

MID-CURRITUCK BRIDGE STUDY

ADMINISTRATIVE ACTION RECORD OF DECISION

March 6, 2019

Federal-Aid Project Number: BRSTP-000S (494)

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STIP No. R-2576

Currituck County

Dare County

US Department of Transportation

Federal Highway Administration

North Carolina Turnpike Authority

a division of the North Carolina Department of Transportation

Cooperating Agencies: US Army Corps of Engineers

US Coast Guard

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MID-CURRITUCK BRIDGE STUDY RECORD OF DECISION

1.0 Introduction

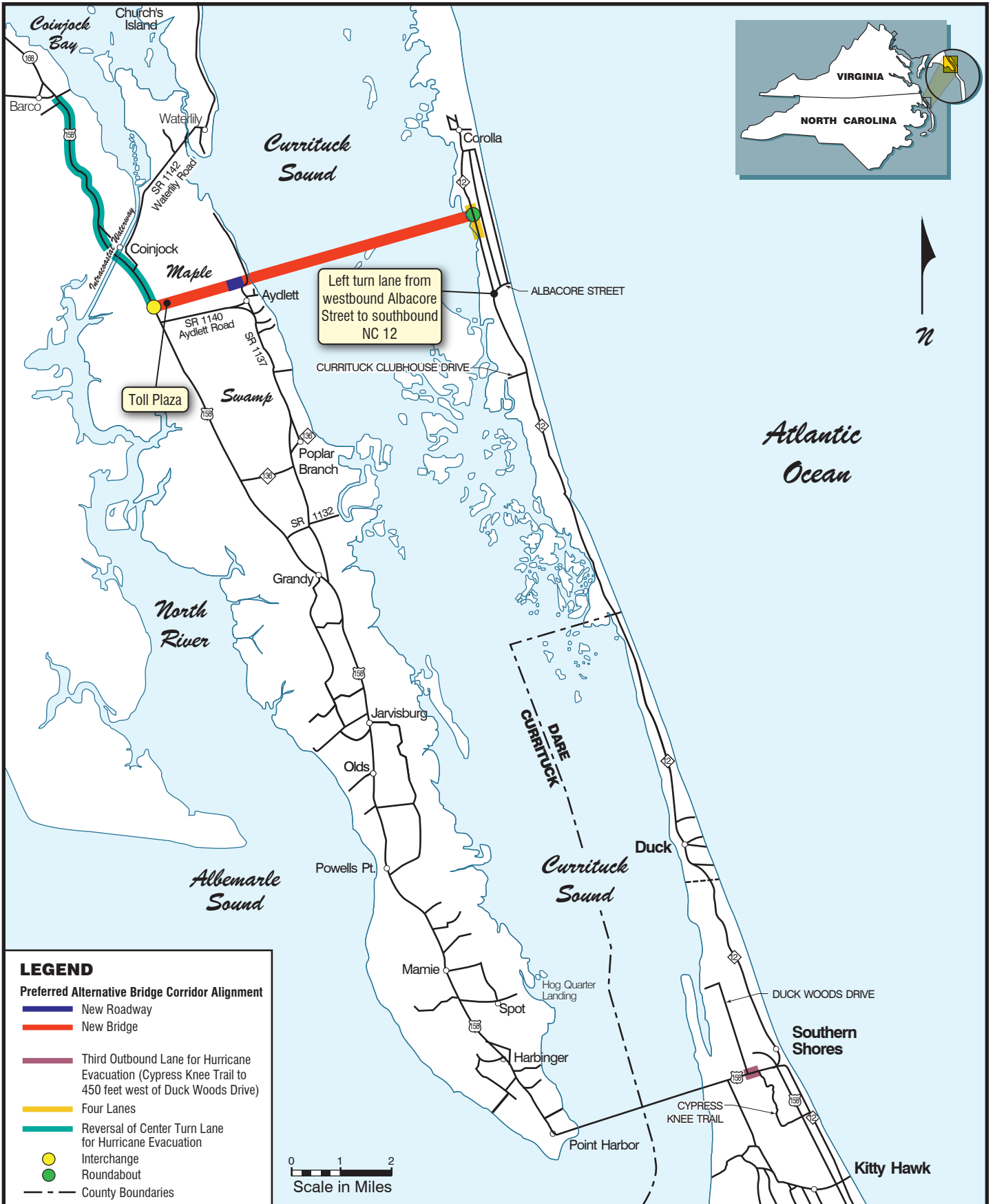
This document records the decision of the Federal Highway Administration (FHWA) regarding the Selected Alternative for the Mid-Currituck Bridge Study in Currituck and Dare counties, North Carolina. In making this decision, the agency considered the information and analyses documented in the *Draft Environmental Impact Statement (DEIS)* (March 10, 2010), the *Final Environmental Impact Statement (FEIS)* (January 12, 2012), and the *Reevaluation of Final Environmental Impact Statement (Reevaluation)* (March 6, 2019), this Record of Decision (ROD), and comments received from agencies and the public. The *Reevaluation* and its associated *Reevaluation of Final Environmental Impact Statement Study Report (Study Report)* (March 6, 2019) are attached to this ROD.

2.0 Decision

FHWA and the North Carolina Department of Transportation (NCDOT) have identified the Selected Alternative for the Mid-Currituck Bridge Study in Currituck and Dare counties, North Carolina. The Selected Alternative identified and discussed in this ROD is the Preferred Alternative identified in the FEIS with design revisions based on the findings of the FEIS reevaluation. This alternative is a refinement of MCB4/C1 with Option A. The proposed action includes construction of a 4.7-mile-long, two lane toll bridge (the Mid-Currituck Bridge) across Currituck Sound between the communities of Aydlett on the mainland and Corolla on the Outer Banks, an interchange between US 158 and the mainland approach road to the bridge, a bridge across Maple Swamp as a part of the mainland approach road, limited improvements to existing NC 12 and US 158, and primarily reversing the center turn lane on US 158 to improve hurricane clearance times. The Selected Alternative is shown on Figure 1.

The proposed action is included in the North Carolina Department of Transportation's (NCDOT's) *2018-2027 State Transportation Improvement Program (STIP)* as STIP Project No. R-2576. The proposed action also is included in the *Comprehensive Transportation Plan for Currituck County* (NCDOT, 2012 as amended 2015). In those plans, the proposed action is defined as a bridge in Currituck County across Currituck Sound from the mainland to the Outer Banks.

The Selected Alternative will: substantially improve traffic flow on the project area's thoroughfares (US 158 and NC 12); substantially reduce travel time for persons traveling between the Currituck County mainland and the Currituck County Outer Banks; and reduce substantially evacuation times from the Outer Banks for residents and visitors who use US 158 and NC 168 as an evacuation route.



Selected Alternative

Figure

1

MCB4 was identified by the lead agencies (FHWA and NCDOT) as the Recommended Alternative in the DEIS. The lead agencies did not make a recommendation on the bridge corridor alternative (C1 or C2), the mainland bridge approach design option (Option A or Option B), or a hurricane evacuation option in the DEIS. Based on public comments received on the DEIS, and in coordination with environmental resource and regulatory agencies, MCB4/C1 with Option A was selected as the project's Preferred Alternative, as documented in the FEIS and reaffirmed in the *Reevaluation and Study Report*. It also includes the other features noted in the first paragraph of this section. The Preferred Alternative was selected taking into account the key findings associated with travel benefits; community, natural resource, and other impacts; public involvement comments; and financing and design considerations included in the FEIS and the *Study Report*. The Preferred Alternative also includes refinements to MCB4/C1 with Option A to help avoid and minimize impacts. The FEIS and the *Study Report* includes details of the decision-making process and reasons for selecting MCB4/C1 with Option A for the project and the associated refinements. A complete description of the Preferred Alternative with the design revised during the reevaluation and its anticipated impacts are also included in the FEIS and the *Reevaluation* and its associated *Study Report*.

In accordance with the National Environmental Policy Act (NEPA) and the requirements set forth by the Council on Environmental Quality (Title 40 *Code of Federal Regulations* [CFR], Section 1502.2), this ROD:

1. Identifies the Selected Alternative for the Mid-Currituck Bridge Study (STIP Project No. R-2576) (see Section 2.0, as well as Section 4.3 for a full description of the Selected Alternative);
2. Summarizes all alternatives considered by FHWA and the values which were important factors in the evaluation process (Section 4.0);
3. Describes the measures adopted to avoid and/or minimize environmental harm (Section 6.0); and
4. Identifies monitoring and enforcement programs for the implementation of mitigation measures (Section 7.0).

The bibliographic citations for the documents referenced in this ROD are included in Section 7.0 of the *Study Report*.

3.0 Project History

On July 6, 1995, FHWA published a Notice of Intent to prepare an environmental impact statement for a Mid-Currituck Bridge in Currituck County, North Carolina (Federal Register Vol. 60, No. 129, page 35255). A DEIS was published in 1998. Since the 1998 DEIS, there were several changes in the project including the expansion of the project

study area, modification of the purpose and need statement, and analysis of additional alternatives. During this time, state legislation and plans, including the North Carolina Intrastate System and the North Carolina Strategic Highway Corridor System, also were developed or amended to incorporate the proposed project. These changes led to the decision to rescind the 1995 Notice of Intent and the 1998 DEIS on June 3, 2008 (Federal Register Vol. 73, No. 107, page 31733) and on June 16, 2008 to issue a new Notice of Intent (Federal Register Vol. 73, No. 116, page 34065). This chapter describes key milestones associated with the project since the issuance of the 2008 Notice of Intent.

3.1 Statement of Purpose and Need and Detailed Study Alternatives

To coordinate with and gain approval from environmental resource and regulatory agencies, a Section 6002-compliant Project Coordination Plan was prepared as required by Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. The Project Coordination Plan establishes a process by which FHWA and NCDOT will coordinate with agencies and the public throughout the project development process. Under the terms of the Project Coordination Plan, agencies are invited to participate in regular coordination meetings called Turnpike Environmental Agency Coordination (TEAC) meetings.

NCDOT reached an understanding with agency representatives on the project's Statement of Purpose and Need and on the alternatives to be studied in detail in the DEIS at a TEAC meeting on July 8, 2008.

3.2 Mid-Currituck Bridge Study DEIS

The *Mid-Currituck Bridge Study Draft Environmental Impact Statement* was signed on March 10, 2010 and made available for public and agency review. The lead agencies identified MCB4 as the Recommended Alternative in the DEIS. Three Public Hearings were held in May 2010.

3.3 Selection of the Preferred Alternative in the FEIS

Based on public comments received on the DEIS and in coordination with environmental resource and regulatory agencies, MCB4/C1 with Option A was selected as the project's Preferred Alternative, as documented in the FEIS. NCDOT reached an understanding with agency representatives at a January 20, 2011 TEAC meeting that this Preferred Alternative could be found by the US Army Corps of Engineers (USACE) to be the Least Environmentally Damaging Practicable Alternative (LEDPA) in the context of the consideration of an application for a permit under Section 404 of the Clean Water Act and was permissible under other federal and state environmental law. This understanding was based both on the Preferred Alternative's design features and project avoidance, minimization, and mitigation commitments, particularly those related to

stormwater management and construction impacts in Currituck Sound. The Preferred Alternative also included refinements made to the design of MCB4/C1 with Option A based on input received from state and federal agencies and the public, as well as to help avoid and minimize impacts. The refined MCB4/C1 with Option A met the project's purpose and need. If another alternative had been chosen as the Preferred Alternative, design refinements based on DEIS comments also would have been made.

The refinements to MCB4/C1 with Option A that were a part of the Preferred Alternative in the FEIS and changes made as a part of the revised design developed during the reevaluation are:

- In the FEIS, a median acceleration lane at Waterlily Road was provided. This feature was included to allow left turns to continue to be made at Waterlily Road and US 158. The redesign of the US 158/bridge intersection as a part of the reevaluation eliminated the need for this median acceleration lane. With the revised design, left turns could be made from Waterlily Road without an acceleration lane.
- In the FEIS, the amount of four-lane widening along NC 12 was reduced from that with MCB4/C1 from approximately 4 miles to approximately 2.1 miles, plus left turn lanes at two additional locations over approximately 0.5 mile. The 2.1 miles of NC 12 widening was concentrated at three locations: the bridge terminus, the commercial area surrounding Albacore Street, and Currituck Clubhouse Drive. With the reevaluation's revised design, the amount of four-lane widening is reduced further to 0.7 mile at the bridge terminus. A left turn lane is added on Albacore Street to serve drivers turning from Albacore Street to southbound NC 12.
- In the FEIS, roundabouts were constructed on NC 12 instead of signalized intersections at the widened sections at the bridge terminus and Currituck Clubhouse Drive. The improvements in the Currituck Clubhouse Drive area, including the roundabout, are not included in the reevaluation's revised design.
- In the FEIS, terminating the bridge in a roundabout at NC 12 also allowed the C1 bridge alignment to be adjusted to remove curves and thereby reduced its length across Currituck Sound by approximately 250 feet (from approximately 24,950 feet to 24,700 feet). This feature is unchanged with the reevaluation's revised design.
- In the FEIS, marked pedestrian crossings were provided along NC 12 where it would be widened. They were to be placed at locations identified by Currituck County plans, as well as at North Harbor View Drive and the bridge terminus (one across NC 12 and one across the bridge approach road). With the reevaluation's revised design pedestrian improvements are limited to North Harbor View Drive and the bridge terminus where NC 12 is improved as a part of the project.

Hurricane evacuation clearance time reduction features of the FEIS' Preferred Alternative include:

- On the mainland, reversing the center turn lane on US 158 between the US 158/Mid-Currituck Bridge interchange and NC 168.

- On the Outer Banks, adding approximately 1,600 feet of new third outbound lane to the west of the NC 12/US 158 intersection to provide additional road capacity during a hurricane evacuation.

These hurricane evacuation clearance time reduction features are unchanged with the reevaluation's revised design.

Coordination with environmental resource and regulatory agencies yielded agreement on:

- A preliminary stormwater management plan for the Preferred Alternative.
- Bridge construction technique concepts to minimize aquatic resource impacts with the Preferred Alternative, including approaches to minimize impact to submerged aquatic vegetation (SAV) habitat and potential SAV habitat.

A commitment to finalizing these plans during final design and the permit process is included in the Project Commitments in Appendix G of the *Study Report*.

3.4 Mid-Currituck Bridge Study FEIS

The *Mid-Currituck Bridge Study Final Environmental Impact Statement* was signed on January 12, 2012. The FEIS evaluated the components of the Preferred Alternative, presented a revised set of Project Commitments, and included revisions based on public and agency comments on the DEIS. A *Stakeholder Involvement for Final Environmental Impact Statement Technical Report* included responses to public and agency comments on the DEIS.

Additional studies also were completed to assess the potential impacts of the Preferred Alternative and its refinements and to respond to DEIS comments, including: a *Biological Assessment* for federally protected species; a *Terrestrial and Underwater Archaeological Survey and Site and Anomaly Evaluation for the Preferred Alternative of the Mid-Currituck Project in Currituck and Dare Counties* report (James et al., December 2012); water quality studies; quantifying the potential constraints on development associated with the No-Build Alternative and ER2 (widening existing roads) and other refinements to the indirect and cumulative effects analysis; revising the noise impact assessment to reflect NCDOT's July 13, 2011 *Traffic Noise Abatement Policy* and FHWA's revised Title 23 CFR, Part 772 regulations; refining natural resource impact assessment findings to reflect agreed upon stormwater management and construction plans; and other refinements to the impact assessment to reflect the refinements made to MCB4/C1 (Option A) listed above. These studies were completed in coordination with various environmental resource and regulatory agencies as documented in Appendix A of the FEIS.

The lead agencies also completed consultation under Section 7 of the Endangered Species Act, Title 16 *United States Code* (USC), Section 1536(a)(2) with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The

biological conclusions for threatened and endangered species were either “No Effect” or “May Affect, Not Likely to Adversely Affect.” USFWS concurred with the Biological Conclusions for protected species under their jurisdiction in a letter dated July 8, 2011 and formal consultation was not needed. NMFS concurred with the Biological Conclusions for species under their jurisdiction in a letter dated October 18, 2011 and formal consultation was not needed. No additional consultation is necessary for Endangered Species Act (ESA) compliance based on assessment of project changes and review of protected species lists.

3.5 Reevaluation of Final Environmental Impact Statement

The reevaluation of the FEIS considered changes that have occurred in the project setting, travel demand, area plans, laws and regulations, and other information or circumstances since the approval of the FEIS in January 2012. It considered whether the FEIS and its Preferred Alternative decision remained valid or whether additional analysis, such as a supplement to the FEIS, was necessary to advance the Mid-Currituck Bridge project to the next stage, the ROD. The FHWA concluded that a supplement to the FEIS was not needed.

As indicated in Title 23 of the Code of Federal Regulations 771.129(b), a written evaluation of a FEIS is required before further approvals may be granted if major steps to advance the action (e.g., authority to undertake final design, authority to acquire a significant portion of the right-of-way, or approval of the plans, specifications and estimates) has not occurred within three years after the approval of a FEIS. Although project development activities have been on-going since the FEIS was approved in January 2012, the ROD has not been approved. As such, the *Reevaluation* was prepared to meet FHWA requirements.

FHWA regulations state that an EIS shall be supplemented whenever the Administration determines that: (1) Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or (2) New information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS (23 CFR 771.130(a)). The regulations also state that a supplemental EIS is not necessary where changes result in a lessening of adverse environmental impacts (23 CFR 771.130(b)).

The following studies, updates, and changes were completed during the reevaluation:

- **New Traffic Studies:** New traffic forecasts were prepared for the reevaluation that reconsidered development and traffic growth assumptions used in the FEIS traffic forecasts. Using the new traffic forecasts and road capacity assumptions contained in the 2016 Highway Capacity Manual (HCM), new congestion measures were prepared. For the No-Build Alternative and ER2 new congestion measures were developed assuming both unconstrained planned and expected development on the Currituck County Outer Banks and development constrained by the capacity of

NC 12. Design capacity studies were completed for ER2 and the Preferred Alternative and used in the development of revised designs for both alternatives. Travel time and hurricane clearance time findings also were updated.

- **Updated Purpose and Need and Project Benefits:** The results of the new congestion, travel time, and hurricane clearance study findings were used to identify changes in the need for the project and the relative benefits of the Preferred Alternative and ER2 compared with the No-Build Alternative.
- **Updated Alternatives Screening:** Decisions from the 2009 alternatives screening regarding which alternatives were to be evaluated in detail in the DEIS were reconsidered given the new traffic forecasts.
- **Updated Detailed Study Alternatives:** The No-Build Alternative and the designs of ER2 and the Preferred Alternative were updated to take into account the new traffic forecasts and changes in the project setting.
- **Regulatory Changes and New Environmental Studies:** Regulatory changes were identified that have occurred since the release of the FEIS, as well as changes in land use, comprehensive transportation, and pedestrian and bicycle plans. Several new environmental studies were conducted, including: interviews with local officials, surveys of existing land use, environmental justice studies, wetland and other USACE jurisdictional resource delineations, CAMA resource identification, SAV surveys, and updating noise impacts to reflect the revised traffic findings. Additional consultation under Section 7 of the Endangered Species Act was completed with the US Fish and Wildlife Service (USFWS). Cultural resources were reaffirmed with the State Historic Preservation Office (HPO). Findings from the FEIS were evaluated and updated to reflect NCDOT's updated *Traffic Noise Policy* (October 2016) and FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (October 2016).
- **Changes in Project Setting:** Based on the above studies, changes in the project's community, cultural resource, natural resource, and other physical characteristics were documented, including both the project area and the indirect and cumulative impact study area.
- **Updated Project Impacts:** Impact issues addressed in Chapter 3.0 of the DEIS and FEIS were updated as needed based on the new traffic forecasts, the revised designs, regulatory changes and new environmental studies, and changes in the project setting.
- **Updated Basis for Choosing the Preferred Alternative:** The basis for choosing the FEIS Preferred Alternative was updated based on the reevaluation of project benefits and impacts.
- **Updated Project Commitments:** Project commitments included in the FEIS were updated based on FEIS comments and the findings of the reevaluation.

In February 2015, contacts were made with state and federal agency, local government, and local business and tourism organizations representatives to obtain information related to:

- Changes in local plans and development ordinances and their enforcement.
- Changes in community-related characteristics, including building permits issued, new subdivisions, population forecasts, public services, and recreational or commercial use of Currituck Sound.
- Changes in natural resources requirements and characteristics, including new or changed Natural Heritage Program (NHP) natural areas, new duck blinds, new or changed Primary Nursery Areas, new Coastal Area Management Act (CAMA) Areas of Environmental Concern, changes to water quality classifications, changes in state stormwater quality law, changes in driver trespassing in USFWS protected areas in the non-road accessible area, and status of wetland mitigation credits available at Ballance Farm Wetlands Mitigation Site.

These contacts augmented project area characteristics information gathered in the field related to:

- New development near the Preferred Alternative
- Changes in viewsheds
- New parking spaces at businesses near the Preferred Alternative that could be affected
- Changes in non-road accessible development patterns
- Changes in multi-use paths (existing and planned)
- New community facilities
- Notable changes in impervious surfaces, including new road and structure development
- New logging in Maple Swamp
- Notable changes in the boundaries of jurisdictional wetland and coastal wetlands where they are affected by the Preferred Alternative
- Notable loss of or other changes in natural areas

This information gathering also resulted in the decision to prepare:

- New traffic forecasts and a new assessment of project needs and benefits based on the new forecasts
- New Section 404 jurisdictional resource delineations
- New SAV surveys in 2015, 2016, 2017 and 2018

Contact was made with local government agencies to obtain information on any changes, updates or additions on:

- Residential housing density ordinances, specifically any changes in light of the new state legislation that prohibits limiting the number of bedrooms for homes
- New development in or adjacent to the project area along both the Preferred Alternative and ER2
- Land use and redevelopment trends for use in the hurricane evacuation modeling
- Updates on waterpark plan, economic development around the airport and USFWS land swap at Corolla beach in Currituck County

Phone interviews were conducted with two local real estate companies regarding check-in protocols for residential rentals, a possible mid-week rental market, and the average number of occupants per unit during peak season.

4.0 Alternatives Considered

This section describes the identification of the preliminary alternatives and the methodologies used in the identification of the Selected Alternative. The section also describes the Selected Alternative and documents the anticipated impacts associated with it.

4.1 Range of Alternatives

A range of alternative concepts was considered for the Mid-Currituck Bridge Study, including:

- No-Build Alternative;
- Shifting rental times;
- Transportation Systems Management (TSM);
- Bus transit;
- Four Ferry alternatives (F1 to F4) (see descriptions in Section 2.2.4.1 and Figures 9 and 10 in the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]);
- Two existing road (ER) improvement alternatives (ER1 and ER2) (see descriptions in Section 2.1.1.1 and Figure 2 in the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]);
- Nine different Mid-Currituck Bridge corridor locations across Currituck Sound, including two northern corridors (N1 and N2), six central corridors (C1 to C6), and one southern corridor (S) (see descriptions in Section 3.0 and Figures 11 and 12 in the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]);
- Multiple alignment refinements to the C1 and C2 bridge corridors to minimize impacts (see descriptions in Section 5.0 and Figures 14 and 15 in the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]), including: three interchange/

intersection design concepts at US 158; shifting the mainland portion of the C1/C2 bridge corridor north and south of the existing powerline right-of-way through Maple Swamp; and refinements to the Outer Banks termini (5 alternative locations for C1 and 2 alternative locations for C2);

- Two design options (Option A and Option B) for the mainland approach road (i.e., between US 158 and Currituck Sound) to the Mid-Currituck Bridge (see descriptions in Section 6.0 and Figure 16 in the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]); and
- Four different combinations of a Mid-Currituck Bridge (MCB) and improvements to existing roads (MCB1 to MCB4) (see descriptions in Section 2.1.1.2 and Figures 6 and 7 in the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]).

These alternatives were evaluated as part of a multi-step screening process which is documented in the *Alternatives Screening Report* (Parsons Brinckerhoff, 2009).

Shifting rental times, TSM, bus transit, and the ferry alternatives were eliminated from further consideration because they would not, among other reasons, fully meet the purpose and need of the project. Additional screening also resulted in elimination of some of the existing road improvement alternatives and the northern and southern Mid-Currituck Bridge corridor location alternatives. Ultimately, five detailed study alternatives were evaluated in the DEIS (ER2, MCB2/C1, MCB2/C2, MCB4/C1, and MCB4/C2), as agreed to with environmental resource and regulatory agencies at a TEAC meeting on July 8, 2008.

As a part of the reevaluation, shifting rental times, TSM, bus transit, and ferry alternatives were revisited. A composite alternative also was assessed. The conclusion that these are not reasonable alternatives did not change (see Section 3.3 of the *Study Report*). The need to reassess MCB2, bridge corridor C1, and design Option B also was considered. It was concluded that the reasons to not make this alternative, corridor, and option a part of the FEIS Preferred Alternative remained valid (see Section 1.2 of the *Study Report*).

Three alternatives were reassessed in the reevaluation: No-Build Alternative, ER2, and the FEIS Preferred Alternative. The No-Build Alternative was redefined based on the 2018 to 2027 STIP (see Section 1.2.1.3 of the *Study Report*). The preliminary designs for the Preferred Alternative (see Section 1.2.2.2 of the *Study Report*) and ER2 (see Section 1.2.3.2 of the *Study Report*) assumed in the DEIS and FEIS impact assessments were revised. This was done to reflect the revised traffic forecasts and to further minimize impacts by taking into consideration changes in the project setting since the release of the FEIS. Costs and financing strategies were revisited (see Sections 1.2.4 and 1.2.5 of the *Study Report*).

4.2 Basis for Choosing the Selected Alternative

MCB4 was identified as the Recommended Alternative in the DEIS (Section 2.6). Based on public comments received on the DEIS and in coordination with environmental resource and regulatory agencies, MCB4/C1 with Option A was selected as the project's Preferred Alternative, as documented in the FEIS. The FEIS Preferred Alternative also included limited improvements to existing NC 12 and US 158, as well as primarily reversing the center turn lane on US 158 between the Mid-Currituck Bridge interchange and NC 168 to reduce hurricane evacuation clearance times. The FEIS Preferred Alternative included refinements made to MCB4/C1 with Option A between the release of the DEIS and FEIS based on input received from state and federal agencies and the public, as well as to help avoid and minimize impacts (Section 3.3). Further design revisions were made to the Preferred Alternative as a part of the reevaluation (Sections 3.3 and 4.3).

MCB4/C1 with Option A and with refinements presented in the FEIS and in the reevaluation to help avoid and minimize impacts is now identified as the Selected Alternative based on the considerations that follow. This list is organized by issues as they are presented in the FEIS. Also, this list does not represent all benefits or impacts of the Selected Alternative, just those elements that differentiated the Selected Alternative when compared to the other detailed study alternatives.

4.2.1 Travel Benefit Considerations

The Selected Alternative offers the greatest summer travel benefits, primarily on the summer weekend. They are:

- Less severe congestion, with traffic demand during periods of congestion generally not exceeding the capacity of the road.
- A shorter duration of congestion on NC 12 in Dare County, 10 to 12 hours versus 13 to 15 hours on the summer weekend with the No-Build Alternative. ER2 would not reduce the duration of congestion on NC 12.
- Travel demand not exceeding the capacity of NC 12 on the summer weekend make it unlikely that queues on NC 12 would back up onto US 158, unless there is a crash or other lane blockage. Such backups disrupt US 158 traffic and cause temptation for visitors to use local streets in Southern Shores to bypass a portion of NC 12.
- The greater travel time benefit, including the 11-minute travel time from the Currituck County mainland to its Outer Banks over the Mid-Currituck Bridge and a reduction in average summer travel time on existing roads from Aydlett Road to the Outer Banks' bridge terminus by 64 minutes from 136 minutes to 72 minutes. ER2 would reduce travel time by 19 minutes to 117 minutes, but not offer the short travel time to the Currituck County Outer Banks offered by the Selected Alternative. The traffic forecasts indicate that in 2040, 2.8 million trips would pass across the Mid-

Currituck Bridge, including 18,000 on each summer weekend, each taking advantage of the 11-minute trip from the mainland to the Outer Banks.

4.2.2 Community Impact Considerations

- With the Selected Alternative, neighborhood and community cohesion impacts would involve the creation of a visual barrier in Aydlett. The use of the revised C1 corridor presented in the FEIS with the Preferred Alternative (including the revised design) would pass through what was the unimproved (streets and utilities are not installed) Phase II of the Corolla Bay subdivision. NCDOT made an advanced purchase of the land in February 2016 with the approval of the Board of Transportation. Neighborhood and community cohesion impacts would be minor with ER2. ER2 would not affect Aydlett or the Corolla Bay area.
- The Selected Alternative is consistent with area CAMA land use plans in that they include a Mid-Currituck Bridge. In addition, the Selected Alternative does not widen NC 12 in Dare County. Since the preparation of the FEIS, the Town of Southern Shores has updated their CAMA land use plan (July 2012). The new plan supports the construction of a Mid-Currituck Bridge. No other CAMA land use plan updates have occurred in the project area.
- Reducing the amount of NC 12 four-lane widening, first as described for the Preferred Alternative in the FEIS and further for the revised design presented in the reevaluation, compared to the amount of widening proposed for MCB4 in the DEIS addresses citizen and local government concerns related to pedestrian crossing of NC 12. The widening of NC 12 would be least with the revised design for the Selected Alternative. This reduction in widening greatly reduces the need for infiltration strips within a permanent drainage easement along a widened NC 12 and reduces the potential for adverse community impacts along NC 12 in general.

4.2.3 Cultural Resource Impact Considerations

- The Selected Alternative with reversing the center turn lane on US 158 to improve hurricane evacuation clearance times would have No Effect or No Adverse Effect on properties listed on or eligible for inclusion in the National Register of Historic Places (NRHP). These findings are unchanged because historic and archaeological resource findings from cultural resource surveys in 2007, 2008, and 2009, as well as additional archaeological studies conducted in 2011 for the Preferred Alternative, have neither changed nor has the impact area of the Preferred Alternative expanded beyond the cultural resource survey area since the preparation of the FEIS. This conclusion was affirmed by the State Historic Preservation Office (HPO) in a July 20, 2015 letter (Appendix A). In a letter dated April 7, 2017, the HPO affirmed the same conclusion for ER2.

4.2.4 Natural Resource Impact Considerations

- The Selected Alternative would have no impact on CAMA wetlands. Also, no wetlands on the shoreline of Currituck Sound would be affected. There have been no

notable changes in the location and extent of CAMA wetlands since the preparation of the FEIS. These conclusions were affirmed in the field by a representative of the NC Department of Environmental Quality (NCDEQ), Division of Coastal Management (DCM) in March 2016.

- The Selected Alternative seeks to avoid and minimize impacts to jurisdictional waters, as practicable. Wetland fill impacts, calculated as including the area within 25 feet of the slope-stake line, are estimated to be 4.2 acres with the revised design of the Selected Alternative. Wetland fill impacts incurred by the revised design for ER2 would be 8.5 acres.
- The construction approach described for the Selected Alternative in Section 2.4.2 of the FEIS seeks to minimize construction related impacts to Currituck Sound, as practicable, through the use of temporary open trestles and barges. This finding is unchanged since no changes in the construction approach are proposed.
- A preliminary stormwater management plan for the Selected Alternative described in Section 2.1.7 of the FEIS for the Preferred Alternative is designed to minimize impacts to Currituck Sound from bridge runoff. A final stormwater management plan would be developed during final design, documenting implementation of current best management practices (BMPs) in compliance with NCDOT's National Pollutant Discharge Elimination System (NPDES) permit for the protection of aquatic and terrestrial resources. Preparation of the final stormwater management plan would be conducted in consultation with environmental resource and regulatory agencies.

4.2.5 Other Physical Characteristics Considerations

- The Selected Alternative would have the least number of homes (which is 59 with the revised design) that would experience a traffic noise impact as defined by FHWA's noise abatement criteria and NCDOT's 2016 *Traffic Noise Policy*.
- The Mid-Currituck Bridge component of the Selected Alternative would reduce the impact of accelerated sea level rise on travel on the Outer Banks north of the Dare/Currituck County line by providing an alternate route to and from the Outer Banks if sea level rise were to result in a breach in NC 12 near the Dare/Currituck County line.
- The Selected Alternative would result in a negligible impact on the surface water and no impact on groundwater hydrology in Maple Swamp or on storm surge elevations. This remains the case because no changes have been made in the design of these alternatives since the preparation of the FEIS that would add fill to surface waters or Maple Swamp. The impact was minimized with the Selected Alternative by bridging Maple Swamp.

4.2.6 Financing and Design Considerations

- The Selected Alternative could be financed by a combination of toll revenue bonds, a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan, Grant

Anticipation Revenue Vehicle (GARVEE) bonds and State Matching funds, as described by the preliminary Plan of Finance in Section 1.2.5 of the *Study Report*.

- The current plan of finance for the Selected Alternative includes a combination of toll revenue bonds, a TIFIA loan, GARVEE bonds, and State Matching funds. This plan represents one potential funding scenario for constructing the Selected Alternative.
- The Selected Alternative would have the fewest changes in current access to residential and business properties.
- With the Selected Alternative, traffic control measures on US 158 for approximately 5 miles between the Mid-Currituck Bridge and NC 168 would be implemented during a hurricane evacuation event. Improvements for 1,600 feet west of the US 158/NC 12 intersection would be implemented, instead of the 27 miles with ER2, reducing environmental impacts.

4.3 Description of the Selected Alternative

The Selected Alternative is MCB4/C1 with Option A with refinements made to help avoid and minimize impacts. The basic design features of the Selected Alternative are:

- A 4.7-mile-long, two-lane toll bridge across Currituck Sound with 8-foot shoulders with approach roads, in Currituck County.
- A mainland bridge approach road placed between Aydlett Road (SR 1140) and approximately 430 to 720 feet north of the powerline that parallels Aydlett Road. The bridge approach would intersect US 158 with an interchange. A toll plaza would be just east the US 158 interchange.
- The mainland bridge approach road would include a 1.5-mile-long bridge over Maple Swamp. Drivers traveling between US 158 and Aydlett would continue to use Aydlett Road. In Aydlett, the approach road would pass through Aydlett on fill (approximately 3 to 23 feet high) and bridge Narrow Shore Road, as described above for the FEIS design.
- A bridge approach road on the Outer Banks that ends in the undeveloped Phase II of the Corolla Bay subdivision. In May 2015, the Board of Transportation authorized the advanced purchase of this property at the request of the property owner. It was purchased in February 2016 by NCDOT. The bridge approach would connect with NC 12 at an intersection approximately 2 miles north of the Albacore Street retail area.
- Widening NC 12 for approximately 0.7 mile, in the bridge terminus area between Devils Bay (entrance to the Corolla Bay subdivision) and North Harbor View Drive.
- Roundabout at the bridge terminus at NC 12.
- Left turn lane on Albacore Street for drivers turning from Albacore Street to southbound NC 12.

- Marked pedestrian crossings on NC 12 at North Harbor View Drive, as well as at the bridge terminus at NC 12 (one across NC 12 and one across the bridge approach road).
- Hurricane evacuation clearance time reduction features:
 - On the mainland, reversing the center turn lane on US 158 for 5 miles between the US 158/Mid-Currituck Bridge interchange and NC 168.
 - On the Outer Banks, adding approximately 1,600 feet of new third outbound lane to the west of the NC 12/US 158 intersection in Dare County to provide additional road capacity during a hurricane evacuation. The additional lane would start at the US 158/Cypress Knee Trail/Market Place Shopping Center intersection and end approximately 450 feet west of the Duck Woods Drive intersection, a total distance of approximately 1,600 feet. From this point, the new lane would merge back into the existing US 158 westbound lanes over approximately 300 feet.

A cost estimate review was completed in January 2018 that included individuals from FHWA and NCDOT and the project study team to review the cost and schedule estimates for the Selected Alternative. The objective of the review was to verify the accuracy and reasonableness of the total cost estimate and schedule, and to develop a probability range for the cost estimate that represented the project’s then current stage of development. The January 2018 cost estimate review yielded the estimate of total project cost of \$490.59 million (in year of expenditure dollars with a 70 percent confidence level and not including prior expenditures of \$40.48 million as of November 30, 2017), broken down as follows:

• Construction (millions)	\$463.61
• Environmental Mitigation (millions)	\$1.64
• Right-of-Way Cost (millions)	\$13.97
• Utilities (millions)	\$11.37
• TOTAL COST (millions)	\$490.59

4.4 Impacts of the Selected Alternative

Impacts for the Selected Alternative were discussed in detail in Chapter 3 of the FEIS, summarized in Table S-1 of the FEIS. They are revisited in Section 4.0 of the *Study Report* and are now as follows:

Community Impacts:

- Loss of Neighborhood or Community Cohesion
 - Mainland: Visual barrier to cohesion in Aydlett

- Outer Banks: Will be in what was the unimproved Phase II of Corolla Bay subdivision purchased by NCDOT in February 2016, so Phase I will not be divided. Although difficult to quantify because of its preemptive nature, advance right-of-way purchase avoided potential cost and displacement/relocation impacts that would have occurred with development of the land prior to purchase. Reduction in neighborhood cohesion at North Harbor View Drive by increasing traffic and pavement width with a left turn lane on NC 12 where pedestrians cross between two parts of Monteray Shores. Traffic noise predicted to approach or exceed FHWA's noise abatement criteria at five receptors.
- Relocations
 - Residences: 6 (including 1 likely vacant rental unit)
 - Businesses: 3
 - Outdoor Advertising Signs: 3
 - Gravesites: 2
- Land Use Plan Compatibility: Generally compatible
- Access Changes
 - Neighborhood: Frontage roads used to maintain access to US 158 for properties in the US 158 interchange area. North access road to North Harbor View Drive relocated.
 - Business: Substantial changes in business access on the mainland.
- Effects on Pedestrian and Bicycle Provisions: Existing pedestrian and bicycle multi-use paths at the time of construction that are displaced would be replaced.
 - Environmental Justice: No disproportionately high and adverse effects on any minority, low-income populations, or limited English proficiency populations in accordance with the provisions of Executive Order 12898 and FHWA Order 6640.23. No further environmental justice analysis is required.
- Farmland
 - Prime Soils Used: 30.3 acres
 - State and Locally Important Soils Used: 28.9 acres
 - Agricultural land used: 22.0 acres

Natural Resource Impacts:

- Water Quality Impacts
 - Potential for increased turbidity levels during Mid-Currituck Bridge construction.
 - Increased levels of bridge and highway runoff with 64.3 acres of increased impervious surface.

- Natural Upland Biotic Communities
 - Fill in Natural and Naturalized Upland Communities (includes mixed pine-hardwood forest, hardwood forest, maritime shrub-grassland, and maritime forest): 22.8 acres
 - Clearing Natural and Naturalized Upland Communities (includes mixed pine-hardwood forest, hardwood forest, maritime shrub-grassland, and maritime forest): 0.0 acres
- Land Wildlife Habitat Impact: Removal and alteration of wildlife habitat (both by habitat use and bridging) and habitat edge effects.
- Aquatic Bottom Shaded (water depths ≤ 6 feet): 7.8 acres
- Water Wildlife Habitat Impact: Altered light levels and the introduction of piles as a hard substrate in Currituck Sound; localized noise, turbidity, and siltation during construction.
- SAV Impact
 - Existing SAV Beds Shaded: 3.5 acres
 - Existing Beds and Potential (water depths ≤ 6 feet) SAV Shaded: 8.8 acres
- Wetlands Impact
 - Wetlands within Slope-Stake Line, plus Additional 25-foot Buffer and Grubbing at Maple Swamp Bridge foundations: 4.2 acres
 - Total CAMA Wetland Impact: 0.0 acre
- CAMA Areas of Environmental Concern Affected
 - Fill: 0.0 acre
 - Pilings: 0.1 acre
 - Clearing: 0.0 acre
- Essential Fish Habitat Affected
 - Fill: 0.0 acre
 - Pilings: 0.1 acre
 - Shading (water depths ≤ 6 feet): 7.8 acres
 - Shading (SAV habitat): 4.7 acres
 - Clearing: 0.0 acre
- Threatened and Endangered Species Habitat Affected: “May Affect, Not Likely to Adversely Affect” for four of the 13 threatened and endangered species under USFWS jurisdiction for which a biological conclusion is required. They are the piping plover, West Indian manatee, loggerhead sea turtle, and rufa red knot. A

fifth species, the northern long-eared bat has biological conclusion of “May Affect, Likely to Adversely Affect” under the terms of a programmatic biological opinion that applies to all projects within NCDOT’s Divisions 1-8. “No Effect” on the other eight species under USFWS jurisdiction for which a biological conclusion is required. “May Affect, Not Likely to Adversely Affect” for five of the seven threatened and endangered species under National Marine Fisheries Service (NMFS) jurisdiction for which a biological conclusion is required. They are the green sea turtle, Kemp’s ridley sea turtle, loggerhead sea turtle, shortnose sturgeon, and Atlantic sturgeon. “No Effect” on the other two species (hawksbill sea turtle and leatherback sea turtle) under NMFS jurisdiction for which a biological conclusion is required.

Other Physical Feature Impacts:

- Noise Impact: Noise impact at two mainland (in the bridge interchange area) and three Outer Banks receptors (-4 to 9 dB(A) change at receptors assessed). Noise abatement not feasible and reasonable for these five receptors. In addition to the two impacted mainland receptors in the bridge interchange area, there would be 54 receptors impacted by traffic noise along US 158 north of the Intracoastal Waterway. Noise barriers would not be feasible and reasonable at any of the 54 receptors. This traffic noise impact, however, is not related to the Preferred Alternative’s road improvements because the Preferred Alternative includes no road improvements north of the Intracoastal Waterway, only reversing the existing center turn lane during a hurricane evacuation.
- Air Quality: No impact.
- Energy: Energy used in constructing, operating, and maintaining the Selected Alternative likely would be greater than simply continuing to operate and maintain existing roads.
- Accelerated Sea Level Rise: Some existing roads would be affected by sea level rise, including in the Waterlily area of the US 158 interchange, but no component of the Selected Alternative would be affected by sea level rise. A Mid-Currituck Bridge could be a useful asset in reducing the impact of sea level rise on the project area’s road system. Under all sea level rise scenarios considered, the entire barrier island would be inundated at the Dare/Currituck County line, creating a breach in the island and making a Mid-Currituck Bridge the only way off the Currituck County Outer Banks. It is acknowledged that there are risks and uncertainty in the future regarding sea level rise and storm events. While NCTA and FHWA are aware of the risks and vulnerability, the Mid-Currituck Project is still a useful project.
- Visual Impact: Mid-Currituck Bridge features would be introduced into views along US 158 and in Aydlett (including views of Currituck Sound); will adversely affect views of Currituck Sound from adjoining subdivisions; changes in views along NC 12 at the bridge terminus area. Wider pavement and new drainage features would be introduced along NC 12 where it is widened in the bridge terminus area. Roadside vegetation would be lost to provide for the drainage features.

- Floodplains: No impact.

Indirect and Cumulative Effects

Forecast development would be the predominant contributor to cumulative impacts, irrespective of whether the Selected Alternative is built. The improved accessibility to the Currituck County Outer Banks with the bridge will cause the order of future development to change such that development occurs first in Currituck County and later in Dare County. In addition, in terms of indirect impacts, the presence of the bridge could result in business development in proximity to the bridge's interchange with US 158 and associated use of farmland and visual change. This development, however, is desired by Currituck County. Constrained growth that could result with the No-Build Alternative and ER2 would result in less use of the non-road-accessible area than with the Selected Alternative and less growth in the associated impacts to natural resources.

5.0 Section 4(f) Statement

The US Department of Transportation's (USDOT) Section 4(f) law (Title 49 USC, Section 303) states that agencies within USDOT, such as FHWA, shall not approve the use of land from a significant publicly-owned park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless it is determined that there is no feasible and prudent alternative to the use of land from such properties, and the action includes all possible planning to minimize harm to the property resulting from such use.

Implementation of the Selected Alternative will not result in the direct or constructive use of land from any public park, recreation area, historic site, wildlife or waterfowl refuge as defined in Section 4(f) of the US Department of Transportation Act of 1966, as amended.

6.0 Measures to Minimize Harm

Practicable means to minimize environmental harm have been incorporated into the decision process and coordinated with environmental resource and regulatory agencies. Avoidance and minimization measures were incorporated throughout the project planning and design process to minimize impacts to human and natural resources. Key "Project Commitments" to minimize harm associated with the Selected Alternative are included in this ROD in Appendix G of the *Study Report*. The full range of measures to minimize harm is presented in the sections that follow.

The preliminary/pre-design means and measures to minimize harm will continue to be reviewed and could be altered during the design phase as appropriate to minimize impacts, to the maximum extent practicable, to human and natural resources. Any

changes to measures to minimize harm would be completed in conjunction and coordination with the appropriate state and federal environmental resource and regulatory agencies.

6.1 Relocations

The Selected Alternative will result in the relocation of six residences, three businesses, three outdoor signs, and two gravesites. The revised interchange design reduced gravesite impacts from twenty to two gravesites. Relocation impacts were avoided and minimized during corridor placement and engineering design. NCDOT will follow the state and federal regulations and NCDOT policies for right-of-way acquisition and relocation. The policies ensure that comparable replacement housing is available for relocatees prior to construction of state and/or federally assisted projects. Furthermore, NCDOT will use three programs to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments or Rent Supplement. The relocation program for the Selected Alternative will be conducted in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) and North Carolina's Uniform Relocation Assistance and Real Property Acquisition Policies Act (NCGS 133-5 through 133-18).

6.2 Pedestrian and Bicycle Movement

It is customary on bridges in North Carolina to assume that bicyclists and pedestrians would use the bridge shoulder. With this in mind, the Mid-Currituck Bridge typical section for the Selected Alternative includes an 8-foot-wide shoulder on the bridge and a bicycle-safe rail. NCDOT will coordinate with Currituck County regarding provision of a connection between Narrow Shore Road and the Mid-Currituck Bridge for cyclists entering the bridge. It would be added during final design, if determined necessary. (See Project Commitment #13 in Appendix G of the *Study Report*).

NCDOT will replace sections of existing multi-use paths that are displaced because of NC 12 widening in Currituck County and US 158 widening in Dare County. The replacement paths will be the same width and use the same paving material as the existing paths.

The Selected Alternative includes provision of marked pedestrian crossings along NC 12 where it will be widened (see Project Commitment #6 in Appendix G of the *Study Report*). Marked pedestrian crossings will be placed at North Harbor View Drive and the bridge terminus (one across NC 12 and one across the bridge approach road).

6.3 Cultural Resources

In consultation with the State Historic Preservation Office (HPO), it was determined that the preliminary design of the Selected Alternative will have No Adverse Effect on two historic properties (Samuel McHorney House and Daniel Saunders House) identified in or near the Area of Potential Effects (APE) that are already listed in or eligible for the NRHP. The Selected Alternative will have No Effect on the remaining historic properties identified in or near the APE.

Terrestrial and underwater archaeological surveys conducted in October 2011 both within and adjacent to the APE did not find any archaeological sites that would be affected by the Selected Alternative. This finding was provided to the HPO and Office of State Archaeology (OSA) for concurrence. They concurred with the October 2011 survey findings for terrestrial archaeological sites. However, they requested that diving be done in Currituck Sound to affirm the October 2011 underwater survey findings, which were based on remote sensing. Based on the results of the September 2012 diving survey, there are no historically significant underwater cultural resources within the APE. The HPO and OSA concurred with the September 2012 diving survey findings in December 2012. Concurrence on both terrestrial and underwater archaeological findings are included in a December 14, letter from the HPO (see Appendix A of the *Study Report*). This conclusion was affirmed by the HPO in a July 20, 2015 letter (see Appendix A of the *Study Report*).

6.4 Water Quality

The project will comply with the NCDOT's National Pollutant Discharge Elimination System (NPDES) permit (NCS000250) and requirements of the post-construction stormwater program.

The proposed preliminary stormwater management plan for the Selected Alternative for minimizing the potential impact of project pollutants to the maximum extent practicable is discussed below and described in more detail in Section 2.1.7 of the FEIS. Since the publication of the FEIS, guidance on Best Management Practices (BMPs) has changed. Closed drainage systems with piping to a wet detention basin are no longer considered a BMP. Additionally, compliance with NC Session Law 2008-211's requirement for new development to capture and treat the first 1.5 inches of runoff is not applicable to NCDOT. A final stormwater management plan for minimizing the potential impact of project pollutants will be developed in association with the North Carolina Department of Environmental Quality, Division of Water Resources (NCDEQ-DWR), as well as other appropriate state and federal environmental resource and regulatory agencies, during final design and permitting of the Selected Alternative. NCDOT will implement the final stormwater plan for the Selected Alternative.

To manage stormwater entering Maple Swamp and Currituck Sound, the preliminary stormwater management plan for the Selected Alternative is currently proposed to include the following components: source control (i.e., frequent deck cleaning) on the Maple Swamp and Currituck Sound bridges; direct dispersed discharge over SAV habitat (including existing beds) at the eastern end of the Currituck Sound Bridge, which is now considered a BMP; direct dispersed discharge from the Maple Swamp Bridge; water quality monitoring and research (i.e., a water quality monitoring program as a part of bridge operations to monitor the effectiveness of the bridge deck cleaning program and make adjustments as needed); and treatment of existing impervious road surface where the project improves those roads. Alternate approaches could be discussed with environmental resource and regulatory agencies during preparation of the final stormwater management plan.

Throughout the project, stormwater treatment will be through practices described in the post-construction stormwater program and Stormwater BMP Toolbox manuals. On the Outer Banks portion of the project, preference will be given to infiltration strategies where feasible.

To the maximum extent practicable, all 27.2 acres of non-bridge additional impervious surface area will be treated per the requirements of NCDOT's NPDES permit, the post-construction stormwater program (PCSP) and the Stormwater BMP Toolbox. Stormwater control measures will target the treatment of the runoff produced by the 80th-90th percentile storm events, to the maximum extent practicable. Additionally, a rooftop runoff system may be used for buildings and/or toll plaza awnings to capture and use water on site or to infiltrate it. Alternative pavement materials, such as pervious pavements, also may be used in parking areas associated with the toll plaza.

North Carolina Administrative Code Title 15A, Chapter 4, Subchapter B titled "Erosion and Sediment Control," requires approval of a soil erosion control plan before land-disturbing activities can begin. NCDOT's contractor will prepare an erosion control plan prior to construction of the Selected Alternative and implement it during construction. Permanent erosion control measures will be incorporated into the project at the earliest practicable time and coordinated with temporary measures to ensure economical, effective, and continuous erosion control. Every reasonable precaution will be taken to prevent pollution of water bodies.

6.5 Essential Fish Habitat

NCDOT will mitigate permanent impacts to SAV habitat (including existing beds) to the maximum extent practicable, as defined by the North Carolina Marine Fisheries Commission (NCMFC), resulting from Mid-Currituck Bridge shading and pile placement with the Selected Alternative. Available options for this mitigation include:

- In-kind restoration in the project area at a suitable site at a 2:1 ratio (if feasible). This restoration activity would follow the currently adopted SAV protocols in North

Carolina and best practices from recent successful SAV restoration efforts. These efforts could be performed by others such as Elizabeth City State University or East Carolina University.

- Efforts to improve conditions for SAV propagation and survival within Currituck Sound. This option would involve: protection and establishment of riparian buffers; contribution of funds to promote agricultural BMPs; stormwater management improvement projects; acquisition of properties considered as important for the protection of water quality; and other measures that would reduce the turbidity of water in Currituck Sound.
- Support for SAV research.

Efforts to improve conditions for SAV propagation and survival within Currituck Sound and support for SAV research also are options for mitigating the shading of portions of Currituck Sound in potential SAV habitat (areas of the sound 6 feet deep or less that have a suitable substrate and meet NCMFC's definition of SAV habitat).

Regarding potential stormwater runoff impacts, the preliminary stormwater management plan proposed for the Selected Alternative is described in Section 2.1.7 of the FEIS for the then "Preferred Alternative" and noted in Section 6.4 of this ROD. As indicated above, direct dispersed discharge will be discussed as part of the final stormwater management plan as an alternative to the closed drainage system. Closed drainage systems with piping to a wet detention basin, as proposed in Section 2.1.7 of the FEIS, are no longer considered a preferred BMP for the protection of fish habitat. Source control also will be used.

To minimize construction impacts to the maximum extent practicable to SAV by in-water work with the Selected Alternative, NCDOT will follow the following protocols to protect SAV habitat (including existing beds):

- No dredging in any part of Currituck Sound.
- No in-water work in SAV habitat (including existing beds) during a moratorium period from February 15 to September 30. In-water work consists of bottom disturbing activities like temporary trestle pile placement and removal and driving of permanent piles. Working above the water, including barge operations (non-bottom disturbing), installation and removal of temporary trestle beams and decking, and installation of Mid-Currituck Bridge pile caps, beams, and decking, will occur up to 365 days a year at the discretion of NCDOT.
- Use of an open (i.e., beams only to support a crane) temporary construction trestle to minimize shading impacts to the maximum extent practicable while the trestle is in place. Marine industry standard pans will be placed under construction equipment operating on the open trestle to capture any accidental spills of oil and lubricants.

- SAV habitat that meets NCMFC's criteria (including dense SAV beds) has been documented from the eastern side of the Currituck Sound. In this area of the sound, NCDOT will install temporary piling and temporary open work trestle for approximately 4,500 linear feet and will, outside of the moratorium dates, drive piles for both the permanent bridge and the temporary trestle within SAV habitat (including existing beds). Based on the limited presence and sparse coverage of SAV habitat found only along the shoreline in the western portion of Currituck Sound, an open trestle will not be necessary on this side of the sound.
- Turbidity curtains will be used during pile installation (permanent and temporary bridges) and pile removal (temporary bridge). Turbidity curtains will capture any silt from migrating outside the curtain perimeter. These are common and proven turbidity control techniques. Pile installation will be performed both by vibratory and impact hammers, with no jetting of piles.

If surveys following construction operations reveal that additional permanent impacts to SAV beds have occurred, additional permanent impact mitigation will be provided using one or more of the options described above. Section 3.3.7 of the FEIS provides further detail.

Minimization of potential impacts to potential SAV habitat will be accomplished through no dredging anywhere in Currituck Sound, by pile installation using both vibratory and impact hammers, with no jetting of piles, and the use of turbidity curtains during pile installation when necessary.

Alternate approaches could be discussed with environmental resource and regulatory agencies during the design process. A final stormwater management plan for minimizing the potential impacts will be developed in association with the appropriate state and federal environmental resource and regulatory agencies, during final design and permitting of the Selected Alternative. NCDOT will implement the final stormwater plan for the Selected Alternative.

6.6 Wetlands

Applications for USACE dredge and fill permits under Section 404 must meet mitigation requirements found in the "Memorandum of Agreement (MOA) Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines" (February 1990). This MOA requires the applicant to utilize a sequencing process that includes avoidance of impacts, minimization of impacts, and, finally, compensation of unavoidable impacts to aquatic resource values. Executive Order 11990 requires action to be taken to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. If there is no practicable alternative to construction in wetlands and all practicable measures to minimize harm to wetlands have been provided, compensation of wetland impacts is required.

6.6.1 Avoidance and Minimization

Avoidance and minimization of considerable USACE jurisdictional resource impacts have already been accounted for in the bridge length designs included in the FEIS and the reevaluation revised preliminary design for the Selected Alternative. NCDOT will continue to seek ways to avoid and minimize jurisdictional resource impacts to the maximum extent practicable as the project progresses.

For example, a special study was conducted during the development of alternatives to design the US 158/Mid-Currituck Bridge interchange presented in the FEIS such that wetland impacts will be minimized (see Section 5.1 of the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]). A special study also was conducted that led to the placement of the bridge terminus on the Outer Banks such that impacts to wetlands and existing and potential SAV habitat could be minimized (see Section 5.3 of the *Alternatives Screening Report* [Parsons Brinckerhoff, 2009]). Avoidance and minimization efforts also occurred between the DEIS and the FEIS and during the development of the reevaluation's revised design of the now Selected Alternative. Substantial wetland impacts in northern Maple Swamp will be avoided by bridging over the swamp.

Landlocked parcels resulting from purchasing bridge right-of-way in Maple Swamp will be purchased (assuming successful negotiations with willing sellers) and set aside as a conservation area and allowed to retain or return to its natural state.

In Maple Swamp, wooden crane mats could be used during construction in the cleared right-of-way to distribute the crane loads and provide a suitable platform for erecting the bridge. The bridge in Maple Swamp also could be built from a temporary construction trestle. Over Currituck Sound, proposed construction techniques to minimize impacts to the sound are described in Section 6.5 of this ROD. Final construction methods for the Selected Alternative will be chosen as part of the permitting process (see Project Commitment #3 in Appendix G of the *Study Report*).

6.6.2 Compensatory Mitigation

Compensatory mitigation options to offset wetland impacts could include the following: preservation of unique wetland communities; enhancement of existing wetlands; creation of new wetlands; and restoration of wetland areas. Considerations for candidate sites for wetlands mitigation include: proximity to affected wetlands; proximity to the drainage basin of impacted wetlands; topographic and hydrological characteristics; and chance of successful mitigation for lost wetland functions.

In-kind mitigation refers to replacement of a lost wetland with the same wetland type. Out-of-kind mitigation does not require any such similarities between mitigated wetland and affected wetland. Mitigation ratios are negotiable, and US Environmental Protection Agency (USEPA)/USACE guidelines suggest the following ratios (ratio of new wetland acres to the acres of wetland filled) by mitigation type: restoration at 2:1;

enhancement at 2:1; preservation at 10:1; and creation at 3:1. Mitigation plans could include restoration of the wetlands on-site and/or the creation of wetland habitat adjacent to or within the construction limits through the use of swales, borrow pit areas, and drainage canals. If on-site mitigation is not acceptable or practical, off-site mitigation could be considered. To offset unavoidable impacts to aquatic resources, the amount of required mitigation must be, to the extent practicable, sufficient to replace lost aquatic functions.

The FEIS indicated that NCDOT proposed the Ballance Farm Wetlands Mitigation Site for mitigating the wetland fill impact of the Selected Alternative. The FEIS indicated that the mitigation credit available from the Ballance Farm Wetlands Mitigation Site could potentially provide for all, or at least a portion of, the mitigation required for impacts to palustrine wetlands for the Selected Alternative.

As of 2018, there are no non-riparian credits available at the Ballance Farm site and the wetland impacts of the Preferred Alternative are to non-riparian wetlands. There are, however, other NCDEQ-DMS sites in the area that have non-riparian credits available.

6.7 Invasive Species

The project will follow NCDOT's BMPs for the management of invasive plant species during project construction. In addition, an invasive plant species control plan will be developed during construction planning and will be included in the permit application (see Project Commitment #11 in Appendix G of the *Study Report*).

6.8 Threatened and Endangered Species

Construction contracts will require compliance with USFWS's *Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters* (USFWS, 2003) and NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS, 2006) with exceptions and clarifications provided by USFWS, and NMFS, respectively. In a letter dated December 2, 2011 addressed to the NMFS and USFWS, NCDOT requested relief on conditions related to maintaining a "no wake/idle" speed during construction. In a December 8, 2011 letter USFWS agreed to delete from their requirements for this project the two guidelines that specify the use of no wake/idle speeds. NMFS in an e-mail dated December 16, 2011 agreed that the condition relating to no wake/idle speeds would not apply to this project.

All construction will follow USFWS guidelines for the protection of bald eagles as described in the *National Bald Eagle Management Guidelines* (USFWS, 2007).

As noted in Section 3.4, consultation under Section 7 of the Endangered Species Act, Title 16 USC, Section 1536(a)(2) has been completed unless a take of a threatened or endangered species occurs or new information reveals effects of the Selected Alternative

not previously considered, or the Selected Alternative is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the Selected Alternative.

6.9 Birds

Although this is not a regulatory requirement, during final design NCDOT will consider features to discourage roosting/perching birds on the bridge (see Project Commitment #4 in Appendix G of the *Study Report*).

6.10 Noise

Noise impacts were identified along US 158 at the bridge interchange, Barco, Coinjock, and Southern Shores, and along NC 12 in where NC 12 is widened. All predicted noise impacts are the result of future Design Year 2040 build traffic noise levels approaching or exceeding the applicable Noise Abatement Criteria (NAC). No noise impacts are the result of a predicted substantial increase above existing noise levels were identified.

Consideration for noise abatement measures was given to all impacted receptors. Each Noise Study Area (NSA) along the project corridor where receptors were impacted by Design Year 2040 traffic noise was evaluated to determine if a noise barrier would be preliminarily found to be feasible and reasonable. One (1) NSA was identified along the project corridor that warranted evaluation of noise abatement measures. The three noise barriers evaluated in this NSA do not meet feasibility and reasonableness criteria and are considered to be “unlikely” for the Mid-Currituck Bridge project.

Since none of the traffic noise abatement measures considered meet the feasible and reasonable criteria detailed in the NCDOT Policy, no traffic noise abatement measures are recommended for incorporation into the project plan. Additional traffic noise analysis will not be necessary during project final design unless modifications to the proposed roadway design occur, additional alignments are considered, or changes to 2040 traffic volumes are predicted.

Construction noise impacts could occur because of the proximity of numerous noise-sensitive receptors to project construction activities. All reasonable efforts would be made to minimize exposure of noise-sensitive land uses to construction noise. Such efforts could include, but would not be explicitly limited to: appropriate scheduling of construction activities, noise attenuating measures on construction equipment, and a consistent and open public involvement program.

6.11 Construction

Construction associated with the Selected Alternative will be governed by:

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

Appropriate BMPs applicable to construction and maintenance for protection of surface waters, wetlands, and upland habitat will be used to control erosion, sedimentation, and stormwater runoff to the maximum extent practicable. Mechanisms will be put in place to maintain traffic flow; minimize air quality, noise, and construction lighting impacts; manage waste disposal; protect surrounding natural resources; control erosion; and handle any accidental waste spills to the maximum extent practicable. Any affected geodetic survey markers in the project area will be properly relocated.

Any major construction project may inconvenience and disturb adjacent residents and businesses. In the case where an existing road is widened or otherwise improved, inconvenience to motorists also can occur. Without proper planning and implementation of controls, traffic disruption, loss of access, dust, noise, burning debris, and utility relocation could adversely affect the comfort and daily life of residents and visitors. Disturbances to the bottom of Currituck Sound, disposal of wastes, lack of erosion control, and damage to trees outside the right-of-way would degrade the quality of the natural environment. In developing and implementing the Selected Alternative, NCDOT will endeavor to minimize inconveniences and disturbances.

6.12 Indirect and Cumulative Effects

NCDOT generally has no mitigation jurisdiction over indirect and cumulative effects. Within NCDOT's jurisdiction are:

- Selecting an alternative for implementation that meets the project purpose and need while considering: the degree of travel benefit offered; state transportation network efficiency; project affordability; and the manner in which each alternative would avoid, minimize, and have the potential for mitigating environmental impact. This was done.
- Mitigating direct construction, maintenance, and operation impacts of the Selected Alternative where feasible, practicable, and reasonable. Examples of how this was done include:
 - Providing no direct access from the bridge to Aydlett, to ensure that induced development would focus on US 158.

- Bridging Maple Swamp to minimize potential hydrologic impacts and impacts to wildlife movement.
- Locating the US 158/Mid-Currituck Bridge interchange in an area considered suitable for development to ensure induced development would occur on suitable lands.
- Developing a project design that is sensitive to its context.
- Controlling access of induced and other development to public thoroughfares so that access is provided in a manner that would not reduce the efficiency of public thoroughfares.

The role of NCDOT when avoidance/minimization measures are not within its jurisdiction includes:

- Guiding future thoroughfare planning in Currituck and Dare counties.
- Identifying indirect and cumulative impact concerns under the jurisdiction of others, which are listed in the FEIS.

7.0 Monitoring and Enforcement Program

Coordination will be maintained with all environmental regulatory and resource agencies during final design, permitting, right-of-way acquisition, and construction to ensure that avoidance, minimization, and compensatory mitigation measures are implemented. NCDOT will enforce pertinent specifications and contract provisions in accordance with the intent of the FEIS and the welfare of the public. Many of the avoidance, minimization, and compensatory mitigation measures included in this ROD are likely to be conditions of federal or state permits that are enforceable by regulatory agencies.

8.0 Project Commitments

The Project Commitments are listed in Appendix G (green sheets) of the *Study Report*.

9.0 FEIS Revisions in Response to FEIS Comments

Comments on the FEIS submitted by USEPA, USACE, North Carolina Department of Environmental and Natural Resources, Division of Coastal Management (NCDENR-

DCM)¹, as well as by the citizen organizations No Mid-Currituck Bridge–Preserve the Wonder (www.NoMxCB.com) and Southern Environmental Law Center, resulted in several corrections and revisions being made to information presented in the FEIS. No new significant issues or impacts were identified that affected the validity of the FEIS. These revisions and corrections are presented in Appendix F of the *Study Report*. The corrections and revisions presented reflect what was known as of 2012 prior to the 2015 to 2018 reevaluation. Relevant new information from this reevaluation associated with these 2012 FEIS changes is noted in the text of the *Study Report's* Appendix F or referenced in its footnotes.

10.0 Comments on the FEIS

The FEIS was approved on January 12, 2012 and circulated to environmental resource and regulatory agencies, local governments, other stakeholders, and the public. Appendix C of the FEIS includes a list of agencies and organizations that received copies of the document. Comments on the FEIS were received from the following federal and state environmental resource and regulatory agencies:

- Federal Agencies
 - US Army Corps of Engineers
 - US Department of Agriculture, Natural Resources Conservation Service
 - US Environmental Protection Agency
- State Agencies
 - North Carolina Department of Cultural Resources
 - NCDEQ – Division of Coastal Management
 - NCDEQ – Division of Marine Fisheries
 - NCDEQ – Division of Water Quality
 - NCDEQ – Washington Field Office
 - NCDEQ – Wildlife Resources Commission

Letters of support for the Preferred Alternative identified in the FEIS were received from the following local governments:

- Town of Duck

¹ NCDENR-DCM's name was changed in 2015 to the North Carolina Department of Environmental Quality (NCDEQ). NCDENR continues to be used in the FEIS revisions presented in this appendix to be consistent with the 2012 FEIS usage.

- Town of Southern Shores

Comments also were received from the following citizen and non-governmental organizations:

- Build the Bridge–Preserve Our Roads
- No Mid-Currituck Bridge–Preserve the Wonder (www.NoMCB.com)
- Southern Environmental Law Center

Public correspondence was received from nine persons during the FEIS waiting period that specifically commented on or asked questions about the findings of the FEIS. In addition, 287 e-mails expressed support for the Preferred Alternative and included no other comments.

Although not comments on the FEIS, it should be noted that NCDOT has received several resolutions in support of the project. Those resolutions can be found in Appendix A of the *Study Report* and were received from the following local governments:

- County of Currituck
- County of Dare
- Town of Duck
- Town of Southern Shores

Copies of letters of support for the Preferred Alternative identified in the FEIS are included in Appendix C of the *Study Report*. Responses to substantive comments on the FEIS are included in Appendix B of the *Study Report*.

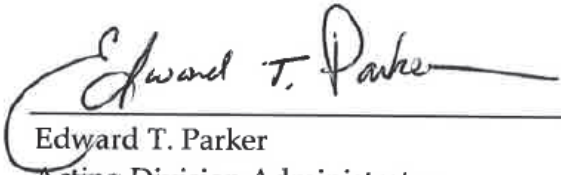
11.0 Conclusion

The environmental record for the Mid-Currituck Bridge Study (North Carolina State Transportation Improvement Program Project R-2576, Federal Aid Project BRSTP-000S(494)) includes the previously referenced DEIS (March 10, 2010) and the FEIS (January 12, 2012), as well as the *Reevaluation* (March 6, 2019) and its associated *Study Report* (March 6, 2019). The DEIS and FEIS, incorporated here by reference, as well as the *Reevaluation* and *Study Report* attached to this ROD, constitute the statements required by NEPA and Title 23 USC.

A Notice of Availability for the FEIS was published in the Federal Register (Vol. 77, No. 28, p. 7149) on February 10, 2012. The FEIS is in conformance with applicable provisions of Title 23 CFR, Part 771 and satisfactorily covers the anticipated environmental impacts

including human, physical, cultural, and natural effects. All correspondence received between the FEIS and the date this ROD was signed have been reviewed. See Appendix C of the *Study Report* for a copy of the comments on the FEIS and Appendix E of the *Study Report* for a copy of comments received from non-governmental organizations during the preparation of the reevaluation. Based on that review, the Federal Highway Administration finds that there were no new significant issues or impacts identified. Therefore, the FEIS remains valid.

Based on the analysis and evaluation contained in this project's FEIS, *Reevaluation*, and *Study Report*, and after careful consideration of all impacts and input from the public involvement process, it is my decision to adopt the Preferred Alternative, MCB4/C1 with Option A as defined in the *Reevaluation* and associated *Study Report*, as the proposed action for this project.



Edward T. Parker
Acting Division Administrator
Federal Highway Administration

March 7, 2019

Date