4(f) properties in the project area.

Factor #3: The relative significance of each Section 4(f) property

The FEIS/Final Section 4(f) Evaluation identified the Refuge/Seashore on Hatteras Island as the most significant Section 4(f) properties. Due to the determination of concurrent and joint planning and development between the Seashore and the transportation infrastructure, coupled with the determination that the Refuge (as a historic property) is the only Section 4(f) property that will be used, the Refuge remains the most significant Section 4(f) property affected by this project.

Factor #4: The views of the official(s) with jurisdiction over each Section 4(f) property

As described above, following the FEIS/Final Section 4(f) Evaluation, additional comments were received and additional consultation occurred with the officials with jurisdiction over the Section 4(f) properties in the project area. The SHPO indicated its opinion that the formerly preferred Parallel Bridge Corridor with Phased Approach/Rodanthe Bridge Alternative would substantially impair the integrity of the historic Refuge. This opinion was directly tied to the extensive high bridging proposed with this alternative.

As part of the Merger Team, the SHPO actively participated in the discussions over the past year that led to the development of the preferred Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative. As a result, the SHPO is expected to sign an amended Concurrence Point #3 (selection of Preferred Alternative/Least Environmentally Damaging Practicable Alternative) identifying the Parallel Bridge Corridor with NC 12 Transportation Management Plan as the Preferred Alternative/Least Environmentally Damaging Practicable Alternative. Furthermore the SHPO and the ACHP have been consulted on the new Preferred Alternative and are expected to sign the draft Programmatic Agreement included in Appendix F to resolve its adverse effects pursuant to Section 106 of the National Historic Preservation Act. The draft Programmatic Agreement will be finalized prior to the ROD.

There are two Federal agencies (USFWS & NPS) under the USDOJ that manage Federal lands along the project corridor. The USFWS has indicated that it has concerns with the Draft Partnership Agreement (Appendix H) and is in the process of developing comments and suggesting revisions. The NPS has indicated that an amended Merger Team concurrence form is the appropriate mechanism for documenting the apparent decision at the May 2009 meeting to move forward with Phase I of the project. NPS also stated they see potential value for developing an interagency agreement in the future, if there are coordination functions that cannot be satisfactorily addressed under the Merger Team process. An important feature with the Parallel Bridge Corridor with NC 12 Transportation Management Plan is that it meets the criteria identified in former Secretary of Interior Dirk Kempthorne's July 2006 letter, which states "*I believe that the best way to proceed would be to separate the replacement of the Bonner Bridge ...from the more difficult and less urgent issues of the realignment of the road...*".²⁷ Prior to the ROD, NCDOT and FHWA will continue to consult and coordinate with the USFWS and NPS to address their concerns.

FHWA is circulating this Revised Final Section 4(f) Evaluation to provide the resource agencies and the public an opportunity to review and comment. All comments received will be reviewed and taken into account prior to the approval of the use of any Section 4(f) property in the ROD.

Factor #5: The degree to which each alternative meets the purpose and need for the project

There is no change in the analysis of this factor. All of the alternatives being compared in this least overall harm analysis, including the new Preferred Alternative, would meet the purpose and need for the project.

Factor #6: After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)

The Final Section 4(f) Evaluation highlighted relocations, economic impacts, and visual impacts, and incorporated other impact discussions within the FEIS by reference. The Parallel Bridge Corridor alternatives that included nourishment were thought to be favored by this factor, with the remaining alternatives being substantially equal. This determination was primarily due to visual impacts in Rodanthe that have since been minimized through design modifications. Phase I of the Parallel Bridge Corridor with NC 12 Transportation Management Plan is expected to have similar impacts to resources not protected by Section 4(f) as the other Parallel Bridge Corridor alternatives. It is not possible to precisely quantify or qualify the extent of adverse impacts to resources not protected by Section 4(f) for the later phases of the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative; however, Because the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative includes firm commitments to study and mitigate the future environmental conditions prior to making decisions for the later phases, it provides the best opportunity to mitigate the impacts to the Section 4(f) properties in the project area.

²⁷ FHWA, Final Environmental Impact Statement and Final Section 4(f) Evaluation, NC 12 Replacement of the Herbert C. Bonner Bridge, Volume 2, September 17, 2008, Appendix A

Factor #7: Substantial Differences in Costs among the Alternatives

The estimated cost of the new Preferred Alternative in comparison to the other alternatives is shown in Table 4 (Total Highway Cost of the Alternatives Through 2060) and in Table 5 (Phase I Estimated Cost to Replace Bonner Bridge).

Table 4 shows that the total highway, end-to-end, cost of the project through 2060 ranges from \$602 million to \$1.171 billion for the low estimate to \$740 million to \$1.524 billion for the high estimate (costs are presented in 2006 dollars). The least expensive end-to-end alternative is the Road North/Bridge South Alternative, with the Phased Approach/Rodanthe Nourishment being the most expensive. The Preferred Alternative, Parallel Bridge Corridor with NC 12 Transportation Management Plan, incorporates costs from all the Parallel Bridge Corridor Alternatives since this alternative does not make a decision about the future phases at this time. Hence, there is less certainty in the total end-to-end cost estimate for this alternative compared to the others.

Table 5 provides cost estimates for Phase I of each alternative. The Parallel Bridge Corridor with NC 12 Transportation Management Plan (Preferred Alternative) has the lowest estimated cost range, from a low of \$265 million to a high of \$315 million. This is due to the following reasons:

- Phase I of the Preferred Alternative is less expensive than the Parallel Bridge Corridor with Road North/Bridge South and the Parallel Bridge Corridor with All Bridge Alternatives because these two alternatives are located up to 500 feet west of the existing easement. A connection would be required to tie the end of the Phase I bridge to the roadway within the existing easement. This connection would extend further south than the tie-in for the Preferred Alternative.
- Phase I of the Preferred Alternative is less expensive than the Parallel Bridge Corridor with Phased Approach Alternatives as well as the Parallel Bridge Corridor with Nourishment Alternative because it would not require the construction of a temporary bridge, ramps on Hatteras Island, and other maintenance of traffic costs. These additional costs are necessary to since all work would be confine the existing 100-foot easement.

Therefore, the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative is the least expensive alternative for Phase I, and (along with the Parallel Bridge Corridor with Road North/Bridge South and the Parallel Bridge Corridor with All Bridge Alternatives) provides better maintenance of traffic during construction than both Phased Approach Alternatives and the Nourishment Alternative.

Table 4: Total Highway Cost of the Alternatives Through 2060

Alternative (in 2006 dollars)	Low Estimate	High Estimate
Nourishment	\$672 million	\$970 million
Road North/Bridge South	\$602 million	\$740 million
All Bridge	\$1.108 billion	\$1.435 billion
Phased Approach/Rodanthe Bridge	\$1.171 billion	\$1.497 billion
Phased Approach/Rodanthe Nourishment	\$1.149 billion	\$1.524 billion
NC 12 Transportation Management Plan*	\$602 million	\$1.524 billion

*The costs shown for the NC 12 Transportation Management Plan Alternative incorporate the lower and upper limits of total cost for the other Parallel Bridge Corridor Alternatives in order to provide a reasonable prediction of possible costs for the future phases of action. Since this alternative does not make a decision about the future phases at this time, there is less certainty in the total cost estimate for this alternative compared to the others.

Table 5: Phase I Estimated Construction Cost to Replace Bonner Bridge

Alternatives (in 2006 dollars)	Low Estimate	High Estimate
Nourishment	\$312 million	\$368 million
Road North/Bridge South	\$284 million	\$346 million
All Bridge	\$285 million	\$347 million
Phased Approach/Rodanthe Bridge	\$312 million	\$368 million
Phased Approach/Rodanthe Nourishment	\$312 million	\$368 million
NC 12 Transportation Management Plan (Preferred)	\$265 million	\$315 million

Conclusion

Based on a consideration and balancing of the seven factors above, FHWA and NCDOT have determined that the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative (the Preferred Alternative) is the alternative that causes the least overall harm. The major factor in determining that the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative causes the least overall harm is the flexibility it allows in determining future phases. The Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative recognizes that the project area is complex and that the shoreline is constantly changing. It also recognizes that the ability to predict the effect of future storms on the project area is extremely difficult to quantify, and that the various alternatives may need to be reassessed in the future as the shoreline and other landscape features change between 2009 and 2060. FHWA and NCDOT will coordinate with the officials with jurisdiction over the Section 4(f) properties in the project area and with the Merger Team agencies to determine the best solution to address future actions along the project corridor. This interagency collaboration will lead to FHWA and NCDOT implementing actions that will cause the least overall harm to Section 4(f) resources for future phases of this project.

All Possible Planning to Minimize Harm

Under 23 CFR 774.3(c)(2), the alternative selected as causing the least overall harm must also include “all possible planning...to minimize harm to Section 4(f) property.” According to 23 CFR 774.17, all possible planning may include design modifications, replacement, or monetary compensation for parks, recreation areas, or wildlife refuges. Common to all Section 4(f) properties, the Merger Process and the Partnership Agreement are intended to serve as a framework for decision-making for the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative. They also serve as a framework for identifying all possible planning to minimize harm. This framework will utilize coastal and natural resource monitoring of area conditions to identify specific issues, involving relevant stakeholders in identifying the optimal solutions. As a result, this alternative, more so than any other alternative, allows for implementation of strategies that will minimize harm to the Section 4(f) resources. Other property-specific minimization of harm efforts include:

Cape Hatteras National Seashore:

- Related to the need for Seashore property on Bodie Island (approximately 6.3 acres [2.6 hectares]), FHWA and DOT would restore and return the 6.3 acres (2.6 hectares) of Seashore currently used by Bonner Bridge. After mitigation, the Seashore would not lose any net area with the Preferred Alternative.
- The NPS has been engaged in the development of the new Preferred Alternative through participation as a Merger Team member.
- The NPS is identified as a signatory to the proposed Partnership Agreement (Appendix H). Their participation (through the Partnership Agreement and/or through participation on the Merger Team) will assist in future decision-making that lessens harm to the Seashore.
- Access to Seashore facilities on Bodie Island will be maintained during construction. The details will be worked out with the NPS during the design process.

- Construction specifications to minimize impacts to the campgrounds and the Oregon Inlet Fishing Center during construction will be developed with the NPS during final design.
- The NPS has requested²⁸ NCDOT to consider wetland mitigation related to highway alignment changes north of the current Bonner Bridge. Specifically, the NPS has requested wetland enhancement that would include control of exotic plants in wetlands on Bodie Island. As suggested in the NPS letter, NCDOT will work with the NPS to develop an agreed-upon Wetland Mitigation Plan prior to implementation of mitigation.
- Greensheet Commitment #2. *“Bicycle Accommodations. The Seashore management plan supports the use of bicycles along NC 12. All bridges in both replacement bridge corridors (including the Preferred Alternative) 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 existing NC 12’s unpaved shoulders.”*
- Greensheet Commitment #9. *“Disposal of Dredged Material. Prior to construction, during the USACE permit preparation process, the FHWA and the NCDOT would work with appropriate environmental resource and regulatory agencies to identify the characteristics of dredged material from bridge construction in open water and develop a disposal plan that would minimize harm to natural resources. The appropriate location for dredged material disposal would be determined based on the character of the materials dredged, the availability of disposal sites, and coastal conditions near the time of construction. In addition, the terms and conditions outlined in the Biological and Conference Opinions (USFWS, 2008) related to piping plovers specify that “all dredge spoil excavated for construction barge access must be used to augment either existing dredge-material islands or to create new dredge-material islands for use by foraging plovers. This must be accomplished as per the specifications of the North Carolina Wildlife Resources Commission.”*

Pea Island National Wildlife Refuge:

- The conceptual design for Phase I maintains access to the Refuge parking lot and maintains access for public fishing opportunities.
- Approximately 3.27 acres of the existing easement is potentially available to be returned to the USFWS. Additional coordination will occur to determine if the USFWS wants this land to be returned.
- The USFWS has been engaged in the development of the new Preferred Alternative through participation as a Merger Team member.
- The USFWS is identified as a signatory to the Partnership Agreement (Appendix H). Their participation (through the Partnership Agreement and/or through participation on the Merger Team) will assist in future decision-making that lessens harm to the Refuge.
- Greensheet Commitment # 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 NCDOT and permitting agencies for review.”*
- Greensheet Commitment #9. *Disposal of Dredged Material. Prior to construction, during the USACE permit preparation process, the FHWA and the NCDOT would work with appropriate environmental resource and regulatory agencies to identify the characteristics of dredged material from bridge construction in open water and develop a disposal plan that would minimize harm to natural resources. The appropriate location for dredged material disposal would be determined based on the character of the materials dredged, the availability of disposal sites, and coastal conditions near the time of*

²⁸ Letter dated September 16, 2009 from NPS to NCDOT

construction. In addition, the terms and conditions outlined in the Biological and Conference Opinions (USFWS, 2008) related to piping plovers specify that “all dredge spoil excavated for construction barge access must be used to augment either existing dredge-material islands or to create new dredge-material islands for use by foraging plovers. This must be accomplished as per the specifications of the North Carolina Wildlife Resources Commission.”

- Greensheet Commitment #23. “Seabeach Amaranth. Since the favored habitat of the seabeach amaranth is highly ephemeral, a survey of the project area would be conducted for the habitat of this species at least one year prior to initiating bridge construction activities. It would occur as needed for each construction phase of the Phased Approach/Rodanthe Bridge Alternative (Preferred).”
- Greensheet Commitment #24. “Piping Plover. The NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the Biological and Conference Opinions (USFWS, 2008):
 - a. All construction equipment and personnel must avoid all bird closure areas within the Seashore and Refuge. All future routine maintenance activities of bridge structures that would occur within or adjacent to current or future plover nesting areas must occur outside the nesting season (April 1 to July 15).

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

b. During the construction of Phases II, III and IV of the Phased Approach/Rodanthe Bridge Alternative (Preferred), keep all construction equipment and activity within the existing right-of-way.

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

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

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

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

- Greensheet Commitment #25. “*Sea Turtles (green sea turtle, leatherback sea turtle, and loggerhead sea turtle). The NCDOT will implement the following nondiscretionary measures that include the terms and conditions outlined in the Biological and Conference Opinions (USFWS, 2008):*
 - a. All construction equipment and personnel must avoid all marked sea turtle nests. Construction material and equipment staging areas must not be located seaward of the artificial dune.*

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

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

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

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

During turtle nesting season, portable construction lighting must be of the low-pressure sodium-vapor type.

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

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

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

d. For Phases II, III and IV of the Phased Approach/Rodanthe Bridge Alternative (Preferred), on the ocean side, design the bridge structure in a manner which will shield the beach on the east side from direct light emanating from passenger vehicle headlights.

For the small portion of Phase I over land on Hatteras Island, retrofit the bridge structure at the time that Phase II connects with Phase I. The specific design of the bridge will be developed in consultation with the USFWS prior to re-evaluation of the environmental document for Phase II.

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

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

- A Section 106 Programmatic Agreement (Appendix F) will be signed by the FHWA, State Historic Preservation Officer, and the Advisory Council on Historic Preservation. This Programmatic Agreement (to be finalized prior to the ROD) will resolve adverse effects to this historic property through mitigation measures specified in the draft Programmatic Agreement. Excerpts from this draft Programmatic Agreement pertinent to the Refuge include:

“I. Parallel Bridge Corridor Minimization/Mitigation Measures

In order to facilitate planning and streamline development of plans for the Undertaking/Phase I, NCDOT shall, in consultation with the consulting parties, develop the following historic contexts to aid in historic planning for the parallel bridge corridor and possible heritage tourism initiatives.

A. Ethnographical Context

- 1) NCDOT will work with the USFWS, SHPO, and NPS to compile an ethnographical context of the men and women that lived and worked in the general project area during the late nineteenth and early twentieth centuries. The context will focus on the area’s watermen, fishermen, Civilian Conservation Corps, members of gun or hunting clubs, and life saving station employees. NCDOT will be responsible for the following tasks.

 - a. Gathering oral histories from surviving members of these groups or families.*
 - b. Conducting primary and secondary research regarding the activities of these groups.*
 - c. Compiling documentary materials and digitizing images.**
- 2) NCDOT will produce a digital document which contains the recorded oral histories and documentary materials. NCDOT shall afford the USFWS, SHPO, and NPS an opportunity to review and comment on the draft digital document. If no comments are received from the USFWS, SHPO, and NPS within thirty (30) days of confirmed receipt, NCDOT can assume that the reviewing parties do not object to the document. 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. NCDOT shall deposit copies of the documentation with USFWS, NPS, SHPO, and the Historic Architecture Group of NCDOT within three (3) years of the letting of the Phase I contract.*

B. Context for Tourism

- 1) NCDOT will work with the USFWS, SHPO, Aquariums, CHA, and NPS to compile a context for the Coast Guard and Life Saving stations, wildlife refuges, and other state and federal "outposts" on North Carolina’s Outer Banks.*
- 2) NCDOT will produce a digital document which synthesizes the histories and documentary materials associated with the various sites.*
- 3) In addition, NCDOT will prepare the artwork and text for a brochure that could be used by travelers and residents as a guidebook to locate and understand the significance of the various sites and their place in history of the Outer Banks and the state.*
- 4) NCDOT shall afford the USFWS, SHPO, Aquariums, CHA, and NPS an opportunity to review and comment on the draft brochure. If no comments are received from the USFWS, SHPO, Aquariums, CHS, and NPS within thirty (30) days of confirmed receipt, NCDOT can assume that the reviewing parties do not object to the brochure. 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.*
- 5) NCDOT shall deposit copies of the documentation and brochure artwork and text with USFWS, SHPO, Aquariums, CHA, and NPS within three (3) years of the letting of the Phase I contract and will provide 50,000 brochures to tourism organizations such as Historic Albemarle, Coastal Guide, NC Northeast Commission, Outer Banks Visitors Bureau, and state visitor centers.*

II. Pea Island National Wildlife Refuge

A. Bridge Design

Currently, the bridge rail is proposed as a 32-inch concrete parapet with 2-bar, metal rail atop the parapet. Prior to completion of the final design for the Undertaking/Phase I bridge structure 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.

B. Management of NC 12

NCDOT, in consultation with FWHA, USFWS, NPS, SHPO, and the North Carolina Coastal Geological Cooperative, will develop and implement sustainable techniques to protect NC 12 and subsequently ameliorate the adverse impacts to the Refuge and Pea Island.

C. Copies of Technical Reports

NCDOT will provide the USFWS and NPS with copies of the cultural resource technical reports previously produced by NCDOT to describe the historic architecture, historic landscape, terrestrial archaeology, and underwater archaeology investigations in the Undertaking/Phase I's Area of Potential Effects. NCDOT will deliver this information to USFWS and NPS within six (6) months of signing the PA.

D. Signs

NCDOT will provide and install signs within the Refuge, at locations coordinated with the USFWS and NPS, to direct people to the visitor's center and points of historical interest, including prominent Civilian Conservation Corps installations, within three (3) years of the letting of the Phase I contract.

E. Exhibits and Kiosks

- 1) NCDOT will provide the USFWS and NPS with information about the historic significance and structural importance of Civilian Conservation Corps' work efforts in the Refuge for use in exhibits and kiosks that will be made available to visitors.
- 2) NCDOT will design and produce a custom kiosk at a location specified by the USFWS within three (3) years of the letting of the Phase I contract. The kiosk, like the signs mentioned in Stipulation C above, will be installed or built in a manner consistent with USFWS or the Refuge's Visitor Service Facility Standards. More specifically, NCDOT will research and design the interpretive panels; design the structure, provide funding for fabrication of the kiosk, and install the kiosk at the site. Prior to fabrication of the interpretive panels and kiosk structure NCDOT shall afford the SHPO, ACHP, and USFWS an opportunity to review and comment on the panels and structure. If no comments are received from the SHPO, ACHP, or USFWS within 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.
- 3) Once installed by NCDOT, it is the intention of USFWS to maintain the kiosks subject to the availability of appropriated funds". and

"IV. Context Sensitive Solutions

FHWA and NCDOT commit to utilizing the best practices and measures available at the time during the construction the Parallel Bridge and when implementing activities associated with Pea Island/NC 12 Transportation Management Plan to avoid and minimize all impacts to historic properties."

(former) Oregon Inlet US Coast Guard Station:

- A Section 106 Programmatic Agreement (Appendix F) will be signed by the FHWA, State Historic Preservation Officer, and the Advisory Council on Historic Preservation. This Programmatic Agreement (to be finalized prior to the ROD) will resolve adverse effects to this historic property through mitigation measures specified in the draft Programmatic Agreement. Excerpts from this draft Programmatic Agreement pertinent to the Station include:

“I. Parallel Bridge Corridor Minimization/Mitigation Measures

In order to facilitate planning and streamline development of plans for the Undertaking/Phase I, NCDOT shall, in consultation with the consulting parties, develop the following historic contexts to aid in historic planning for the parallel bridge corridor and possible heritage tourism initiatives.

A. Ethnographical Context

- 3) NCDOT will work with the USFWS, SHPO, and NPS to compile an ethnographical context of the men and women that lived and worked in the general project area during the late nineteenth and early twentieth centuries. The context will focus on the area’s watermen, fishermen, Civilian Conservation Corps, members of gun or hunting clubs, and life saving station employees. NCDOT will be responsible for the following tasks.
 - a. Gathering oral histories from surviving members of these groups or families.*
 - b. Conducting primary and secondary research regarding the activities of these groups.*
 - c. Compiling documentary materials and digitizing images.**
- 4) NCDOT will produce a digital document which contains the recorded oral histories and documentary materials. NCDOT shall afford the USFWS, SHPO, and NPS an opportunity to review and comment on the draft digital document. If no comments are received from the USFWS, SHPO, and NPS within thirty (30) days of confirmed receipt, NCDOT can assume that the reviewing parties do not object to the document. 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. NCDOT shall deposit copies of the documentation with USFWS, NPS, SHPO, and the Historic Architecture Group of NCDOT within three (3) years of the letting of the Phase I contract.*

B. Context for Tourism

- 6) NCDOT will work with the USFWS, SHPO, Aquariums, CHA, and NPS to compile a context for the Coast Guard and Life Saving stations, wildlife refuges, and other state and federal "outposts" on North Carolina’s Outer Banks.*
- 7) NCDOT will produce a digital document which synthesizes the histories and documentary materials associated with the various sites.*
- 8) In addition, NCDOT will prepare the artwork and text for a brochure that could be used by travelers and residents as a guidebook to locate and understand the significance of the various sites and their place in history of the Outer Banks and the state.*
- 9) NCDOT shall afford the USFWS, SHPO, Aquariums, CHA, and NPS an opportunity to review and comment on the draft brochure. If no comments are received from the USFWS, SHPO, Aquariums, CHS, and NPS within thirty (30) days of confirmed receipt, NCDOT can assume that the reviewing parties do not object to the brochure. 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.*
- 10) NCDOT shall deposit copies of the documentation and brochure artwork and text with USFWS, SHPO, Aquariums, CHA, and NPS within three (3) years of the letting of the Phase I contract and will provide 50,000 brochures to tourism organizations such as Historic Albemarle, Coastal Guide, NC Northeast Commission, Outer Banks Visitors Bureau, and state visitor centers.*

III. (former) Oregon Inlet US Coast Guard Station

A. Parking Lot and Access Road

- 1) NCDOT will make improvements (clearing sand and paving) to the access road (SR 1257) and parking area, if NCDOT needs these areas for staging. If and when the (former) Oregon Inlet Coast Guard Station becomes a viable facility and is open to the public, NCDOT will maintain SR 1257 to the standards of the North Carolina Secondary Road System.*

- 2) *For the purposes of this PA, staging areas are defined as (1) the storage of equipment or materials that are needed for the construction/demolition of the bridge over the Oregon Inlet and (2) the placement of temporary offices or trailers.*
- 3) *NCDOT shall insure access to the (former) Oregon Inlet Coast Guard Station during construction of the Undertaking (Phase I).*

B. Signs

NCDOT will provide and install roadside signs to direct visitors to the station from Northbound NC 12 and Southbound NC 12 within one (1) month of the replacement bridge over Oregon Inlet being open to traffic.

C. Exhibits and Kiosks

NCDOT will provide Aquariums with information about the historic significance and structural importance of the Station for use in exhibits and kiosks, which will be made available to visitors. NCDOT will design and produce a custom kiosk at a location specified by Aquariums within three (3) years of the letting of Phase I of the project.

- 1) *More specifically, NCDOT will research and design the interpretive panels; design the structure, provide funding for fabrication of the kiosk, and install the kiosk at the site.*
- 2) *Prior to fabrication of the interpretive panels and kiosk structure NCDOT shall afford the SHPO, ACHP, and Aquariums an opportunity to review and comment on the panels and structure. If no comments are received from the SHPO, ACHP, or Aquariums 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.*
- 3) *Once installed by NCDOT, Aquariums will maintain the kiosks.*

IV. Context Sensitive Solutions

FHWA and NCDOT commit to utilizing the best practices and measures available at the time during the construction the Parallel Bridge and when implementing activities associated with Pea Island/NC 12 Transportation Management Plan to avoid and minimize all impacts to historic properties.”

- *The SHPO has been engaged in the development of the new Preferred Alternative through participation as a Merger Team member.*

Rodanthe Historic District and Chicamacomico Life Saving Station:

- *Conceptual design modifications (Appendix C) were developed in order to minimize harm to these historic properties. Specifically, the southern endpoint of several alternatives was moved north of the historic district, which eliminated harm to these properties.*
- *The SHPO has been engaged in the development of the new Preferred Alternative through participation as a Merger Team member.*
- *The SHPO has requested to be engaged in the Partnership Agreement. Their participation will assist in future decision-making that lessens harm to these historic properties.*

Conclusion

The Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative proposes to proceed with the construction of Phase I of the Parallel Bridge Corridor as soon as possible. FHWA and NCDOT propose to use approximately 3.08 acres of the Pea Island National Wildlife Refuge. This use is a best estimate that may change based on the contractor’s final design. Following a ROD, the NCDOT will award a contract to a design-build contractor. The design-build contract will determine the exact alignment and pier placement for Phase I based on engineering design, construction techniques and coordination with the NCDOT, FHWA, NPS, USFWS and other environmental resource and regulatory agencies when developing the final design for the new Oregon Inlet bridge. The Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative does not include any action at this time on Hatteras Island beyond the limits of Phase I. The study and selection of future actions on Hatteras Island beyond the limits of Phase I will be undertaken as follows:

When the coastal and environmental monitoring indicates a future problem for the transportation corridor, the Merger Team will convene for purposes of identifying an appropriate response strategy. Such response strategy(ies) will be culled from the alternatives currently studied (including the “No Action” Alternative as required by NEPA), as these represent the range of possible solutions. The Section 4(f) Evaluation will be reviewed to verify the status of Section 4(f) resources, the effect(s) of the proposed response strategies on the 4(f) resources, “use” determinations and, if necessary, a revised least overall harm analysis.

If a later phase of the Preferred Alternative requires the use of Section 4(f) property, additional Section 4(f) analysis would be undertaken prior to FHWA’s approval of the later phase. Thus, if FHWA approves the Parallel Bridge Corridor with NC 12 Transportation Management Plan Alternative, an express commitment will be made in the ROD to complete additional Section 4(f) analysis before all later phases of the project are implemented, if the later phase would use additional Section 4(f) property.

In addition, FHWA and NCDOT commit to coordinate with the USFWS-Pea Island National Wildlife Refuge and the NPS to develop a Partnership Agreement (or other mutually-agreed upon mechanism) to set up protocols to follow prior to NCDOT implementing future actions beyond Phase I.

These actions address transportation management through 2060 with 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. Future construction actions within the project corridor would be evaluated based on future conditions of resources in the project area in cooperation with the appropriate environmental regulatory and resource agencies and the public in a process stipulated in the Partnership Agreement.